# Filter Summary Report: CMMF,BiQuad,Z1,Z2,Z3,Z4,Z5,Z6

Generated by MacAnalog-Symbolix January 20, 2025

Contents

1 Examined H(z) for CMMF BiQuad Z1 Z2 Z3 Z4 Z5 Z6:  $\frac{Z_1Z_2Z_4Z_6}{Z_1Z_4Z_5-Z_2Z_3Z_4+Z_2Z_3Z_5+Z_2Z_4Z_5+Z_3Z_4Z_5}$ 

$$H(z) = \frac{Z_1 Z_2 Z_4 Z_6}{Z_1 Z_4 Z_5 - Z_2 Z_3 Z_4 + Z_2 Z_3 Z_5 + Z_2 Z_4 Z_5 + Z_3 Z_4 Z_5}$$

- 2 AP
- BP
- **3.1 BP-1**  $Z(s) = \left(R_1, R_2, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{-C_5 C_6 R_2 R_3 R_4 R_6 s^2 + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s \left(-C_5 R_2 R_3 R_4 + C_6 R_1 R_4 R_6 + C_6 R_2 R_3 R_6 + C_6 R_2 R_4 R_6 + C_6 R_3 R_4 R_6\right)}$$

#### Parameters:

Q:  $\frac{i\sqrt{C_5}\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_5R_2R_3R_4-C_6R_1R_4R_6-C_6R_2R_3R_6-C_6R_2R_4R_6-C_6R_3R_4R_6}}$  wo:  $\frac{\sqrt{-R_1R_4-R_2R_3-R_2R_4-R_3R_4}}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}}}$  bandwidth:  $-\frac{i\sqrt{-R_1R_4-R_2R_3-R_2R_4-R_3R_4}(C_5R_2R_3R_4-C_6R_1R_4R_6-C_6R_2R_3R_6-C_6R_2R_4R_6-C_6R_3R_4R_6)}{C_5C_6R_2R_3R_4C_6\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}$ 

K-HP: 0

K-BP:  $-\frac{C_5R_1R_2R_4R_6}{C_5R_2R_3R_4 - C_6R_1R_4R_6 - C_6R_2R_3R_6 - C_6R_2R_4R_6 - C_6R_3R_4R_6}$ 

Qz: None Wz: None

**3.2 BP-2**  $Z(s) = \left(R_1, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_5R_1R_2R_4R_6s$ 

 $\overline{R_{1}R_{4} + R_{2}R_{3} + R_{2}R_{4} + R_{3}R_{4} + s^{2}\left(C_{5}C_{6}R_{1}R_{4}R_{5}R_{6} - C_{5}C_{6}R_{2}R_{3}R_{4}R_{6} + C_{5}C_{6}R_{2}R_{3}R_{5}R_{6} + C_{5}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{5}R_{2}R_{3}R_{4} + C_{5}R_{2}R_{3}R_{5} + C_{5}R_{2}R_{3}R_{4} + C_{5}R_{2}R_{3}R_{4} + C_{5}R_{2}R_{3}R_{5} + C_{5}R_{2}R$ 

## Parameters:

 $Q: \frac{\sqrt{C_5}\sqrt{C_6}R_1R_4R_5\sqrt{R_6}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_4R_4 + R_3R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_1R_4R_5 + R_1R_4R_4 + R_1R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_1R_4R_5 + R_1R_4 + R_1R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_1R_4R_5 + R_1R_4R_5 + R_1R_4R_5}}}}}}}}$ 

 $\text{wo: } \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_5C_6R_1R_4R_5R_6 - C_5C_6R_2R_3R_4R_6 + C_5C_6R_2R_3R_5R_6 + C_5C_6R_2R_4R_5R_6 + C_5C_6R_3R_4R_5R_6}}$ 

 $\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} (C_5R_1R_4R_5 - C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2R_4R_5 + C_5R_3R_4R_5 + C_6R_1R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6) \sqrt{\frac{C_5C_6R_1R_4R_5R_6 - C_5C_6R_2R_4R_5 + C_5R_3R_4R_5 + C_6R_2R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6)} \sqrt{\frac{C_5C_6R_1R_4R_5R_6 - C_5C_6R_2R_4R_5 + C_5R_3R_4R_5 + C_6R_3R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6 + C_6R_5R_6 + C_6R_5R_6$ 

K-LP: 0 K-HP: 0

 $\text{K-BP: } \frac{C_5 R_1 R_2 R_4 R_6}{C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_6 R_1 R_4 R_6 + C_6 R_2 R_3 R_6 + C_6 R_2 R_4 R_6 + C_6 R_3 R_4 R_6}$ 

Wz: None

**3.3 BP-3**  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s^2 \left( C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6 \right) + s \left( C_4 R_2 R_3 - C_5 R_2 R_3 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6 \right)}$$

#### Parameters:

 $\text{Q: } \frac{C_4\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_4R_2R_3-C_5R_2R_3+C_6R_1R_6+C_6R_2R_6+C_6R_3R_6}$ 

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6}}$ 

 $\sqrt{R_1 + R_2 + R_3} \left( C_4 R_2 R_3 - C_5 R_2 R_3 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6 \right) \sqrt{\frac{1}{C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6}}$  $C_{4}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{4}-C_{5}}}-C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{4}-C_{5}}}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_6}{C_4R_2R_3-C_5R_2R_3+C_6R_1R_6+C_6R_2R_6+C_6R_3R_6}$  Qz: None

Wz: None

**3.4** BP-4 
$$Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_3C_4C_5R_2R_3R_5s^2 + R_1 + R_2 + R_3 + s\left(C_4R_2R_3 + C_5R_1R_5 - C_5R_2R_3 + C_5R_2R_5 + C_5R_3R_5\right)}{C_4C_5R_2R_3R_5s^2 + R_1 + R_2 + R_3 + s\left(C_4R_2R_3 + C_5R_1R_5 - C_5R_2R_3 + C_5R_2R_5 + C_5R_3R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{R_1+R_2+R_3}}{C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$ wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}$ bandwidth:  $\frac{C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}{C_4C_5R_2R_3R_5}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_6}{C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$ 

Qz: None Wz: None

**3.5 BP-5**  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_4C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6\right) + s\left(C_4R_2R_3R_4 - C_5R_2R_3R_4 + C_6R_1R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6\right)}$ 

#### Parameters:

 $\frac{C_4\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_4R_2R_3R_4-C_5R_2R_3R_4+C_6R_1R_4R_6+C_6R_2R_3R_6+C_6R_2R_4R_6+C_6R_3R_4R_6}$ 

wo:  $\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_4C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6}}$ 

 $\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_4R_2R_3R_4 - C_5R_2R_3R_4 + C_6R_1R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6)\sqrt{\frac{1}{C_4C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6}}$  $C_4\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_4-C_5}} - C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_4-C_5}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_4R_2R_3R_4 - C_5R_2R_3R_4 + C_6R_1R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6}$ 

Qz: None Wz: None

**3.6 BP-6**  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $C_5R_1R_2R_4R_6s$  $H(s) = \frac{1}{C_4 C_5 R_2 R_3 R_4 R_5 s^2 + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s \left( C_4 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5 \right)}{C_4 C_5 R_2 R_3 R_4 R_5 s^2 + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s \left( C_4 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_2 R_4 R_5 \right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{C_4C_5R_2R_3R_4R_5}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$ 

Qz: None Wz: None

**3.7 BP-7** 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_{3}R_{1}R_{2}R_{4}R_{6}s}{-R_{2}R_{4} + R_{2}R_{5} + R_{4}R_{5} + s^{2}\left(C_{3}C_{6}R_{1}R_{4}R_{5}R_{6} + C_{3}C_{6}R_{2}R_{4}R_{5}R_{6}\right) + s\left(C_{3}R_{1}R_{4}R_{5} + C_{3}R_{2}R_{4}R_{5} - C_{6}R_{2}R_{4}R_{6} + C_{6}R_{2}R_{5}R_{6} + C_{6}R_{4}R_{5}R_{6}\right)}$$

Q:  $\frac{\sqrt{C_3}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_2}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_3R_1R_4R_5+C_3R_2R_4R_5-C_6R_2R_4R_6+C_6R_2R_5R_6+C_6R_4R_5R_6}$ wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_3C_6R_1R_4R_5R_6+C_3C_6R_2R_4R_5R_6}}$ bandwidth:  $\frac{C_3R_1R_4R_5+C_3R_2R_4R_5-C_6R_2R_4R_6+C_6R_2R_5R_6+C_6R_4R_5R_6}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_2}\sqrt{C_3C_6R_1R_4R_5R_6+C_3C_6R_2R_4R_5R_6}}$ W. I.D. 0

Wz: None

**3.8 BP-8**  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5\right) + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_4 - C_5C_6R_2R_4 + C_5C_6R_2R_5 + C_5C_6R_4R_5\right)}$$

#### Parameters:

wo:  $\frac{1}{\sqrt{C_3C_5R_1}R_4R_5+C_3C_5R_2R_4R_5}$ bandwidth:  $\frac{C_3R_1R_4+C_3R_2R_4-C_5R_2R_4+C_5R_2R_5+C_5R_4R_5}{\sqrt{C_3\sqrt{C_5}\sqrt{R_4\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_5R_1R_4R_5}+C_3C_5R_2R_4R_5}}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4+C_3C_6R_2R_4-C_5C_6R_2R_4+C_5C_6R_2R_5+C_5C_6R_4R_5}$  Qz: None

Wz: None

**3.9 BP-9**  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_6 s}{-R_2 + R_5 + s^2 \left(C_3 C_6 R_1 R_5 R_6 + C_3 C_6 R_2 R_5 R_6 + C_4 C_6 R_2 R_5 R_6\right) + s \left(C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5 - C_6 R_2 R_6 + C_6 R_5 R_6\right)}$ 

#### Parameters:

K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5 - C_6R_2R_6 + C_6R_5R_6}$ 

Qz: None Wz: None

**3.10 BP-10**  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2s}{C_6 + s^2\left(C_3C_5C_6R_1R_5 + C_3C_5C_6R_2R_5 + C_4C_5C_6R_2R_5\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2 + C_5C_6R_5\right)}$$

#### Parameters:

wo:  $\frac{1}{\sqrt{C_3C_5R_1R_5 + C_4R_2 - C_5R_2 + C_5R_5}}$ bandwidth:  $\frac{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_5R_5}{\sqrt{C_5}\sqrt{R_5}\sqrt{C_3R_1 + C_3R_2 + C_4R_2}\sqrt{C_3C_5R_1R_5 + C_3C_5R_2 + C_4C_5R_2}}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2+C_5C_6R_5}$  Qz: None

Wz: None

**3.11** BP-11 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s^2 \left(C_3 C_6 R_1 R_4 R_5 R_6 + C_3 C_6 R_2 R_4 R_5 R_6 + C_4 C_6 R_2 R_4 R_5 R_6\right) + s \left(C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5 + C_4 R_2 R_4 R_5 - C_6 R_2 R_4 R_6 + C_6 R_2 R_5 R_6\right) + s \left(C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5 + C_4 R_2 R_4 R_5 + C_6 R_2 R_4 R_6 + C_6 R_2 R_5 R_6\right) + s \left(C_3 R_1 R_4 R_5 + C_4 R_2 R_4 R_5 + C_6 R_4 R_5 + C_6 R_4 R_5 + C_6 R_4 R_5 + C_6 R_5 R_5 + C$$

#### Parameters:

K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5 + C_3R_2R_4R_5 + C_4R_2R_4R_5 - C_6R_2R_4R_6 + C_6R_2R_5R_6 + C_6R_4R_5R_6}$ 

Qz: None Wz: None

**3.12 BP-12** 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5\right) + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4 + C_5C_6R_2R_5 + C_5C_6R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_2+R_4}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4+C_5R_2R_5+C_5R_4R_5}$  wo:  $\frac{\sqrt{R_2+R_4}}{\sqrt{C_3C_5R_1R_4R_5+C_3C_5R_2R_4R_5+C_4C_5R_2R_4R_5}}$  bandwidth:  $\frac{C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4+C_5R_2R_5+C_5R_4R_5}{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_3C_5R_1R_4R_5+C_3C_5R_2R_4R_5+C_4C_5R_2R_4R_5}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4 + C_5C_6R_2R_5 + C_5C_6R_4R_5}$ 

Qz: None Wz: None

**3.13 BP-13**  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_3R_1R_2R_4R_6s$  $H(s) = \frac{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_3C_6R_1R_4R_5R_6 - C_3C_6R_2R_3R_4R_6 + C_3C_6R_2R_3R_5R_6 + C_3C_6R_2R_4R_5R_6 + C_3C_6R_2R_4R_5R_6 + C_3C_6R_2R_4R_5 + s^2\left(C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_2R_5 + C_3R_2R_5 + C_3R_2R_5 + C_3R_2R_5 + C_3R_2R_5 +$ 

#### Parameters:

 $Q: \frac{\sqrt{C_3}\sqrt{C_6}R_1R_4R_5\sqrt{R_6}\sqrt{-\frac{R_2R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_3}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_2R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_2R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_2R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_3}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_2R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_2R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_2R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{R_2R_5}{R_1R_4R_5-R_2R_3R_4} + \frac{R_2R_5}{R_1R_4R_5-R_2R_3R_4} + \frac{R_2R_5}{R_1$ 

Wo:  $\sqrt{\frac{-R_2R_4+R_2R_5+R_4}{C_3C_6R_1R_4R_5R_6-C_3C_6R_2R_3R_4R_6+C_3C_6R_2R_3R_5R_6+C_3C_6R_2R_4R_5R_6+C_3C_6R_3R_4R_5R_6}$ 

K-LP: 0

K-HP: 0

Wz: None

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5-C_6R_2R_4R_6+C_6R_2R_5R_6+C_6R_4R_5R_6}$  Qz: None

**3.14** BP-14 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{-C_3C_5C_6R_2R_3R_4s^2 + C_6R_2 + C_6R_4 + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_3R_4 - C_5C_6R_2R_4\right)}$$

Q:  $-\frac{i\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}}{C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4}$  wo:  $\frac{\sqrt{-R_2-R_4}}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{i\sqrt{-R_2-R_4}(C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4)}{C_2C_5R_2R_2R_2\sqrt{R_2+R_2}}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_3R_4 - C_5C_6R_2R_4}$ 

Wz: None

**3.15** BP-15  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_3C_5C_6R_1R_4R_5 - C_3C_5C_6R_2R_3R_4 + C_3C_5C_6R_2R_4R_5 + C_3C_5C_6R_2R_4R_5\right) + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_3C_6R_2R_4 + C_5C_6R_2R_4 + C_5C_6R_4R_4 +$$

Parameters:

 $Q: \frac{\sqrt{C_3}\sqrt{C_5}R_1R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_3R_4+C_3R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{R_2+R_4}R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}} + \sqrt{C_3}\sqrt{R_2+R_4}\sqrt{R_2+R_4}R_5} + \sqrt$ 

wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_3 C_5 R_1 R_4 R_5 - C_3 C_5 R_2 R_3 R_4 + C_3 C_5 R_2 R_3 R_5 + C_3 C_5 R_2 R_4 R_5 + C_3 C_5 R_3 R_4 R_5}$ 

 $\frac{\sqrt{C_3}\sqrt{C_5}R_1R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}R_3R_4+R_5}+\sqrt{C_3}\sqrt{C_5}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4+C_3C_6R_2R_3+C_3C_6R_2R_4+C_3C_6R_3R_4-C_5C_6R_2R_4+C_5C_6R_2R_5+C_5C_6R_4R_5}$  Qz: None

Wz: None

**3.16 BP-16**  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_1 R_2 R_6 s}{C_3 C_4 R_2 R_3 R_5 s^2 - R_2 + R_5 + s \left( C_3 R_1 R_5 - C_3 R_2 R_3 + C_3 R_2 R_5 + C_3 R_3 R_5 + C_4 R_2 R_5 \right)}$$

Parameters:

wo:  $\frac{\sqrt{-R_2 + R_5}}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}$  bandwidth:  $\frac{C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5}{C_3C_4R_2R_3R_5}$ 

K-HP: 0 K-BP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5}$ 

Qz: None Wz: None

**3.17 BP-17**  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2s}{C_6 + s^2\left(C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_2 - C_5C_6R_2\right)}$$

$$\text{Q: } \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2}$$

```
wo: \sqrt{\frac{1}{C_3C_4R_2R_3-C_3C_5R_2R_3}} bandwidth: \frac{(C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2)\sqrt{\frac{1}{C_3C_4R_2R_3-C_3C_5R_2R_3}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}} K-LP: 0 K-HP: 0 K-BP: \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_3C_6R_3+C_4C_6R_2-C_5C_6R_2} Qz: None
```

**3.18 BP-18**  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{C_3 C_4 R_2 R_3 R_4 R_5 s^2 - R_2 R_4 + R_2 R_5 + R_4 R_5 + s \left( C_3 R_1 R_4 R_5 - C_3 R_2 R_3 R_4 + C_3 R_2 R_3 R_5 + C_3 R_2 R_4 R_5 + C_3 R_3 R_4 R_5 + C_4 R_2 R_4 R_5 \right)}$$

#### Parameters:

Wz: None

Q:  $\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5}$  wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5}{C_3C_4R_2R_3R_4R_5}$  K-LP: 0 K-HP: 0 K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_4R_6}$  Qz: None Wz: None

**3.19** BP-19  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_3C_4C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4\right) + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_3R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

#### Parameters:

$$Q \colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4}\\ \text{wo: } \sqrt{R_2+R_4}\sqrt{\frac{1}{C_3C_4R_2R_3R_4-C_3C_5R_2R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{R_2+R_4}(C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4)\sqrt{\frac{1}{C_3C_4R_2R_3R_4-C_3C_5R_2R_3R_4}}}{\sqrt{C_3C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_3C_5R_1R_2R_4}{C_3C_6R_2R_4+C_3C_6R_2R_4+C_3C_6R_3R_4+C_4C_6R_2R_4-C_5C_6R_2R_4}}{Q_{\text{Z: None}}}\\ \text{Wz: None}$$

**3.20 BP-20**  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^2 \left( C_2 C_6 R_1 R_4 R_6 + C_2 C_6 R_3 R_4 R_6 - C_5 C_6 R_3 R_4 R_6 \right) + s \left( C_2 R_1 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4 + C_6 R_3 R_6 + C_6 R_4 R_6 \right)}$$

Wz: None

**3.21** BP-21 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^2 \left( C_2 C_5 R_1 R_4 R_5 + C_2 C_5 R_3 R_4 R_5 \right) + s \left( C_2 R_1 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4 + C_5 R_3 R_5 + C_5 R_4 R_5 \right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{R_3+R_4}}{C_2R_1R_4+C_2R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}$ wo:  $\frac{\sqrt{R_3+R_4}}{\sqrt{C_2C_5R_1R_4R_5+C_2C_5R_3R_4R_5}}$ bandwidth:  $\frac{C_2R_1R_4+C_2R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_5R_1R_4R_5+C_2C_5R_3R_4R_5}}$ V. I.D. 0 K-LP: 0 K-HP: 0 K-BP:  $\frac{C_5R_1R_4R_6}{C_2R_1R_4+C_2R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}$  Qz: None

Wz: None

**3.22** BP-22 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_1 R_6 s}{s^2 \left(C_2 C_6 R_1 R_6 + C_2 C_6 R_3 R_6 + C_4 C_6 R_3 R_6 - C_5 C_6 R_3 R_6\right) + s \left(C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3 + C_6 R_6\right) + 1}$$

#### Parameters:

$$Q\colon \frac{C_2\sqrt{C_6}R_1\sqrt{R_6}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_6}R_3\sqrt{R_6}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_6}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - C_5\sqrt{C_6}R_3\sqrt{R_6}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ \text{wo: } \sqrt{\frac{1}{C_2C_6R_1R_6+C_2C_6R_3R_6+C_4C_6R_3R_6-C_5C_6R_3R_6}} \\ \text{bandwidth: } \frac{(C_2R_1+C_2R_3+C_4R_3-C_5R_3+C_6R_6)\sqrt{\frac{1}{C_2C_6R_1R_6+C_2C_6R_3R_6}} - C_5\sqrt{C_6R_3R_6} - C_5C_6R_3R_6} \\ \text{K-LP: 0} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3+C_6R_6} \\ \text{Qz: None} \\ \text{Some} \\ \text{Cander of the expension of the expension$$

**3.23** BP-23 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_6 s}{s^2 \left(C_2 C_5 R_1 R_5 + C_2 C_5 R_3 R_5 + C_4 C_5 R_3 R_5\right) + s \left(C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3 + C_5 R_5\right) + 1}$$

## Parameters:

Wz: None

 $\begin{array}{l} \text{Wo: } \frac{1}{\sqrt{C_2C_5R_1R_5+C_2C_5R_3R_5+C_4C_5R_3R_5}}\\ \text{bandwidth: } \frac{1}{\sqrt{C_2C_5R_1R_5+C_2C_5R_3R_5+C_4C_5R_3R_5}}\\ \text{bandwidth: } \frac{C_2R_1+C_2R_3+C_4R_3-C_5R_3+C_5R_5}{\sqrt{C_5}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_5R_1R_5+C_2C_5R_3R_5+C_4C_5R_3R_5}} \end{array}$ K-HP: 0 K-BP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3+C_5R_5}$  Qz: None Wz: None

**3.24** BP-24 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^2 \left( C_2 C_6 R_1 R_4 R_6 + C_2 C_6 R_3 R_4 R_6 + C_4 C_6 R_3 R_4 R_6 - C_5 C_6 R_3 R_4 R_6 \right) + s \left( C_2 R_1 R_4 + C_2 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4 + C_6 R_3 R_6 + C_6 R_4 R_6 \right)}$$

$$Q: \frac{\frac{C_2\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_6}\sqrt{R_3} + R_4\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R_6}\sqrt{R$$

wo:  $\sqrt{R_3 + R_4} \sqrt{\frac{1}{C_2 C_6 R_1 R_4 R_6 + C_2 C_6 R_3 R_4 R_6 + C_4 C_6 R_3 R_4 R_6 - C_5 C_6 R_3 R_4 R_6}$ 

 $\text{bandwidth: } \frac{\sqrt{R_3 + R_4}(C_2R_1R_4 + C_2R_3R_4 + C_4R_3R_4 - C_5R_3R_4 + C_6R_3R_6 + C_6R_4R_6)}\sqrt{\frac{1}{C_2C_6R_1R_4R_6 + C_2C_6R_3R_4R_6 + C_4C_6R_3R_4R_6 - C_5C_6R_3R_4R_6}}{C_2\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4} + C_4R_3\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}} + C_4R_3\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}\sqrt{R_6}\sqrt{R_4}\sqrt{R_6}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_5R_1R_4R_6}{C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4+C_6R_3R_6+C_6R_4R_6}$  Qz: None

Wz: None

# **3.25** BP-25 $Z(s) = \left(R_1, \frac{1}{C_{2s}}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^2 \left(C_2 C_5 R_1 R_4 R_5 + C_2 C_5 R_3 R_4 R_5 + C_4 C_5 R_3 R_4 R_5\right) + s \left(C_2 R_1 R_4 + C_2 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4 + C_5 R_3 R_5 + C_5 R_4 R_5\right)}$$

#### Parameters:

K-HP: 0

K-BP:  $\frac{C_5R_1R_4R_6}{C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}$  Qz: None

Wz: None

**3.26 BP-26** 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_4 R_6 s}{C_2 C_3 R_1 R_4 R_5 s^2 - R_4 + R_5 + s \left( C_2 R_4 R_5 + C_3 R_4 R_5 \right)}$$

## Parameters:

wo:  $\frac{\sqrt{C_2\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}}{\sqrt{C_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}}$ bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ 

K-LP: 0 K-HP: 0 K-BP:  $\frac{C_3R_1R_6}{C_2R_5+C_3R_5}$ Qz: None Wz: None

**3.27** BP-27 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_4s}{C_2C_3C_6R_1R_4s^2 + C_6 + s\left(C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4\right)}$$

Q: 
$$\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_4} + C_3\sqrt{R_4} - C_5\sqrt{R_4}}$$
 wo: 
$$\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}}$$

bandwidth:  $\frac{C_2\sqrt{R_4}+C_3\sqrt{R_4}-C_5\sqrt{R_4}}{C_2C_3R_1\sqrt{R_4}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6-C_5C_6}$ Qz: None

Wz: None

**3.28 BP-28** 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

 $C_3R_1R_6s$  $H(s) = \frac{C_3 C_1 C_2 C_3}{C_2 C_3 R_1 R_5 s^2 + s \left(C_2 R_5 + C_3 R_5 + C_4 R_5\right) - 1}$ 

## Parameters:

Q:  $\frac{i\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}}$ 

Wo:  $\frac{i}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_5}}$ bandwidth:  $\frac{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}}{C_2C_3R_1\sqrt{R_5}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3R_1R_6}{C_2R_5+C_3R_5+C_4R_5}$ Qz: None

Wz: None

**3.29** BP-29 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_3C_5R_1R_6s}{C_2C_3C_6R_1R_6s^2 + C_2 + C_3 + C_4 - C_5 + s\left(C_2C_3R_1 + C_2C_6R_6 + C_3C_6R_6 + C_4C_6R_6 - C_5C_6R_6\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}\sqrt{C_2+C_3+C_4-C_5}}{C_2C_3R_1+C_2C_6R_6+C_3C_6R_6+C_4C_6R_6-C_5C_6R_6}$ wo:  $\frac{\sqrt{C_2+C_3+C_4-C_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ bandwidth:  $\frac{C_2C_3R_1+C_2C_6R_6+C_3C_6R_6+C_4C_6R_6-C_5C_6R_6}{C_2C_3C_6R_1R_6}$ 

K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_6}{C_2C_3R_1+C_2C_6R_6+C_3C_6R_6+C_4C_6R_6-C_5C_6R_6}$  Qz: None

Wz: None

**3.30 BP-30** 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_3C_5R_1R_6s}{C_2C_3C_5R_1R_5s^2 + C_2 + C_3 + C_4 - C_5 + s\left(C_2C_3R_1 + C_2C_5R_5 + C_3C_5R_5 + C_4C_5R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}\sqrt{C_2+C_3+C_4-C_5}}{C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}$ wo:  $\frac{\sqrt{C_2+C_3+C_4-C_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ bandwidth:  $\frac{C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}{C_2C_3C_5R_1R_5}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_6}{C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}$  Qz: None

Wz: None

**3.31 BP-31** 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_4 R_6 s}{C_2 C_3 R_1 R_4 R_5 s^2 - R_4 + R_5 + s \left( C_2 R_4 R_5 + C_3 R_4 R_5 + C_4 R_4 R_5 \right)}$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ K. I.D. 0

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3R_1R_6}{C_2R_5+C_3R_5+C_4R_5}$ Qz: None

Wz: None

**3.32 BP-32**  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4s}{C_2C_3C_6R_1R_4s^2 + C_6 + s\left(C_2C_6R_4 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_4}+C_3\sqrt{R_4}+C_4\sqrt{R_4}-C_5\sqrt{R_4}}$  wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}}$  bandwidth:  $\frac{C_2\sqrt{R_4}+C_3\sqrt{R_4}+C_4\sqrt{R_4}-C_5\sqrt{R_4}}{C_2C_3R_1\sqrt{R_4}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$ Qz: None Wz: None

**3.33 BP-33**  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_4 R_6 s}{-R_4 + R_5 + s^2 \left( C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 \right) + s \left( C_2 R_4 R_5 - C_3 R_3 R_4 + C_3 R_3 R_5 + C_3 R_4 R_5 \right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{-R_4+R_5}}{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5}}$ 

K-HP: 0

K-BP:  $\frac{C_3R_1R_4R_6}{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5}$ 

Qz: None Wz: None

**3.34** BP-34  $Z(s) = \left(R_1, \frac{1}{C_{2s}}, R_3 + \frac{1}{C_{3s}}, R_4, \frac{1}{C_{5s}}, \frac{1}{C_{6s}}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4s}{C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_3R_4 - C_3C_5C_6R_3R_4\right) + s\left(C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 - C_5C_6R_4\right)}$ 

Parameters:

 $Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}{C_2R_4+C_3R_3+C_3R_4-C_5R_4}$ 

WO:  $\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_3R_4-C_3C_5R_3R_4}}$ 

 $\text{bandwidth: } \frac{(C_2R_4 + C_3R_3 + C_3R_4 - C_5R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4}}}{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}}} \\ \text{K-LP: 0} \\ \text{K-HP: 0}$ 

K-BP:  $\frac{C_3C_5R_1R_4}{C_2C_6R_4+C_3C_6R_3+C_3C_6R_4-C_5C_6R_4}$  Qz: None

Qz: None Wz: None

**3.35 BP-35**  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_1 R_6 s}{s^2 \left(C_2 C_3 R_1 R_5 + C_2 C_3 R_3 R_5 + C_3 C_4 R_3 R_5\right) + s \left(C_2 R_5 - C_3 R_3 + C_3 R_5 + C_4 R_5\right) - 1}$$

#### Parameters:

Q:  $\frac{i\sqrt{C_3}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_5}}{C_2R_5-C_3R_3+C_3R_5+C_4R_5}$ 

WO:  $\frac{\epsilon}{\sqrt{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5}}$ 

bandwidth:  $\frac{C_2R_5 - C_3R_3 + C_3R_5 + C_4R_5}{\sqrt{C_3\sqrt{R_5}\sqrt{C_2R_1 + C_2R_3 + C_4R_3}\sqrt{C_2C_3R_1R_5 + C_2C_3R_3R_5 + C_3C_4R_3R_5}}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3R_1R_6}{C_2R_5-C_3R_3+C_3R_5+C_4R_5}$ 

Qz: None
Wz: None

**3.36 BP-36**  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_6R_1R_6 + C_2C_3C_6R_3R_6 + C_3C_4C_6R_3R_6 - C_3C_5C_6R_3R_6\right) + s\left(C_2C_3R_1 + C_2C_3R_3 + C_2C_6R_6 + C_3C_4R_3 - C_3C_5R_3 + C_3C_6R_6 + C_4C_6R_6 - C_5C_6R_6\right)}$$

#### Parameters:

 $Q: \frac{\frac{C_2\sqrt{C_3}\sqrt{C_6}R_1\sqrt{R_6}\sqrt{\frac{C_2}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{C_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{C_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{C_2\sqrt{C_3}\sqrt{C_6}R_3\sqrt{R_6}\sqrt{\frac{C_2}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{C_2\sqrt{C_3}\sqrt{C_6}R_3$ 

WO:  $\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2 C_3 C_6 R_1 R_6 + C_2 C_3 C_6 R_3 R_6 + C_3 C_4 C_6 R_3 R_6 - C_3 C_5 C_6 R_3 R_6}}$ 

 $\frac{\sqrt{\frac{C_{2}+C_{3}+C_{4}-C_{5}}{C_{2}C_{3}C_{6}R_{1}R_{6}+C_{2}C_{3}C_{6}R_{3}R_{6}}}(C_{2}C_{3}R_{1}+C_{2}C_{3}R_{3}+C_{2}C_{6}R_{6}+C_{3}C_{4}R_{3}-C_{3}C_{5}R_{3}+C_{2}C_{6}R_{6}+C_{3}C_{4}R_{3}-C_{3}C_{5}R_{3}+C_{2}C_{6}R_{6}+C_{3}C_{4}R_{3}-C_{3}C_{5}R_{3}+C_{2}C_{6}R_{6}+C_{3}C_{4}R_{3}-C_{5}C_{6}R_{3}R_{6}}}{C_{2}\sqrt{C_{3}}\sqrt{C_{6}}R_{1}\sqrt{R_{6}}\sqrt{\frac{C_{2}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}+\frac{C_{4}C_{3}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}+\frac{C_{2}C_{4}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}+\frac{C_{2}C_{4}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}C_{4}C_{4}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}C_{4}C_{4}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}C_{4}C_{4}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}C_{4}C_{4}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}C_{4}C_{4}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}C_{4}C_{6}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{2}C_{4}C_{6}R_{3}C_{6}R_{3}}}}}}}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_6}{C_2C_3R_1 + C_2C_3R_3 + C_2C_6R_6 + C_3C_4R_3 - C_3C_5R_3 + C_3C_6R_6 + C_4C_6R_6 - C_5C_6R_6}$ 

Qz: None Wz: None

wz: none

**3.37** BP-37 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_5R_1R_5 + C_2C_3C_5R_3R_5 + C_3C_4C_5R_3R_5\right) + s\left(C_2C_3R_1 + C_2C_3R_3 + C_2C_5R_5 + C_3C_4R_3 - C_3C_5R_3 + C_3C_5R_5 + C_4C_5R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2+C_3+C_4-C_5}}{C_2C_3R_1+C_2C_3R_3+C_2C_5R_5+C_3C_4R_3-C_3C_5R_3+C_3C_5R_5+C_4C_5R_5}$ 

Wo:  $\frac{\sqrt{C_2 + C_3 + C_4 - C_5}}{\sqrt{C_2 C_3 C_5 R_1 R_5 + C_2 C_3 C_5 R_3 R_5 + C_3 C_4 C_5 R_3 R_5}}$ 

bandwidth:  $\frac{C_2C_3R_1+C_2C_5R_3+C_2C_5R_5+C_3C_4R_3-C_3C_5R_3+C_3C_5R_5+C_4C_5R_5}{\sqrt{C_5}\sqrt{C_$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_6}{C_2C_3R_1+C_2C_3R_3+C_2C_5R_5+C_3C_4R_3-C_3C_5R_3+C_3C_5R_5+C_4C_5R_5}$ 

Qz: None Wz: None

**3.38 BP-38** 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_4 R_6 s}{-R_4 + R_5 + s^2 \left(C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 + C_3 C_4 R_3 R_4 R_5\right) + s \left(C_2 R_4 R_5 - C_3 R_3 R_4 + C_3 R_3 R_5 + C_3 R_4 R_5 + C_4 R_4 R_5\right)}$$

K-HP: 0

K-BP:  $\frac{C_3R_1R_4R_6}{C_2R_4R_5 - C_3R_3R_4 + C_3R_3R_5 + C_3R_4R_5 + C_4R_4R_5}$ 

Qz: None Wz: None

**3.39 BP-39**  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4s}{C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_3R_4 + C_3C_4C_6R_3R_4 - C_3C_5C_6R_3R_4\right) + s\left(C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$$

Parameters:

 $Q: \underbrace{\frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}$ 

Wo:  $\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}$ 

 $\frac{(C_2R_4 + C_3R_3 + C_3R_4 + C_4R_4 - C_5R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 + C_3C_5R_3R_4}}{C_2\sqrt{C_3R_1}\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} + C_3C_3R_3\sqrt{\frac{1}{C_3R_3 + C_4R_3 - C_5R_3}} - C_3C_3R_3\sqrt{\frac{1}{C_3R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{\frac{1}{C_3R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{\frac{1}{C_3R_3 + C_4R_3 - C_5R_3}} - C_3C_3R_3\sqrt{\frac{1}{C_3R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{\frac{1}{C_3R_3 + C_4R_3 - C_5R_3}} + C_3C_3R_3\sqrt{\frac{1}{C_3R_3 + C_3R_3 - C_5R_3}} + C_3C_3R_3\sqrt{\frac{1}{C_3R_$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_4}{C_2C_6R_4+C_3C_6R_3+C_3C_6R_4+C_4C_6R_4-C_5C_6R_4}$  Qz: None

Wz: None

**3.40 BP-40**  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_2 C_6 R_1 R_2 R_4 R_6 + C_2 C_6 R_2 R_3 R_4 R_6 - C_5 C_6 R_2 R_3 R_4 R_6\right) + s \left(C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_6 R_1 R_4 R_6 + C_6 R_2 R_3 R_6 + C_6 R_2 R_4 R_6 + C_6 R_3 R_4 R_6\right)}$$

Parameters:

 $\frac{C_2\sqrt{C_6}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_2\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_1}R_4 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_1}R_4 + R_2R_4 + R_3$ 

wo:  $\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_2C_6R_1R_2R_4R_6 + C_2C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6}}$ 

 $\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_5R_2R_3R_4 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6)\sqrt{\frac{1}{C_2C_6R_1R_2R_4R_6 + C_2C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6}}$ 

K-LP: 0

K-BP:  $\frac{C_5 R_1 R_2 R_4 R_6}{C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 - C_5 R_2 R_3 R_4 + C_6 R_1 R_4 R_6 + C_6 R_2 R_3 R_6 + C_6 R_2 R_4 R_6 + C_6 R_3 R_4 R_6}$ 

Qz: None Wz: None

**3.41** BP-41  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5 + \frac{1}{C_5s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_2 C_5 R_1 R_2 R_4 R_5 + C_2 C_5 R_2 R_3 R_4 R_5\right) + s \left(C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5\right)}$$

```
\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}
K-LP: 0
K-HP: 0
 \text{K-BP: } \frac{C_5 R_1 R_2 R_4 R_6}{C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5 } 
 Qz: None
```

**3.42 BP-42**  $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s^2 \left( C_2 C_6 R_1 R_2 R_6 + C_2 C_6 R_2 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6 \right) + s \left( C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6 \right)}{R_1 + R_2 + R_3 + s^2 \left( C_2 C_6 R_1 R_2 R_6 + C_2 C_6 R_2 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6 \right) + s \left( C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6 \right)}$ 

Parameters:

Wz: None

```
Q: \frac{C_2\sqrt{C_6}R_1\sqrt{R_2}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}\sqrt{R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}\sqrt{R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}\sqrt{R_
wo: \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 C_6 R_1 R_2 R_6 + C_2 C_6 R_2 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6}
                                                                                                                                                                                                                                                           \sqrt{R_1 + R_2 + R_3} (C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6) \sqrt{\frac{1}{C_2 C_6 R_1 R_2 R_6 + C_2 C_6 R_2 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6}}
K-BP: \frac{C_5 R_1 R_2 R_6}{C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6}
   Qz: None
 Wz: None
```

**3.43** BP-43  $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_5}{R_1 + R_2 + R_3 + s^2 \left(C_2 C_5 R_1 R_2 R_5 + C_2 C_5 R_2 R_3 R_5 + C_4 C_5 R_2 R_3 R_5\right) + s \left(C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_2 R_3 + C_5 R_1 R_5 - C_5 R_2 R_3 + C_5 R_2 R_5 + C_5 R_3 R_5\right)}$ 

Parameters:

```
K-LP: 0
K-HP: 0
K-BP: \frac{C_5R_1R_2R_6}{C_2R_1R_2 + C_2R_2R_3 + C_4R_2R_3 + C_5R_1R_5 - C_5R_2R_3 + C_5R_2R_5 + C_5R_3R_5}
Qz: None
Wz: None
```

**3.44 BP-44**  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_2 C_6 R_1 R_2 R_4 R_6 + C_2 C_6 R_2 R_3 R_4 R_6 + C_4 C_6 R_2 R_3 R_4 R_6 - C_5 C_6 R_2 R_3 R_4 R_6\right) + s \left(C_2 R_1 R_2 R_4 + C_4 R_2 R_3 R_4 + C_4 R_2 R_3 R_4 + C_6 R_1 R_4 R_6 + C_6 R_2 R_3 R_6 + C_6 R_2 R_4 R_6 + C_6 R_2 R_4 R_6\right)}$ 

Parameters:

 $\frac{C_2\sqrt{C_6}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}{\sqrt{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_2\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} \\ -C_5\sqrt{C_6}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + R_4R_4 + R_3R_4}} \\ -C_5\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + R_4R_4 + R_3R_4}} \\ -C_5\sqrt{R_1}R_4 + R_2R_3 + R_4R_4 + R_3R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + R_4R_4 + R_3R_4}} \\ -C_5\sqrt{R_1}R_4 + R_2R_4 + R_3R_4 +$ wo:  $\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_2C_6R_1R_2R_4R_6 + C_2C_6R_2R_3R_4R_6 + C_4C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6}}$  $\frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_6R_2R_3R_6 + C_6R_2R_3R_6 + C_6R_2R_3R_6 + C_6R_2R_3R_4R_6)}{\sqrt{C_2C_6R_1R_2R_4R_6 + C_6R_2R_3R_4 + C_6R_2R_3R_4 + C_6R_2R_3R_4 + C_6R_2R_3R_4 + C_6R_2R_3R_4R_6 + C_6R_2R_3R_$ K-LP: 0

K-HP: 0

 $\text{K-BP: } \frac{C_5 R_1 R_2 R_4 R_6}{C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_4 R_2 R_3 R_4 - C_5 R_2 R_3 R_4 + C_6 R_1 R_4 R_6 + C_6 R_2 R_3 R_6 + C_6 R_2 R_4 R_6 + C_6 R_3 R_4 R_6 }$ 

Qz: None Wz: None

**3.45 BP-45** 
$$Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_2 C_5 R_1 R_2 R_4 R_5 + C_2 C_5 R_2 R_3 R_4 R_5 + C_4 C_5 R_2 R_3 R_4 R_5\right) + s \left(C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_2 R_4 R_5\right)}$$

Q:  $\frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_2R_1R_2R_4+C_2R_2R_3R_4+C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_2C_5R_1R_2R_4R_5+C_2C_5R_2R_3R_4+C_4C_5R_2R_3R_4+C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_2R_4R_5+C_5R_2R_3R_4R_5+C_5R_2R_3R_4+C_5R$ 

K-HP: 0

 $\begin{array}{l} \text{K-BP:} \ \frac{C_5 R_1 R_2 R_4 R_6}{C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_4 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5} \end{array}$ 

Qz: None Wz: None

# **3.46 BP-46** $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_3R_1R_2R_4R_6s}{C_2C_3R_1R_2R_4R_5s^2 - R_2R_4 + R_2R_5 + R_4R_5 + s\left(C_2R_2R_4R_5 + C_3R_1R_4R_5 + C_3R_2R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2}R_4 + R_2R_5 + R_4R_5}{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_2}R_4 + R_2R_5 + R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5+C_3R_2R_5}$ Qz: None Wz: None

# **3.47** BP-47 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_2C_3C_6R_1R_2R_4s^2 + C_6R_2 + C_6R_4 + s\left(C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2+R_4}}{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}$ wo:  $\frac{\sqrt{R_2+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}{C_2C_3R_1R_2\sqrt{R_4}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2}{C_2C_6R_2+C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}$ 

Qz: None Wz: None

**3.48** BP-48 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_6 s}{C_2 C_3 R_1 R_2 R_5 s^2 - R_2 + R_5 + s \left( C_2 R_2 R_5 + C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5 \right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2+R_5}}{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_5}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  Qz: None

Wz: None

**3.49** BP-49  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2s}{C_2C_3C_6R_1R_2s^2 + C_6 + s\left(C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}{C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}$  wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}$  bandwidth:  $\frac{C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}{C_2C_3R_1R_2}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2}{C_2C_6R_2+C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  Qz: None

Wz: None

**3.50 BP-50**  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{C_2 C_3 R_1 R_2 R_4 R_5 s^2 - R_2 R_4 + R_2 R_5 + R_4 R_5 + s \left( C_2 R_2 R_4 R_5 + C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5 + C_4 R_2 R_4 R_5 \right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2}R_4 + R_2}{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5} + C_4R_2\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2}R_4 + R_2R_5 + R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5} + C_4R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  Qz: None

Wz: None

**3.51** BP-51  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_2C_3C_6R_1R_2R_4s^2 + C_6R_2 + C_6R_4 + s\left(C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2+R_4}}{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}+C_4R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}$ wo:  $\frac{\sqrt{R_2+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}+C_4R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}{C_2C_3R_1R_2\sqrt{R_4}}$ 

K-LP: 0

K-BP:  $\frac{C_3C_5R_1R_2}{C_2C_6R_2+C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  Qz: None

Wz: None

**3.52** BP-52 
$$Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_2R_4R_5 + C_2C_3R_2R_3R_4R_5\right) + s\left(C_2R_2R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5\right)}$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_2R_2R_4R_5+C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5}$  wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_2R_4R_5+C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5}}$  V. I.B. O

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_2R_2R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5}$ 

Qz: None Wz: None

**3.53 BP-53**  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_2R_4 + C_2C_3C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_2R_4 + C_3C_6R_2R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_2R_4 + C_3C_6R_2R_4\right)}$$

#### Parameters:

 $Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - C_2R_2R_4+C_3R_1R_4+C_3R_2R_4+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4}$ 

wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 C_3 R_1 R_2 R_4 + C_2 C_3 R_2 R_3 R_4 - C_3 C_5 R_2 R_3 R_4}}$ 

 $\frac{\sqrt{R_2 + R_4}(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 - C_5R_2R_4)\sqrt{\frac{1}{C_2C_3R_1R_2R_4 + C_2C_3R_2R_3R_4 - C_3C_5R_2R_3R_4}}{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_2 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2 + R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_2C_6R_2R_4+C_3C_6R_1R_4+C_3C_6R_2R_3+C_3C_6R_2R_4+C_3C_6R_3R_4-C_5C_6R_2R_4}$  Qz: None

Wz: None

**3.54 BP-54**  $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_1 R_2 R_6 s}{-R_2 + R_5 + s^2 \left(C_2 C_3 R_1 R_2 R_5 + C_2 C_3 R_2 R_3 R_5 + C_3 C_4 R_2 R_3 R_5\right) + s \left(C_2 R_2 R_5 + C_3 R_1 R_5 - C_3 R_2 R_3 + C_3 R_2 R_5 + C_3 R_3 R_5 + C_4 R_2 R_5\right)}$$

#### Parameters:

Wo:  $\frac{\sqrt{-R_2 + R_5}}{\sqrt{C_2 C_3 R_1 R_2 R_5 + C_2 C_3 R_2 R_3 R_5 + C_3 C_4 R_2 R_3 R_5}}$ bandwidth:  $\frac{C_2 R_2 R_5 + C_3 R_1 R_5 - C_3 R_2 R_3 + C_3 R_2 R_5 + C_3 R_3 R_5 + C_4 R_2 R_5}{\sqrt{C_3} \sqrt{R_2} \sqrt{R_5} \sqrt{C_2 R_1 + C_2 R_3 + C_4 R_3} \sqrt{C_2 C_3 R_1 R_2 R_5 + C_2 C_3 R_2 R_3 R_5 + C_3}}$ 

K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5}$ 

Qz: None Wz: None

**3.55** BP-55  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2s}{C_6 + s^2\left(C_2C_3C_6R_1R_2 + C_2C_3C_6R_2R_3 + C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3\right) + s\left(C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_2 - C_5C_6R_2\right)}$$

$$\text{Q:} \ \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2R_2+C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2}$$

```
 \text{wo: } \sqrt{\frac{1}{C_2C_3R_1R_2 + C_2C_3R_2R_3 + C_3C_4R_2R_3 - C_3C_5R_2R_3} } \\ \text{bandwidth: } \frac{(C_2R_2 + C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 - C_5R_2)\sqrt{\frac{1}{C_2C_3R_1R_2 + C_2C_3R_2R_3 + C_3C_4R_2R_3 - C_3C_5R_2R_3}}}{\frac{1}{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} \\ \text{K-LP: 0} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_3C_5R_1R_2}{C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_2 - C_5C_6R_2}} \\ \text{Qz: None}
```

**3.56 BP-56** 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6\right)$$

 $H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s^2 \left(C_2 C_3 R_1 R_2 R_4 R_5 + C_2 C_3 R_2 R_3 R_4 R_5 + C_3 C_4 R_2 R_3 R_4 R_5\right) + s \left(C_2 R_2 R_4 R_5 + C_3 R_1 R_4 R_5 - C_3 R_2 R_3 R_4 + C_3 R_2 R_3 R_5 + C_3 R_2 R_4 R_5 + C_4 R_2 R_4 R_5\right)}$ 

#### Parameters:

Wz: None

**3.57** BP-57 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_2R_4 + C_2C_3C_6R_2R_3R_4 + C_3C_4C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_2R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 +$ 

#### Parameters:

$$Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2}R_1+C_2}\frac{1}{R_3+C_4}R_3-C_5R_3} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2}R_1+C_2}\frac{1}{R_3+C_4}R_3-C_5R_3} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2}R_1+C_2}\frac{1}{R_3+C_4}R_3-C_5R_3} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2}R_1+C_2}\frac{1}{R_3+C_4}R_3-C_5R_3} } \\ wo: \sqrt{R_2+R_4}\sqrt{\frac{1}{C_2}C_3R_1R_2R_4+C_2C_3R_2R_3R_4+C_3C_5R_2R_4} - \frac{1}{C_2C_3R_1R_2R_4+C_2C_3R_2R_3R_4+C_3C_3R_2R_4+C_3R_3R_4+C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4} - \frac{1}{C_2\sqrt{C_3}R_1R_2R_4+C_2C_3R_2R_3R_4+C_3C_3R_2R_4+C_3R_3R_4+C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4} - \frac{1}{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_3R_1R_2R_4+C_3C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4} - \frac{1}{C_2\sqrt{C_3}R_1R_2R_4+C_2C_3R_2R_3R_4+C_3C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4} - \frac{1}{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_3R_1R_2R_4+C_3C_3R_2R_4+C_3C_3R_3R_4+C_4R_3-C_5R_3} - \sqrt{C_3}C_3R_3R_4+C_4R_3-C_5R_3} - \sqrt{C_3}C_3R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2}+R_4\sqrt{\frac{1}{C_2}R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_$$

**3.58 BP-58** 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_2 R_4 R_6 s}{-C_1 C_5 R_2 R_3 R_4 s^2 + R_4 + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4\right)}$$

## Parameters:

 $\begin{array}{l} \text{Q:} -\frac{i\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}R_4}{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4} \\ \text{wo:} \ \frac{i}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}} \\ \text{bandwidth:} \ -\frac{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}{\sqrt{C_1}C_5R_2R_3R_4} \\ \text{K-LP:} \ 0 \\ \text{K-HP:} \ 0 \\ \text{K-BP:} \ \frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4} \\ \text{Qz:} \ \text{None} \end{array}$ 

Qz: None Wz: None

**3.59 BP-59** 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_2 R_4 R_6 s}{R_4 + s^2 \left(-C_1 C_5 R_2 R_3 R_4 + C_1 C_5 R_2 R_3 R_5 + C_1 C_5 R_2 R_4 R_5 + C_1 C_5 R_3 R_4 R_5\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_5 R_4 R_5\right)}$$

$$Q: \frac{-\sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}^{\frac{3}{2}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}\sqrt{R_{4}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{4}R_{5}-C_{1}C_{5}R_{3}R_{4}R_{5}}$$

$$\frac{\sqrt{R_{4}}\sqrt{-\frac{1}{C_{1}C_{5}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{2}R_{3}R_{5}-C_{1}C_{5}R_{2}R_{4}R_{5}-C_{1}C_{5}R_{3}R_{4}R_{5}}}{\sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{2}R_{3}R_{5}-C_{1}C_{5}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{2}R_{3}R_{5}-C_{1}C_{5}R_{2}R_{3}R_{5}-C_{1}C_{5}R_{3}R_{4}R_{5}}}}$$
bandwidth: 
$$\frac{\sqrt{R_{4}}\sqrt{-\frac{1}{C_{1}C_{5}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}R_{5}}}{\sqrt{-\frac{1}{C_{1}C_{5}R_{2}R_{3}R_{5}-C_{1}C_{5}R_{3}R_{4}R_{5}}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}-C_{1}C_{5}$$

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_5 R_2 R_4 R_6}{C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_5 R_4 R_5}$ 

Qz: None Wz: None

**3.60 BP-60**  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_2 R_6 s}{s^2 \left(C_1 C_4 R_2 R_3 - C_1 C_5 R_2 R_3\right) + s \left(C_1 R_2 + C_1 R_3\right) + 1}$$

## Parameters:

**3.61 BP-61** 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

# $H(s) = \frac{C_5 R_2 R_4 R_6 s}{R_4 + s^2 \left( C_1 C_4 R_2 R_3 R_4 - C_1 C_5 R_2 R_3 R_4 \right) + s \left( C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 \right)}$

$$\begin{array}{l} Q\colon \frac{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}\\ \text{wo: } \sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}\\ \text{bandwidth: } \frac{\left(\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4\right)\sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}}{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

**3.62 BP-62** 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_3C_6R_4R_6\right)}$$

$$Q\colon \frac{\sqrt{C_{1}}C_{3}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}}{C_{1}C_{3}R_{2}R_{4}-C_{1}C_{5}R_{2}R_{4}+C_{1}C_{6}R_{2}R_{6}+C_{1}C_{6}R_{4}R_{6}}}$$

$$wo: \sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{3}C_{6}R_{2}R_{4}}}\frac{1}{C_{1}C_{3}C_{6}R_{2}R_{4}R_{6}}}$$

$$bandwidth: \frac{\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}(C_{1}C_{3}R_{2}R_{4}-C_{1}C_{5}R_{2}R_{4}+C_{1}C_{6}R_{2}R_{6}+C_{1}C_{6}R_{4}R_{6}+C_{3}C_{6}R_{4}R_{6})\sqrt{\frac{1}{C_{1}C_{3}C_{6}R_{2}R_{4}R_{6}}}}\frac{1}{\sqrt{C_{1}}C_{3}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}}}$$

$$K-LP: 0$$

$$K-HP: 0$$

$$K-BP: \frac{C_{3}C_{5}R_{2}R_{4}}{C_{1}C_{3}R_{2}R_{4}-C_{1}C_{5}R_{2}R_{4}+C_{1}C_{6}R_{4}R_{6}+C_{3}C_{6}R_{4}R_{6}}}{C_{1}C_{3}C_{3}R_{2}R_{4}+C_{1}C_{6}R_{2}R_{6}+C_{1}C_{6}R_{4}R_{6}+C_{3}C_{6}R_{4}R_{6}}}$$

$$Qz: None$$

$$Wz: None$$

**3.63** BP-63 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1C_3C_5R_2R_4R_5s^2 + C_1R_2 + C_1R_4 + C_3R_4 + s\left(C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_3C_5R_4R_5\right)}$$

#### Parameters:

**3.64** BP-64 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_3C_6R_2R_6 + C_1C_4C_6R_2R_6 - C_1C_5C_6R_2R_6\right) + s\left(C_1C_3R_2 + C_1C_4R_2 - C_1C_5R_2 + C_1C_6R_6 + C_3C_6R_6\right)}$$

#### Parameters:

$$Q\colon \frac{\sqrt{C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} + \sqrt{C_{1}C_{4}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} }{C_{1}C_{3}R_{2}+C_{1}C_{4}R_{2}-C_{1}C_{5}R_{2}+C_{1}C_{6}R_{6}+C_{3}C_{6}R_{6}}}$$

$$wo: \sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{3}C_{6}R_{2}R_{6}+C_{1}C_{4}C_{6}R_{2}R_{6}}} - C_{1}C_{5}C_{6}R_{2}R_{6}}$$

$$bandwidth: \frac{\sqrt{C_{1}+C_{3}}(C_{1}C_{3}R_{2}+C_{1}C_{4}R_{2}-C_{1}C_{5}R_{2}+C_{1}C_{6}R_{6}+C_{3}C_{6}R_{6}})\sqrt{\frac{1}{C_{1}C_{3}C_{6}R_{2}R_{6}+C_{1}C_{4}C_{6}R_{2}R_{6}}}}{\sqrt{C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} + \sqrt{C_{1}C_{4}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}} K-LP: 0$$

$$K-HP: 0$$

$$K-BP: \frac{C_{3}C_{5}R_{2}R_{6}}{C_{1}C_{3}R_{2}+C_{1}C_{4}R_{2}-C_{1}C_{5}R_{2}+C_{1}C_{6}R_{6}+C_{3}C_{6}R_{6}}}{C_{2}: None}}$$

$$Wz: None$$

**3.65 BP-65** 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_3C_5R_2R_5 + C_1C_4C_5R_2R_5\right) + s\left(C_1C_3R_2 + C_1C_4R_2 - C_1C_5R_2 + C_1C_5R_5 + C_3C_5R_5\right)}$$

Q: 
$$\frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_1+C_3}\sqrt{C_3+C_4}}{C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}$$

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_6}{C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}$  Qz: None

Wz: None

**3.66 BP-66** 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_6R_2R_4R_6 + C_1C_4C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_3C_6R_4R_6\right)}$$

#### Parameters:

$$Q: \frac{\sqrt{C_{1}}C_{3}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}{C_{1}C_{3}R_{2}R_{4}+C_{1}C_{5}}R_{2}R_{4}+C_{1}C_{6}R_{2}R_{6}+C_{1}C_{6}R_{4}R_{6}+C_{3}C_{6}R_{4}R_{6}}$$

 $\text{wo: } \sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_3C_6R_2R_4R_6 + C_1C_4C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6}} \\ \text{bandwidth: } \frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{(C_1C_3R_2R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_3C_6R_4R_6)} \sqrt{\frac{1}{C_1C_3C_6R_2R_4R_6 + C_1C_4C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6}} \\ \frac{\sqrt{C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}} + \sqrt{C_1C_4\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}} - \sqrt{C_1C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}}}} \\ \frac{\sqrt{C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{C_1C_4R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_3C_6R_4R_6})\sqrt{\frac{1}{C_1C_3C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6}}{\sqrt{C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}}}}}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_6R_2R_6+C_1C_6R_4R_6+C_3C_6R_4R_6}$  Qz: None

Wz: None

**3.67** BP-67 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_2R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_3C_5R_4R_5\right)}$$

#### Parameters:

wo:  $\frac{1}{\sqrt{C_1C_3C_5R_2R_4R_5}+C_1C_4C_5R_2R_4R_5}$  bandwidth:  $\frac{C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3}+C_4\sqrt{C_1C_3C_5R_2R_4R_5}+C_1C_4C_5R_2R_4R_5}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}$  Qz: None

Wz: None

**3.68** BP-68 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{-C_1C_3C_5R_2R_3R_4s^2 + C_1R_2 + C_1R_4 + C_3R_4 + s\left(C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 - C_1C_5R_2R_4\right)}$$

#### Parameters:

Q: 
$$-\frac{i\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1C_3R_2R_3+\sqrt{C_1C_3R_2}}R_4+\sqrt{C_1C_3R_3}R_4-\sqrt{C_1C_5R_2}R_4}$$

 $i\sqrt{-C_1}R_2 - C_1R_4 - C_3R_4 \left(\sqrt{C_1}C_3R_2R_3 + \sqrt{C_1}C_3R_2R_4 + \sqrt{C_1}C_3R_3R_4 - \sqrt{C_1}C_5R_2R_4\right)$  $\sqrt{C_1}C_3C_5R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4}$ 

Qz: None Wz: None

**3.69 BP-69** 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(-C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_3R_4R_5\right) + s\left(C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_3C_5R_4R_5\right)}$$

 $Q: \frac{-\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1}R_2+C_1R_4+C_3R_4}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{C_1C_3R_2R_3R_4+C_1C_3R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}}{\sqrt{C_1C_3C_5R_2R_3R_4-C_1C_3C_5R_2R_3R_5-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_2R_4}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}} \\ wo: \sqrt{\frac{-C_1R_2-C_1R_4-C_3R_4}{\sqrt{C_1C_3C_5R_2R_3R_4-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_3R_4R_5}}}{\sqrt{C_1C_3C_5R_2R_3R_4-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+C_3C_5R_4R_5} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+C_3C_5R_4R_5}} \\ & \frac{-C_1R_2-C_1R_4-C_3R_4}{\sqrt{C_1C_3C_5R_2R_3R_4-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_3R_4R_5}}}{\sqrt{C_1C_3C_5R_2R_3R_4-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+C_3C_5R_4R_5} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+C_3C_5R_4R_5}} \\ & \frac{-C_1R_2-C_1R_4-C_3R_4}{\sqrt{C_1C_3C_5R_2R_3R_4-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_3R_4R_5}}}{\sqrt{C_1C_3C_5R_2R_3R_4-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5+C_1C_5R_2R_4+$ 

**3.70** BP-70  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3\right) + s\left(C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2\right)}$$

#### Parameters:

Wz: None

**3.71** BP-71  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4\right) + s\left(C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4\right)}$$

## Parameters:

 $Q\colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4+\sqrt{C_1}C_4R_2R_4-\sqrt{C_1}C_5R_2R_4}}\\ \text{wo: } \sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4-C_1C_3C_5R_2R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}\left(\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4+\sqrt{C_1}C_4R_2R_4-\sqrt{C_1}C_5R_2R_4\right)\sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4-C_1C_3C_5R_2R_3R_4}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_3C_5R_2R_4R_6}{C_1C_3R_2R_4+C_1C_3R_3R_4+C_1C_4R_2R_4-C_1C_5R_2R_4}}\\ \text{Qz: None}\\ \text{Wz: None}$ 

**3.72** BP-72 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_6R_4R_6 + C_1C_3C_6R_4R_6 - C_1C_5C_6R_4R_6 + C_2C_3C_6R_4R_6\right) + s\left(C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4\right)}$$

$$Q \colon \frac{C_1^{\frac{3}{2}}C_2\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + \sqrt{C_1}C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_1C_3-C_1C_5+C_1C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_1C_3-C_1C_5$$

$$\frac{\sqrt{C_1}(C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4)\sqrt{\frac{1}{C_1C_2C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_2C_3C_6R_4R_6 + C_2C_3C$$

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4}$ 

Wz: None

**3.73** BP-73 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_2C_3C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_5R_5 + C_2C_3R_4\right)}$$

## Parameters:

Q: 
$$\frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}}{C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}$$

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}$  Qz: None

Wz: None

**3.74** BP-74 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_4C_6R_4R_6 - C_1C_5C_6R_4R_6 + C_2C_3C_6R_4R_6\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4\right)}$$

## Parameters:

$$Q: \frac{C_{1}^{\frac{3}{2}}C_{2}\sqrt{C_{6}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}^{\frac{3}{2}}C_{3}\sqrt{C_{6}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}R_{4}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}^{\frac{3}{2}}C_{5}\sqrt{C_{6}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{5}R_{4}+C_{1}C_{5}R_{4}+C_{1}C_{6}R_{6}+C_{2}C_{3}R_{4}}} + \sqrt{C_{1}C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{5}R_{4}+C_{1}C_{5}R_{4}+C_{1}C_{6}R_{6}+C_{2}C_{3}R_{4}}}$$

wo:  $\sqrt{C_1}\sqrt{\frac{1}{C_1C_2C_6R_4R_6+C_1C_3C_6R_4R_6+C_1C_4C_6R_4R_6-C_1C_5C_6R_4R_6+C_2C_3C_6R_4R_6}}$ 

$$\frac{\sqrt{C_1}(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4)\sqrt{\frac{1}{C_1C_2C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_2C_3C_6R_4R_6}}{\frac{3}{C_1^2}C_2\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}} + C_1^{\frac{3}{2}}C_4\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3$$

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4+C_1C_3R_4+C_1C_4R_4-C_1C_5R_4+C_1C_6R_6+C_2C_3R_4}$ 

Qz: None Wz: None

**3.75** BP-75 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_4C_5R_4R_5 + C_2C_3C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_5R_5 + C_2C_3R_4\right)}$$

Q:  $\frac{\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{2}C_{3}}}{C_{1}C_{2}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{5}R_{4}+C_{1}C_{5}R_{5}+C_{2}C_{3}R_{4}}}$ wo:  $\frac{\sqrt{C_{1}}}{\sqrt{C_{1}C_{2}C_{5}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{4}R_{5}+C_{1}C_{4}C_{5}R_{4}R_{5}+C_{2}C_{3}C_{5}R_{4}R_{5}}}$ bandwidth:  $\frac{C_{1}C_{2}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{4}+C_{1}C_{5}R_{5}+C_{2}C_{3}R_{4}}{\sqrt{C_{5}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{2}C_{3}}\sqrt{C_{1}C_{2}C_{5}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{4}R_{5}+C_{1}C_{4}C_{4}}}$ W. I.D. 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4+C_1C_3R_4+C_1C_4R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}$  Qz: None

Wz: None

**3.76** BP-76  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_3R_3R_4 - C_1C_3C_5R_3R_4\right) + s\left(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4\right)}$ 

Parameters:

 $Q \colon \frac{C_1 C_2 \sqrt{C_3} \sqrt{R_3} \sqrt{R_4} \sqrt{\frac{1}{C_2 - C_5}} - C_1 \sqrt{C_3} C_5 \sqrt{R_3} \sqrt{R_4} \sqrt{\frac{1}{C_2 - C_5}}}{C_1 C_2 R_4 + C_1 C_3 R_3 + C_1 C_5 R_4 + C_2 C_3 R_4}$ 

 $\frac{(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_3R_4} \frac{1}{C_3C_5R_3R_4}}}{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}} - C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4+C_1C_3R_3+C_1C_3R_4-C_1C_5R_4+C_2C_3R_4}$ 

Qz: None Wz: None

**3.77** BP-77  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{1}{C_1 + s^2 \left( C_1 C_2 C_3 R_3 R_4 + C_1 C_3 C_4 R_3 R_4 - C_1 C_3 C_5 R_3 R_4 \right) + s \left( C_1 C_2 R_4 + C_1 C_3 R_3 + C_1 C_3 R_4 + C_1 C_4 R_4 - C_1 C_5 R_4 + C_2 C_3 R_4 \right)}$ 

Parameters:

 $Q: \frac{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} + C_1\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} - C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_2C_3R_4}$ 

wo:  $\sqrt{\frac{1}{C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}$ bandwidth:  $\frac{(C_1C_2R_4+C_1C_3R_3+C_1C_3R_4+C_1C_4R_4-C_1C_5R_4+C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}}{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}+C_1\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}-C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4+C_1C_3R_3+C_1C_3R_4+C_1C_4R_4-C_1C_5R_4+C_2C_3R_4}$  Qz: None

Wz: None

**3.78** BP-78  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_5 R_2 R_4 R_6 s}{R_4 + s^2 \left(C_1 C_2 R_2 R_3 R_4 - C_1 C_5 R_2 R_3 R_4\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_2 R_2 R_4\right)}$ 

Parameters:

 $\frac{\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2-C_5}}}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}$ 

WO:  $\sqrt{\frac{1}{C_1C_2R_2R_3-C_1C_5R_2R_3}}$ 

 $\frac{(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_2R_3} - C_1C_5R_2R_3}}{\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2-C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2-C_5}}$ 

K-LP: 0 K-HP: 0 K-BP:  $\frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}$  Qz: None

Wz: None

**3.79** BP-79 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_2 R_6 s}{s^2 \left(C_1 C_2 R_2 R_3 + C_1 C_4 R_2 R_3 - C_1 C_5 R_2 R_3\right) + s \left(C_1 R_2 + C_1 R_3 + C_2 R_2\right) + 1}$$

#### Parameters:

$$Q: \frac{\sqrt{C_{1}}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}{\frac{C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2}}{\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}}$$

$$\text{bandwidth:} \frac{(C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}{\frac{(C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}$$

bandwidth:  $\frac{(C_1R_2+C_1R_3+C_2R_2)\sqrt{C_1C_2R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}}{\sqrt{C_1C_2\sqrt{R_2}\sqrt{R_3}}\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1C_5\sqrt{R_2}\sqrt{R_3}}\sqrt{\frac{1}{C_2+C_4-C_5}}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_5R_2R_6}{C_1R_2+C_1R_3+C_2R_2}$ 

Qz: None Wz: None

**3.80 BP-80** 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_2 R_4 R_6 s}{R_4 + s^2 \left(C_1 C_2 R_2 R_3 R_4 + C_1 C_4 R_2 R_3 R_4 - C_1 C_5 R_2 R_3 R_4\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_2 R_2 R_4\right)}$$

#### Parameters:

$$Q: \frac{\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}$$

bandwidth:  $\frac{(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}}{\sqrt{C_1C_2\sqrt{R_2}\sqrt{R_3}R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}$  Qz: None

Wz: None

**3.81** BP-81 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_2C_3C_6R_2R_4R_6\right) + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_2C_3R_2R_4 + C_3C_6R_4R_6\right)}$$

## Parameters:

 $Q: \frac{C_1C_2\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1$ 

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6 + C_2C_3C_6R_2R_4R_6}}$ 

 $\frac{\sqrt{C_1C_2C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_1R_4$ 

K-LP: 0

K-HP: 0

 $\text{K-BP: } \frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_2C_3R_2R_4 + C_3C_6R_4R_6}$ 

Qz: None Wz: None

**3.82** BP-82 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_5R_2R_4R_5 + C_1C_3C_5R_2R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}$$

Q:  $\frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{C_1C_2R_2R_4+C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_2C_3R_2R_4+C_3C_5R_4R_5}$ wo:  $\frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1C_2C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_2C_3C_5R_2R_4R_5}}$ bandwidth:  $\frac{C_1C_2R_2R_4+C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_2C_3R_2R_4+C_3C_5R_4R_5}{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_2C_3C_5R_2R_4R_5}}$ 

K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_2C_3R_2R_4 + C_3C_5R_4R_5}$ 

Qz: None Wz: None

**3.83 BP-83**  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_2C_6R_2R_6 + C_1C_3C_6R_2R_6 + C_1C_4C_6R_2R_6 - C_1C_5C_6R_2R_6 + C_2C_3C_6R_2R_6\right) + s\left(C_1C_2R_2 + C_1C_3R_2 + C_1C_4R_2 - C_1C_5R_2 + C_1C_6R_6 + C_2C_3R_2 + C_3C_6R_6\right)}$$

#### **Parameters:**

 $Q: \frac{{{C_1}{C_2}\sqrt {{C_6}\sqrt {{R_2}}\sqrt {{R_6}\sqrt {{C_1} + {C_3}}\sqrt {\frac{1}{{{C_1}{C_2} + {C_1}{C_3} + {C_1}{C_4} - {C_1}{C_5} + {C_2}{C_3}}}}}{{{C_1}{C_2}{R_2} + {C_1}{C_3}{R_2} + {$ 

wo:  $\sqrt{C_1 + C_3} \sqrt{\frac{1}{C_1 C_2 C_6 R_2 R_6 + C_1 C_3 C_6 R_2 R_6 + C_1 C_4 C_6 R_2 R_6 - C_1 C_5 C_6 R_2 R_6 + C_2 C_3 C_6 R_2 R_6}$ 

 $\sqrt{C_1 + C_3} (C_1 C_2 R_2 + C_1 C_3 R_2 + C_1 C_4 R_2 - C_1 C_5 R_2 + C_1 C_6 R_6 + C_2 C_3 R_2 + C_3 C_6 R_6) \sqrt{\frac{1}{C_1 C_2 C_6 R_2 R_6 + C_1 C_3 C_6 R_2 R_6 + C_1 C_4 C_6 R_2 R_6 - C_1 C_5 C_6 R_2 R_6 + C_2 C_3 C_6 R_2 R_6 + C_1 C_3 C_6 R_2 R_6 + C_1 C_5 C_6 R_2 R_6 + C_2 C_3 C_6 R_2 R_6 + C_1 C_3 C_6 R_2 R_6 + C_1 C_5 C_6 R_2 R_6 + C_2 C_3 C_6 R_2 R_6 + C_1 C_5 C_6 R_5 R_6 + C_1 C_5 R_5 R_6 + C_1 C_5 R_6 + C_1 C_5 R_6 + C_1 C_5 R_6 + C_1 C_5 R_6 R_6 + C_1 C_$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_6}{C_1C_2R_2+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_6R_6+C_2C_3R_2+C_3C_6R_6}$  Qz: None

Wz: None

**3.84** BP-84  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

## **Parameters:**

wo:  $\frac{\sqrt{C_1 + C_3}}{\sqrt{C_1 C_2 C_5 R_2 R_5 + C_1 C_3 C_5 R_2 R_5 + C_1 C_4 C_5 R_2 R_5 + C_2 C_3 C_5 R_2 R_5}}}{\frac{C_1 C_2 R_2 + C_1 C_3 R_2 + C_1 C_4 R_2 - C_1 C_5 R_2 + C_1 C_5 R_5 + C_2 C_3 R_2 + C_3 C_5 R_5}{\sqrt{C_5} \sqrt{R_2} \sqrt{R_5} \sqrt{C_1 C_2 + C_1 C_3 + C_1 C_4 + C_2 C_3} \sqrt{C_1 C_2 C_5 R_2 R_5 + C_1 C_3 C_5 R_2 R_5 + C_1 C_4 C_5 R_2}}}$ bandwidth:

K-BP:  $\frac{C_3C_5R_2R_6}{C_1C_2R_2 + C_1C_3R_2 + C_1C_4R_2 - C_1C_5R_2 + C_1C_5R_5 + C_2C_3R_2 + C_3C_5R_5}$ Qz: None

Wz: None

**3.85 BP-85**  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_3C_5R_2R_4R_6s$  $H(s) = \frac{1}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6 + C_1C_5C_6R_4R_6 + C_1C_5C_6R_4R_6 + C_1C_5C_6R_4R_6 + C_1C_5C_5C_6R_5R_5R_5 + C_1C_5C_5C_6R_5R_5R_5 + C_1C_5C_5C_5R_5R_5 + C_1C_5C_5C_5R_5R_5 + C_1C_5C_$ 

## Parameters:

 $: \frac{c_{1}c_{2}\sqrt{c_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{c_{1}R_{2}} + c_{1}R_{4} + c_{3}R_{4}}\sqrt{\frac{1}{c_{1}C_{2} + c_{1}C_{3} + c_{1}C_{4} - c_{1}C_{5} + c_{2}C_{3}}}{c_{1}C_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}} + c_{1}R_{4} + c_{3}R_{4}}\sqrt{\frac{1}{c_{1}C_{2} + c_{1}C_{3} + c_{1}C_{4} - c_{1}C_{5} + c_{2}C_{3}}}{c_{1}C_{2}R_{2}R_{4} + c_{1}C_{3}R_{2}R_{4} + c_{1}C_{5}R_{2}R_{4} + c_{1}C_{6}R_{2}R_{4} + c_{1}C_{6}R_{2}R_{6} +$ 

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_4C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6 + C_2C_3C_6R_2R_4R_6}}$ 

 $\sqrt{C_1R_2 + C_1R_4 + C_3R_4}(C_1C_2R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_2C_3R_2R_4 + C_3C_6R_4R_6)\sqrt{\frac{1}{C_1C_2C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6 + C_2C_3C_6R_2R_4R_6 + C_2C_3R_2R_4 + C_3C_6R_4R_6)}$  $\overline{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{4}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+$ 

K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4+C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_6R_2R_6+C_1C_6R_4R_6+C_2C_3R_2R_4+C_3C_6R_4R_6}$ 

Wz: None

**3.86** BP-86  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $C_3C_5R_2R_4R_6s$  $H(s) = \frac{1}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_5R_2R_4R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}$ 

#### **Parameters:**

K-LP: 0 K-HP: 0

 $\text{K-BP: } \frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4 + C_1C_3R_2R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_2C_3R_2R_4 + C_3C_5R_4R_5}$ 

Qz: None Wz: None

**3.87** BP-87  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{1}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4\right) + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4\right)}$ 

#### Parameters:

 $\frac{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2-C_5}}}{C_1C_2R_2R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4+C_2C_3R_2R_4}$ 

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}$ 

 $\frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}(C_1C_2R_2R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4)\sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}}{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 - C_5}}} - \sqrt{C_1}\sqrt{C_3}\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 - C_5}}}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4+C_2C_3R_2R_4}$ 

Wz: None

**3.88** BP-88  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{1}{C_1 + C_3 + s^2 \left( C_1 C_2 C_3 R_2 R_3 + C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3 \right) + s \left( C_1 C_2 R_2 + C_1 C_3 R_2 + C_1 C_3 R_3 + C_1 C_4 R_2 - C_1 C_5 R_2 + C_2 C_3 R_2 \right)}$ 

## Parameters:

 $Q \colon \frac{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_2 + C_4 - C_5}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_2 + C_4 - C_5}}}{C_1C_2R_2 + C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2 + C_2C_3R_2}$ 

 $\sqrt{C_1 + C_3} (C_1 C_2 R_2 + C_1 C_3 R_2 + C_1 C_3 R_3 + C_1 C_4 R_2 - C_1 C_5 R_2 + C_2 C_3 R_2) \sqrt{\frac{1}{C_1 C_2 C_3 R_2 R_3 + C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}}$ bandwidth:  $\frac{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}$ 

K-LP: 0

K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_6}{C_1C_2R_2 + C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2 + C_2C_3R_2}$ 

Qz: None

Wz: None

**3.89** BP-89 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_3R_2R_3R_4 + C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4\right) + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4\right)}{c_1R_2 + c_1R_4 + c_2R_4 + c_2R_3R_4 + c_1R_3R_4 + c_1R_3R_$$

#### Parameters:

 $+ \frac{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}-C_1C_2R_2R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_2C_3R_2R_4}{C_1C_2R_2R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_2C_3R_2R_4}$ 

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4 + C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}$ 

 $\frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}(C_1C_2R_2R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4)}{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}}} + \sqrt{C_1}\sqrt{C_1}\sqrt{C_1}C_2\sqrt{C_1}\sqrt{C_1}C_2\sqrt{C_1}\sqrt{C_1}C_2\sqrt{C_1}\sqrt{C_1}C_2\sqrt{C_1}C$ 

K-LP: 0 K-HP: 0

 $\begin{array}{lll} \text{K-BP:} & \frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_2C_3R_2R_4} \\ \end{array}$ 

Qz: None Wz: None

**3.90 BP-90**  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{-C_1 C_5 R_1 R_2 R_3 R_4 s^2 + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 - C_5 R_2 R_3 R_4\right)}$$

#### Parameters:

Q:  $-\frac{i\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4-C_5R_2R_3R_4}}$  wo:  $\frac{\sqrt{-R_1R_4-R_2R_3-R_2R_4-R_3R_4}}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ 

bandwidth:  $\frac{i\sqrt{-R_1R_4-R_2R_3-R_2R_4-R_3R_4}(C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4-C_5R_2R_3R_4)}{2(C_1R_1R_2R_3+C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4-C_5R_2R_3R_4)}$ 

 $C_1C_5R_1R_2R_3R_4\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}$ 

K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4-C_5R_2R_3R_4}$ 

Wz: None

**3.91 BP-91**  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $C_5R_1R_2R_4R_6s$ 

 $H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(-C_1C_5R_1R_2R_3R_4 + C_1C_5R_1R_2R_3R_5 + C_1C_5R_1R_2R_4R_5 + C_1C_5R_1R_3R_4R_5\right) + s\left(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_5R_1R_4R_5 - C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2R_4R_5 + C_5R_3R_4R_5\right)}$ 

#### Parameters:

 $-\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{4}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{4}R_{5}+R_{3}R_{4}R_{5} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{4}R_{5}+R_{3}R_{4}R_{5} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{4}R_{5}+R_{3}R_{4}R_{5} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{4}R_{5} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{4}R_{5} + \sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{4}R_{5} + R_{1}R_{4}R_{5} + R_{1}R_{4}R_{$ 

wo:  $\sqrt{\frac{-R_1R_4 - R_2R_3 - R_2R_4 - R_3R_4}{C_1C_5R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_5 - C_1C_5R_1R_2R_4R_5 - C_1C_5R_1R_3R_4R_5}}$ 

 $\frac{-R_{1}R_{4}-R_{2}R_{3}-R_{2}R_{4}-R_{3}R_{4}}{\sqrt{C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{3}+C_{1}C_{5}R_{1}R_{2}R_{4}+C_{5}R_{1}R_{4}R_{5}-C_{5}R_{2}R_{3}R_{4}+C_{5}R_{2}R_{3}R_{5}+C_{5}R_{2}R_{4}R_{5}+C_{5}R_{3}R_{4}R_{5})}}{-\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}R_{4}}+\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}R_{4}}+\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}R_{4}}+\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}R_{4}}+\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}R_{4}}+\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}R_{4}}+\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}R_{4}}+\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{4}+R_{3}R_{4}}+\sqrt{C_{1}}\sqrt{C_{5}}\sqrt{R_{1}}R_{2}R_{4}+R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}R_{4}}+R_{3}R_{4}+R_{3}R_{4}+R_{3}R_{4}+R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}+R_{3}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  Qz: None

Wz: None

**3.92 BP-92** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s^2 \left( C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3 \right)}$$

**3.93 BP-93** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_1 C_4 R_1 R_2 R_3 R_4 - C_1 C_5 R_1 R_2 R_3 R_4\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_4 R_2 R_3 R_4 - C_5 R_2 R_3 R_4\right)}$$

Parameters:

$$Q\colon \frac{\sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_4R_2R_3R_4-C_5R_2R_3R_4}}\\ \text{wo: } \sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_1C_4R_1R_2R_3R_4-C_1C_5R_1R_2R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}(C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_4R_2R_3R_4-C_5R_2R_3R_4)\sqrt{\frac{1}{C_1C_4R_1R_2R_3R_4-C_1C_5R_1R_2R_3R_4}}}{\sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_4R_2R_3R_4}-C_5R_2R_3R_4}{C_2\text{E: None}}\\ \text{Wz: None}\\ \text{Wz: None}$$

**3.94 BP-94** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{C_1 C_3 R_1 R_2 R_4 R_5 s^2 - R_2 R_4 + R_2 R_5 + R_4 R_5 + s \left( -C_1 R_1 R_2 R_4 + C_1 R_1 R_2 R_5 + C_1 R_1 R_4 R_5 + C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5 \right)}$$

Parameters:

Q: 
$$-\frac{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}$$
 wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $-\frac{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}{C_1C_3R_1R_2R_4R_5}$  K-LP: 0 K-HP: 0 K-BP:  $-\frac{C_3R_1R_2R_4R_6}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}$  Qz: None Wz: None

**3.95 BP-95** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_1C_3C_6R_1R_2R_4 - C_1C_5C_6R_1R_2R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

```
\begin{array}{l} Q\colon \frac{\sqrt{C_{1}}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}}{C_{1}R_{1}R_{2}+C_{1}R_{1}R_{4}+C_{3}R_{1}R_{4}+C_{3}R_{2}R_{4}-C_{5}R_{2}R_{4}}\\ \text{wo: }\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{4}}}\\ \text{bandwidth: }\frac{\sqrt{R_{2}+R_{4}}(C_{1}R_{1}R_{2}+C_{1}R_{1}R_{4}+C_{3}R_{2}R_{4}-C_{5}R_{2}R_{4})\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{4}}}}{\sqrt{C_{1}}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}}\\ \text{K-LP: 0}\\ \text{K-HP: 0}\\ \text{K-BP: }\frac{C_{3}C_{5}R_{1}R_{2}R_{4}}{C_{1}C_{6}R_{1}R_{4}+C_{3}C_{6}R_{1}R_{4}+C_{3}C_{6}R_{2}R_{4}-C_{5}C_{6}R_{2}R_{4}}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}
```

**3.96 BP-96** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_6 s}{-R_2 + R_5 + s^2 \left(C_1 C_3 R_1 R_2 R_5 + C_1 C_4 R_1 R_2 R_5\right) + s \left(-C_1 R_1 R_2 + C_1 R_1 R_5 + C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5\right)}$$

 $\begin{array}{l} Q \colon -\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3} + C_4\sqrt{-R_2 + R_5}}{C_1R_1R_2 - C_1R_1R_5 - C_3R_1R_5 - C_3R_2R_5 - C_4R_2R_5} \\ \text{wo: } \frac{\sqrt{-R_2 + R_5}}{\sqrt{C_1C_3R_1R_2R_5 + C_1C_4R_1R_2R_5}} \\ \text{bandwidth: } -\frac{C_1R_1R_2 - C_1R_1R_5 - C_3R_1R_5 - C_3R_2R_5 - C_4R_2R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3 + C_4}\sqrt{C_1C_3R_1R_2R_5 + C_1C_4R_1R_2R_5}} \\ \text{K-LP: 0} \\ \text{K-HP: 0} \\ \text{K-BP: } -\frac{C_3R_1R_2R_6}{C_1R_1R_2 - C_1R_1R_5 - C_3R_1R_5 - C_3R_2R_5 - C_4R_2R_5} \\ \text{Qz: None} \\ \text{Wz: None} \end{array}$ 

**3.97** BP-97 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2s}{C_6 + s^2\left(C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 - C_1C_5C_6R_1R_2\right) + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2\right)}$$

#### Parameters:

**3.98** BP-98 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s^2 \left(C_1 C_3 R_1 R_2 R_4 R_5 + C_1 C_4 R_1 R_2 R_4 R_5\right) + s \left(-C_1 R_1 R_2 R_4 + C_1 R_1 R_2 R_5 + C_1 R_1 R_4 R_5 + C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5 + C_4 R_2 R_4 R_5\right)}$$

$$\begin{array}{l} Q: -\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5}\\ wo: \frac{\sqrt{-R_2}R_4+R_2}{\sqrt{C_1C_3}R_1R_2R_4R_5+C_1C_4R_1R_2R_4R_5}\\ bandwidth: -\frac{C_1R_1R_2R_4-C_1R_1R_2R_4R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_1C_3}R_1R_2R_4R_5+C_1C_4R_1R_2R_4R_5}}\\ K-LP: 0\\ K-HP: 0\\ K-BP: -\frac{C_3R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5}}\\ Qz: None \end{array}$$

Wz: None

**3.99** BP-99 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_1C_3C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_4 - C_1C_5C_6R_1R_2R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

#### Parameters:

 $Q \colon \frac{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_1R_2+C_1R_1R_4+C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4}$ 

 $\frac{\sqrt{R_2 + R_4}(C_1R_1R_2 + C_1R_1R_4 + C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4)\sqrt{\frac{1}{C_1C_3R_1R_2R_4 + C_1C_4R_1R_2R_4 - C_1C_5R_1R_2R_4}}}{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2 + R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2 + R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2 + R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_1C_6R_1R_2+C_1C_6R_1R_4+C_3C_6R_1R_4+C_3C_6R_2R_4+C_4C_6R_2R_4-C_5C_6R_2R_4}$  Qz: None

Wz: None

**3.100** BP-100  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

 $C_3R_1R_2R_4R_6s$  $H(s) = \frac{1}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(-C_1C_3R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_5 + C_1C_3R_1R_2R_4R_5 + C_1C_3R_1R_2R_4 + C_1R_1R_2R_5 + C_1R_1R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5\right)}{-R_3R_4R_5 + R_4R_5 + R_5R_5 + R_5R_5$ 

#### Parameters:

 $Q: \frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_2R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5} + \frac{R_4R_5}{-R_2R_3R_4+R_2R_3R_5$ 

 $\frac{\text{bandwidth:}}{\sqrt{C_1\sqrt{C_3}\sqrt{R_1}R_2R_3R_4\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1\sqrt{C_3}\sqrt{R_1}R_2R_3R_5} - \sqrt{C_1\sqrt{C_3}\sqrt{R_1}$ 

K-HP: 0

 $\text{K-BP:} - \frac{C_3 R_1 R_2 R_4 R_6}{C_1 R_1 R_2 R_4 - C_1 R_1 R_2 R_5 - C_1 R_1 R_4 R_5 - C_3 R_1 R_4 R_5 + C_3 R_2 R_3 R_4 - C_3 R_2 R_3 R_5 - C_3 R_2 R_4 R_5 - C_3 R_3 R_4 R_5}$ 

Qz: None

Wz: None

**3.101** BP-101  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$ 

#### Parameters:

 $\frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2-C_5}}}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4-C_5R_3R_4}$ 

wo:  $\sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4}}$ 

 $\frac{\sqrt{R_3 + R_4}(C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4)\sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4}}}{\sqrt{C_1 C_2 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_2 - C_5}}} - \sqrt{C_1 C_5 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_2 - C_5}}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_5R_1R_4R_6}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4-C_5R_3R_4}$  Qz: None Wz: None

**3.102** BP-102 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_6 s}{s^2 \left(C_1 C_2 R_1 R_3 + C_1 C_4 R_1 R_3 - C_1 C_5 R_1 R_3\right) + s \left(C_1 R_1 + C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3\right) + 1}$$

**3.103 BP-103**  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^2 \left(C_1 C_2 R_1 R_3 R_4 + C_1 C_4 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4\right) + s \left(C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4\right)}$$

Parameters:

$$Q\colon \frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4}\\ \text{wo: } \sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2R_1R_3R_4+C_1C_4R_1R_3R_4-C_1C_5R_1R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{R_3+R_4}(C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4)\sqrt{\frac{1}{C_1C_2R_1R_3R_4+C_1C_4R_1R_3R_4-C_1C_5R_1R_3R_4}}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}}\\ \text{K-LP: 0}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_5R_1R_4R_6}{C_1R_1R_3+C_1R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4}}\\ \text{Qz: None}\\ \text{Wz: None}$$

**3.104** BP-104  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_1 R_4 R_6 s}{-R_4 + R_5 + s^2 \left(C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 + C_2 C_3 R_1 R_4 R_5\right) + s \left(-C_1 R_1 R_4 + C_1 R_1 R_5 + C_2 R_4 R_5 + C_3 R_4 R_5\right)}$$

Parameters:

Q: 
$$-\frac{\sqrt{K_1 V_4 V_4 V_4 V_5 V_5} - K_4 + K_5 V_5 U_1 C_2 + U_1 C_3 + U_2 U_3}{C_1 R_1 R_4 - C_1 R_1 R_5 - C_2 R_4 R_5 - C_3 R_4 R_5}$$
 wo: 
$$\frac{\sqrt{-R_4 + R_5}}{\sqrt{C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 + C_2 C_3 R_1 R_4 R_5}}$$
 bandwidth: 
$$-\frac{C_1 R_1 R_4 - C_1 R_1 R_5 - C_2 R_4 R_5 - C_3 R_4 R_5}{\sqrt{R_1 \sqrt{R_4 \sqrt{R_5}}} \sqrt{C_1 C_2 + C_1 C_3 + C_2 C_3} \sqrt{C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 + C_2 C_3 R_1 R_4 R_5}}$$
 K-LP: 
$$0$$
 K-HP: 
$$0$$
 K-BP: 
$$-\frac{C_3 R_1 R_4 R_6}{C_1 R_1 R_4 - C_1 R_1 R_5 - C_2 R_4 R_5 - C_3 R_4 R_5}$$
 Qz: None Wz: None

**3.105** BP-105  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4s}{C_6 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 - C_1C_5C_6R_1R_4 + C_2C_3C_6R_1R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4\right)}$$

```
 Q: \frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} \\ wo: \sqrt{\frac{1}{C_{1}C_{2}R_{1}R_{4}+C_{1}C_{3}R_{1}R_{4}-C_{1}C_{5}R_{1}R_{4}+C_{2}C_{3}R_{1}R_{4}}} \\ bandwidth: \frac{(C_{1}R_{1}+C_{2}R_{4}+C_{3}R_{4}-C_{5}R_{4})\sqrt{\frac{1}{C_{1}C_{2}R_{1}R_{4}+C_{1}C_{3}R_{1}R_{4}-C_{1}C_{5}R_{1}R_{4}+C_{2}C_{3}R_{1}R_{4}}}}{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{
```

**3.106** BP-106  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_1 R_6 s}{s^2 \left(C_1 C_2 R_1 R_5 + C_1 C_3 R_1 R_5 + C_1 C_4 R_1 R_5 + C_2 C_3 R_1 R_5\right) + s \left(-C_1 R_1 + C_2 R_5 + C_3 R_5 + C_4 R_5\right) - 1}$$

## Parameters:

Wz: None

**3.107 BP-107**  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_1C_2C_6R_1R_6 + C_1C_3C_6R_1R_6 + C_1C_5C_6R_1R_6 + C_2C_3C_6R_1R_6\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_5R_1 + C_2C_3R_1 + C_2C_6R_6 + C_3C_6R_6 + C_4C_6R_6 - C_5C_6R_6\right)}{c_2 + c_3 + c_4 + c_5 + s^2\left(C_1C_2C_6R_1R_6 + C_1C_3C_6R_1R_6 + C_1C_5C_6R_1R_6 + C_2C_3C_6R_1R_6\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_5R_1 + C_2C_3R_1 + C_2C_6R_6 + C_3C_6R_6 + C_4C_6R_6\right)}$$

#### Parameters:

 $Q: \frac{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{1}}\sqrt{R_{6}}\sqrt{\frac{C_{2}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{4}}{C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{4}}{C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{4}}{C_{1}C_{4}+C_{1}C_{5}+C_{2}C$ 

**3.108** BP-108  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_1C_2C_5R_1R_5 + C_1C_3C_5R_1R_5 + C_1C_4C_5R_1R_5 + C_2C_3C_5R_1R_5\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_5R_1 + C_2C_3R_1 + C_2C_5R_5 + C_3C_5R_5 + C_4C_5R_5\right)}{c_3C_5R_1R_5 + c_3C_5R_1R_5 + c_$$

#### Parameters:

Wz: None

Wz: None

**3.109 BP-109** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_4 R_6 s}{-R_4 + R_5 + s^2 \left(C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 + C_1 C_4 R_1 R_4 R_5 + C_2 C_3 R_1 R_4 R_5\right) + s \left(-C_1 R_1 R_4 + C_1 R_1 R_5 + C_2 R_4 R_5 + C_3 R_4 R_5 + C_4 R_4 R_5\right)}$$

#### Parameters:

K-LP: 0 K-HP: 0

K-BP:  $-\frac{C_3R_1R_4R_6}{C_1R_1R_4 - C_1R_1R_5 - C_2R_4R_5 - C_3R_4R_5 - C_4R_4R_5}$ Qz: None Wz: None

# **3.110** BP-110 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_4s}{C_6 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_4C_6R_1R_4 - C_1C_5C_6R_1R_4 + C_2C_3C_6R_1R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_4 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$$

#### Parameters:

$$Q: \frac{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+\frac{1}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+\frac{1}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+\frac{1}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+\frac{1}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}R_{4}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}R_{4}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}R_{4}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}R_{4}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}+C_{1}C_{4}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt$$

 $(C_1R_1 + C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4)\sqrt{\frac{1}{C_1C_2R_1R_4 + C_1C_3R_1R_4 + C_1C_4R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_1R_4}}$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_4}{C_1C_6R_1+C_2C_6R_4+C_3C_6R_4+C_4C_6R_4-C_5C_6R_4}$  Qz: None Wz: None

**3.111** BP-111  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_1C_2C_3R_1R_3 + C_1C_3C_4R_1R_3 - C_1C_3C_5R_1R_3\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_5R_1 + C_2C_3R_1 + C_2C_3R_3 + C_3C_4R_3 - C_3C_5R_3\right)}$$

#### Parameters:

$$Q: \frac{\sqrt{C_{1}}C_{2}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}}}{+\sqrt{C_{1}}\sqrt{C_{3}}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{2}+C_{4}-C_{5}}{C_{2}+C_{4}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} + \frac{C_{5}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}}}{+\frac{C_{4}}{C_{4}+C_{5}}} + \frac{C_{4}}{C_{4}+C_{5}}}{+\frac{C_{4}}{C_{4}+C_{5}}} + \frac{C_{4}}{C_{4}+C_{5}}}{+\frac{C_{4}}{C_{4}+C_{5}}} + \frac{C_{4}}{C_{4}+C_{5}}}{+\frac{C_{4}}{C_{4}+C_{5}}} + \frac{C_{4}}{C_{4}+C_{5}}}{+\frac{C_{4}}{C_{4}+C_{5}}} + \frac{C_{4}}{C_{4}+C_{5}}}{+\frac$$

wo:  $\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_1 C_2 C_3 R_1 R_3 + C_1 C_3 C_4 R_1 R_3 - C_1 C_3 C_5 R_1 R_3}}$ 

 $\frac{\sqrt{\frac{C_{2}+C_{3}+C_{4}-C_{5}}{C_{1}C_{2}C_{3}R_{1}R_{3}+C_{1}C_{3}C_{5}R_{1}R_{3}}}(C_{1}C_{2}R_{1}+C_{1}C_{3}R_{1}+C_{1}C_{4}R_{1}-C_{1}C_{5}R_{1}+C_{2}C_{3}R_{3}+C_{3}C_{4}R_{3}-C_{3}C_{5}R_{3})}{\sqrt{C_{1}C_{2}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{3}}{C_{2}+C_{4}-C_{5}}+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}+\sqrt{C_{1}}\sqrt{C_{3}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{3}}{C_{2}+C_{4}-C_{5}}-\sqrt{C_{1}}\sqrt{C_{3}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{3}}{C_{2}+C_{4}-C_{5}}+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}-\sqrt{C_{1}}\sqrt{C_{3}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{3}}{C_{2}+C_{4}-C_{5}}+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}-\sqrt{C_{1}}\sqrt{C_{3}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{3}}{C_{2}+C_{4}-C_{5}}+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C$ 

K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_6}{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_1+C_2C_3R_3+C_3C_4R_3-C_3C_5R_3}$  Qz: None

Wz: None

**3.112 BP-112** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_4 - C_1 C_5 R_1 R_2 R_3 R_4\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 - C_5 R_2 R_3 R_4\right)}{R_1 R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_4 - C_1 C_5 R_1 R_2 R_3 R_4\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 - C_5 R_2 R_3 R_4\right)}$$

$$Q\colon \frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_2-C_5}}}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_2R_1R_2R_4+C_2R_2R_3R_4-C_5R_2R_3R_4}\\ \text{wo: } \sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4-C_1C_5R_1R_2R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{C_1C_2R_1R_2R_3R_4-C_1C_5R_1R_2R_3R_4}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}\sqrt{\frac{1}{C_2-C_5}}\\ \text{K-LP: 0}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_4+C_1R_1R_3R_4+C_2R_2R_3R_4-C_5R_2R_3R_4}\\ \text{Qz: None}\\ \text{Wz: None}$$

# **3.113 BP-113** $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s^2 \left(C_1 C_2 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3\right) + s \left(C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3\right)}$$

## Parameters:

$$Q\colon \frac{\sqrt{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}{C_{1}R_{1}R_{2}+C_{1}R_{1}R_{2}+C_{2}R_{1}R_{2}+C_{2}R_{2}R_{3}+C_{4}R_{2}R_{3}-C_{5}R_{2}R_{3}}}$$

$$wo: \sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}R_{1}R_{2}R_{3}+C_{1}C_{4}R_{1}R_{2}}R_{3}-C_{1}C_{5}R_{1}R_{2}R_{3}}}$$

$$bandwidth: \frac{\sqrt{R_{1}+R_{2}+R_{3}}(C_{1}R_{1}R_{2}+C_{1}R_{1}R_{3}+C_{2}R_{1}R_{2}+C_{2}R_{2}R_{3}+C_{4}R_{2}R_{3}-C_{5}R_{2}R_{3}})\sqrt{\frac{1}{C_{1}C_{2}R_{1}R_{2}R_{3}+C_{1}C_{5}R_{1}R_{2}R_{3}}}}{\sqrt{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}}$$

$$K-LP: 0$$

$$K-HP: 0$$

$$K-BP: \frac{C_{5}R_{1}R_{2}R_{6}}{C_{1}R_{1}R_{2}+C_{1}R_{1}R_{3}+C_{2}R_{1}R_{2}+C_{2}R_{2}R_{3}+C_{4}R_{2}R_{3}-C_{5}R_{2}R_{3}}}{C_{2}: None}}$$

$$Wz: None$$

**3.114 BP-114** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_4 + C_1 C_4 R_1 R_2 R_3 R_4 - C_1 C_5 R_1 R_2 R_3 R_4\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_4 R_2 R_3 R_4 - C_5 R_2 R_3 R_4\right)}$ 

**3.115 BP-115** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s^2 \left(C_1 C_2 R_1 R_2 R_4 R_5 + C_1 C_3 R_1 R_2 R_4 R_5 + C_2 C_3 R_1 R_2 R_4 R_5\right) + s \left(-C_1 R_1 R_2 R_4 + C_1 R_1 R_2 R_5 + C_1 R_1 R_4 R_5 + C_2 R_2 R_4 R_5 + C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5\right)}$$

Q:  $-\frac{\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{2}C_{3}}\sqrt{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}}{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}}$ wo:  $\frac{\sqrt{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}}{\sqrt{C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}}}$ bandwidth:  $-\frac{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}}{\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{2}C_{3}}\sqrt{C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{4}R_{5}}}$ 

K-HP: 0

 $\text{K-BP:} - \frac{C_3 R_1 R_2 R_4 R_6}{C_1 R_1 R_2 R_4 - C_1 R_1 R_2 R_5 - C_1 R_1 R_4 R_5 - C_2 R_2 R_4 R_5 - C_3 R_1 R_4 R_5 - C_3 R_2 R_4 R_5}$ 

Qz: None Wz: None

**3.116** BP-116  $Z(s) = \begin{pmatrix} \frac{R_1}{C_1 R_1 s + 1}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & R_4, & \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 - C_1C_5C_6R_1R_2R_4 + C_2C_3C_6R_1R_2R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

#### Parameters:

 $Q: \underbrace{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} +C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} +C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} +C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} +C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2$ 

wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 - C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4}$ 

 $\frac{\sqrt{R_2 + R_4}(C_1 R_1 R_2 + C_1 R_1 R_4 + C_2 R_2 R_4 + C_3 R_1 R_4 + C_3 R_2 R_4 - C_5 R_2 R_4)\sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 - C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4}}{C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R$ 

K-LP: 0 K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_1C_6R_1R_2+C_1C_6R_1R_4+C_2C_6R_2R_4+C_3C_6R_1R_4+C_3C_6R_2R_4-C_5C_6R_2R_4}$  Qz: None

Wz: None

**3.117** BP-117  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_1 R_2 R_6 s}{-R_2 + R_5 + s^2 \left(C_1 C_2 R_1 R_2 R_5 + C_1 C_3 R_1 R_2 R_5 + C_1 C_4 R_1 R_2 R_5 + C_2 C_3 R_1 R_2 R_5\right) + s \left(-C_1 R_1 R_2 + C_1 R_1 R_5 + C_2 R_2 R_5 + C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5\right)}$$

## **Parameters:**

 $\begin{array}{l} Q\colon -\frac{\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-R_2+R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}\\ \text{wo: } \frac{\sqrt{-R_2+R_5}}{\sqrt{C_1C_2R_1R_2R_5+C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5+C_2C_3R_1R_2R_5}}\\ \text{bandwidth: } -\frac{C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}{\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2R_1R_2R_5+C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5}}\\ \text{TABLE C.} \end{array}$ 

K-HP: 0

K-BP:  $-\frac{C_3R_1R_2R_6}{C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}$ 

Qz: None

Wz: None

**3.118 BP-118**  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2s}{C_6 + s^2\left(C_1C_2C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 - C_1C_5C_6R_1R_2 + C_2C_3C_6R_1R_2\right) + s\left(C_1C_6R_1 + C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2\right)}$$

## Parameters:

 $Q \colon \frac{C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}{C_1 R_1 + C_2 R_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3} + C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}{C_1 R_1 + C_2 R_2 + C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}} \\ - C_1 C_2 \sqrt{R_1} \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}}}$ 

wo:  $\sqrt{\frac{1}{C_{1}C_{2}R_{1}R_{2}+C_{1}C_{3}R_{1}R_{2}+C_{1}C_{5}R_{1}R_{2}+C_{2}C_{3}R_{1}R_{2}}}$   $(C_{1}R_{1}+C_{2}R_{2}+C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2})\sqrt{\frac{1}{C_{1}C_{2}R_{1}R_{2}+C_{1}C_{3}R_{1}R_{2}+C_{1}C_{5}R_{1}R_{2}+C_{2}C_{3}R_{1}R_{2}}}$   $\frac{(C_{1}R_{1}+C_{2}R_{2}+C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2})\sqrt{\frac{1}{C_{1}C_{2}R_{1}R_{2}+C_{1}C_{3}R_{1}R_{2}+C_{1}C_{3}R_{1}R_{2}+C_{1}C_{5}R_{1}R_{2}+C_{2}C_{3}R_{1}R_{2}}}{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3$ 

**3.119** BP-119  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s^2 \left(C_1 C_2 R_1 R_2 R_4 R_5 + C_1 C_3 R_1 R_2 R_4 R_5 + C_2 C_3 R_1 R_2 R_4 R_5 \right) + s \left(-C_1 R_1 R_2 R_4 + C_1 R_1 R_2 R_5 + C_1 R_1 R_4 R_5 + C_2 R_2 R_4 R_5 + C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5 + C_4 R_2 R_4 R_5 \right)}$ 

#### Parameters:

Qz: None Wz: None

**3.120** BP-120  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_2C_3C_6R_1R_2R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4\right)}{c_6R_2 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_3C_6R_1R_2R_4 + C_3$ 

#### Parameters:

 $Q: \frac{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}R_{2}+C_{1}R_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}R_{1}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{1}R_{4}+C_{3}R_{2}R_{4}+C_{4}R_{2}R_{4}-C_{5}R_{2}R_{4}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}R_{1}R_{2}+C_{1}R_{1}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{1}R_{4}+C_{3}R_{2}R_{4}+C_{4}R_{2}R_{4}-C_{5}R_{2}R_{4}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}R_{1}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{1}R_{4}+C_{3}R_{2}R_{4}+C_{4}R_{2}R_{4}-C_{5}R_{2}R_{4}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{$ 

wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 + C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4}}$ 

 $\frac{\sqrt{R_2 + R_4}(C_1 R_1 R_2 + C_1 R_1 R_4 + C_2 R_2 R_4 + C_3 R_1 R_4 + C_3 R_2 R_4 + C_4 R_2 R_4 - C_5 R_2 R_4)\sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_5 R_1 R_2 R_4 + C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4}}{C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt$ 

K-LP: 0 K-HP: 0

 $\begin{array}{l} \text{K-BP:} \\ \frac{C_3C_5R_1R_2R_4}{C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4} \\ \end{array}$ 

Qz: None Wz: None

- **4** BS
- 5 GE
- 6 HP

**6.1 HP-1** 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_3C_6R_1R_4R_6 + C_3C_6R_2R_4R_6 - C_5C_6R_2R_4R_6\right) + s\left(C_3R_1R_4 + C_3R_2R_4 - C_5R_2R_4 + C_6R_2R_6 + C_6R_4R_6\right)}$$

$$Q\colon \frac{C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} + C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} - C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}}{C_3R_1R_4+C_3R_2R_4-C_5R_2R_4+C_6R_2R_6+C_6R_4R_6}\\ \text{wo: } \sqrt{R_2+R_4}\sqrt{\frac{1}{C_3C_6R_1R_4R_6+C_3C_6R_2R_4R_6}} \\ \text{bandwidth: } \frac{\sqrt{R_2+R_4}(C_3R_1R_4+C_3R_2R_4-C_5R_2R_4+C_6R_2R_6+C_6R_4R_6)}\sqrt{\frac{1}{C_3C_6R_1R_4R_6+C_3C_6R_2R_4R_6}}}{C_3\sqrt{C_6R_1}\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} + C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} - C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}}}\\ \text{K-LP: 0} \\ \text{K-HP: } \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2} \\ \text{K-BP: 0} \\ \text{Qz: None} \\ \text{Wz: None}$$

# **6.2** HP-2 $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_3C_5R_1R_4R_5 + C_3C_5R_2R_4R_5\right) + s\left(C_3R_1R_4 + C_3R_2R_4 - C_5R_2R_4 + C_5R_2R_5 + C_5R_4R_5\right)}$$

## Parameters:

Q: 
$$\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{R_2+R_4}}{C_3R_1R_4+C_3R_2R_4-C_5R_2R_4+C_5R_2R_5+C_5R_4R_5}$$
 wo: 
$$\frac{\sqrt{R_2+R_4}}{\sqrt{C_3C_5R_1R_4R_5+C_3C_5R_2R_4R_5}}$$
 bandwidth: 
$$\frac{C_3R_1R_4+C_3R_2R_4-C_5R_2R_4+C_5R_2R_5+C_5R_4R_5}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_5R_1R_4R_5+C_3C_5R_2R_4R_5}}$$
 K-LP: 0 K-HP: 
$$\frac{R_1R_2R_6}{R_1R_5+R_2R_5}$$
 K-BP: 0 Qz: None Wz: None

**6.3 HP-3** 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^2\left(C_3C_6R_1R_6 + C_3C_6R_2R_6 + C_4C_6R_2R_6 - C_5C_6R_2R_6\right) + s\left(C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_6R_6\right) + 1}$$

#### Parameters:

$$\begin{array}{c} Q: \frac{C_3\sqrt{C_6}R_1\sqrt{R_6}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_3\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} - C_5\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} \\ wo: \sqrt{\frac{1}{C_3C_6}R_1R_6+C_3C_6R_2R_6} + \frac{C_3R_1+C_3R_2+C_4R_2-C_5R_2+C_6R_6}{C_3R_1+C_3R_2+C_4R_2-C_5R_2+C_6R_6} \\ \\ bandwidth: \frac{(C_3R_1+C_3R_2+C_4R_2-C_5R_2+C_6R_6)\sqrt{\frac{1}{C_3C_6}R_1R_6+C_3C_6R_2R_6} - C_5C_6R_2R_6}{C_3\sqrt{C_6}R_1\sqrt{R_6}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_3\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} - C_5\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} \\ K-LP: 0 \\ K-HP: \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2} \\ K-BP: 0 \\ Qz: None \\ Wz: None \\ \end{array}$$

**6.4 HP-4** 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^2\left(C_3C_5R_1R_5 + C_3C_5R_2R_5 + C_4C_5R_2R_5\right) + s\left(C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_5R_5\right) + 1}$$

```
Q: \frac{\sqrt{C_5}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_3R_1+C_3R_2+C_4R_2-C_5R_2+C_5R_5} wo: \frac{1}{\sqrt{C_3C_5R_1R_5+C_3C_5R_2R_5+C_4C_5R_2R_5}} bandwidth: \frac{C_3R_1+C_3R_2+C_4R_2-C_5R_2+C_5R_5}{\sqrt{C_5}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_3C_5R_1R_5+C_3C_5R_2R_5+C_4C_5R_2R_5}} K-LP: 0 K-HP: \frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5} K-BP: 0 Qz: None
```

**6.5 HP-5**  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_3C_6R_1R_4R_6 + C_3C_6R_2R_4R_6 + C_4C_6R_2R_4R_6 - C_5C_6R_2R_4R_6\right) + s\left(C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4 + C_6R_2R_6 + C_6R_4R_6\right)}$$

## Parameters:

Wz: None

```
Q: \frac{C_3\sqrt{C_6R_1\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} + C_3\sqrt{C_6R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} + C_4\sqrt{C_6R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} - C_5\sqrt{C_6R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}} \\ wo: \sqrt{R_2+R_4}\sqrt{\frac{1}{C_3C_6R_1R_4R_6+C_3C_6R_2R_4R_6}} \\ bandwidth: \frac{\sqrt{R_2+R_4}(C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4+C_6R_2R_6+C_6R_4R_6)}}{\sqrt{C_3C_6R_1R_4R_6+C_3C_6R_2R_4R_6}} \\ bandwidth: \frac{\sqrt{R_2+R_4}(C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4+C_6R_2R_6+C_6R_4R_6)\sqrt{\frac{1}{C_3C_6R_1R_4R_6+C_3C_6R_2R_4R_6}}} {C_3\sqrt{C_6R_1\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}} + C_3\sqrt{C_6R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}} + C_4\sqrt{C_6R_2\sqrt{R_4}\sqrt{R_6}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}} \\ K-LP: 0 \\ K-HP: \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}} {K-BP: 0} \\ K-BP: 0
```

K-BP: 0

Qz: None

Wz: None

**6.6 HP-6**  $Z(s) = \left(R_1, R_2, \frac{1}{C_{3s}}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_3C_5R_1R_4R_5 + C_3C_5R_2R_4R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4 + C_5R_2R_5 + C_5R_4R_5\right)}$$

#### Parameters:

**6.7 HP-7**  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{-C_3C_5R_2R_3R_4s^2 + R_2 + R_4 + s\left(C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 - C_5R_2R_4\right)}$$

## Parameters:

Wz: None

Q:  $-\frac{i\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}}{C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4}$  wo:  $\frac{\sqrt{-R_2-R_4}}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{i\sqrt{-R_2-R_4}(C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4)}{C_3C_5R_2R_3R_4\sqrt{R_2+R_4}}$  K-LP: 0 K-HP:  $-\frac{R_1R_6}{R_3}$  K-BP: 0 Qz: None

**6.8 HP-8** 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_3C_5R_1R_4R_5 - C_3C_5R_2R_3R_4 + C_3C_5R_2R_3R_5 + C_3C_5R_2R_4R_5 + C_3C_5R_3R_4R_5\right) + s\left(C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_5R_2R_4 + C_5R_2R_5 + C_5R_4R_5\right)}$$

 $Q: \frac{\sqrt{C_3}\sqrt{C_5}R_1R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_3R_4+C_3R_3R_4+C_3R_3R_4+C_3R_3R_4+C_3R_3R_4+C_3R_3R_4+C_5R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{R_2+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_3R_4R_5}$ wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_3 C_5 R_1 R_4 R_5 - C_3 C_5 R_2 R_3 R_4 + C_3 C_5 R_2 R_3 R_5 + C_3 C_5 R_2 R_4 R_5 + C_3 C_5 R_3 R_4 R_5}$ 

K-LP: 0

K-HP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$  K-BP: 0

Qz: None Wz: None

**6.9 HP-9**  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^2\left(C_3C_4R_2R_3 - C_3C_5R_2R_3\right) + s\left(C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 - C_5R_2\right) + 1}$$

## Parameters:

$$Q\colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2}\\ \text{wo: } \sqrt{\frac{1}{C_3C_4R_2R_3-C_3C_5R_2R_3}}\\ \text{bandwidth: } \frac{(C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2)\sqrt{\frac{1}{C_3C_4R_2R_3-C_3C_5R_2R_3}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None}$$

**6.10 HP-10** 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_3C_4R_2R_3R_4 - C_3C_5R_2R_3R_4\right) + s\left(C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 + C_4R_2R_4 - C_5R_2R_4\right)}$$

## Parameters:

Wz: None

$$Q\colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4}\\ \text{wo: } \sqrt{R_2+R_4}\sqrt{\frac{1}{C_3C_4R_2R_3R_4-C_3C_5R_2R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{R_2+R_4}(C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4)\sqrt{\frac{1}{C_3C_4R_2R_3R_4-C_3C_5R_2R_3R_4}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3}\\ \text{K-BP: 0}\\ \text{Qz: None}$$

**6.11 HP-11** 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3 C_5 R_1 R_4 R_6 s^2}{C_2 C_3 R_1 R_4 s^2 + s \left(C_2 R_4 + C_3 R_4 - C_5 R_4\right) + 1}$$

 $\begin{array}{l} \text{Q: } \frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_4}+C_3\sqrt{R_4}-C_5\sqrt{R_4}} \\ \text{wo: } \frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}} \\ \text{bandwidth: } \frac{C_2\sqrt{R_4}+C_3\sqrt{R_4}-C_5\sqrt{R_4}}{C_2C_3R_1\sqrt{R_4}} \\ \text{K-LP: 0} \\ \text{K-HP: } \frac{C_5R_6}{C_2} \\ \text{K-BP: 0} \\ \text{Qz: None} \end{array}$ 

**6.12 HP-12**  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3 C_5 R_1 R_4 R_6 s^2}{C_2 C_3 R_1 R_4 s^2 + s \left(C_2 R_4 + C_3 R_4 + C_4 R_4 - C_5 R_4\right) + 1}$$

Parameters:

Wz: None

**6.13** HP-13  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^2\left(C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4\right) + s\left(C_2R_4 + C_3R_3 + C_3R_4 - C_5R_4\right) + 1}$$

Parameters:

 $Q\colon \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}+C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}-\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}{C_2R_4+C_3R_3+C_3R_4-C_5R_4}\\ \text{wo: } \sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_3R_4-C_3C_5R_3R_4}}\\ \text{bandwidth: } \frac{(C_2R_4+C_3R_3+C_3R_4-C_5R_4)\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_3R_4-C_3C_5R_3R_4}}}{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}+C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}-\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None}$ 

**6.14 HP-14**  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^2\left(C_2C_3R_1R_4 + C_2C_3R_3R_4 + C_3C_4R_3R_4 - C_3C_5R_3R_4\right) + s\left(C_2R_4 + C_3R_3 + C_3R_4 + C_4R_4 - C_5R_4\right) + 1}$$

Parameters:

 $\text{Q:} \ \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C_3}C_4R_3\sqrt{C$ 

```
Wo: \sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}
```

 $(C_2R_4+C_3R_3+C_3R_4+C_4R_4-C_5R_4)\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}$ 

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}$ K-BP: 0

Qz: None

Wz: None

**6.15 HP-15**  $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{C_2C_3R_1R_2R_4s^2 + R_2 + R_4 + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 - C_5R_2R_4\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2+R_4}}{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}$ wo:  $\frac{\sqrt{R_2+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}{C_2C_3R_1R_2\sqrt{R_4}}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ K-BP: 0 Qz: None Wz: None

**6.16 HP-16**  $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{C_2C_3R_1R_2s^2 + s\left(C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2\right) + 1}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}{C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}$ wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}$ bandwidth:  $\frac{C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}{C_2C_3R_1R_2}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ K-BP: 0 Qz: None Wz: None

**6.17 HP-17**  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{C_2C_3R_1R_2R_4s^2 + R_2 + R_4 + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2+R_4}}{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}+C_4R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_2+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}+C_4R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}{C_2C_3R_1R_2\sqrt{R_4}}$ 

K-LP: 0 K-L1 .  $\cup$ K-HP:  $\frac{C_5R_6}{C_2}$ K-BP: 0 Qz: None

Wz: None

**6.18 HP-18** 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_2C_3R_1R_2R_4 + C_2C_3R_2R_3R_4 - C_3C_5R_2R_3R_4\right) + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 - C_5R_2R_4\right)}$$

$$Q\colon \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} }{C_2R_2R_4+C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4}\\ \text{wo: } \sqrt{R_2+R_4}\sqrt{\frac{1}{C_2C_3R_1R_2R_4+C_2C_3R_2R_3R_4}-C_3C_5R_2R_3R_4}\\ \text{bandwidth: } \frac{\sqrt{R_2+R_4}(C_2R_2R_4+C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4)\sqrt{\frac{1}{C_2C_3R_1R_2R_4+C_2C_3R_2R_3R_4-C_3C_5R_2R_3R_4}}}{C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None}$$

# **6.19 HP-19** $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^2\left(C_2C_3R_1R_2 + C_2C_3R_2R_3 + C_3C_4R_2R_3 - C_3C_5R_2R_3\right) + s\left(C_2R_2 + C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 - C_5R_2\right) + 1}$$

## Parameters:

$$Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ Wo: \sqrt{\frac{1}{C_2C_3R_1R_2+C_2C_3R_2}R_3+C_3C_4R_2R_3-C_3C_5R_2}R_3} \\ bandwidth: \frac{(C_2R_2+C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2)\sqrt{\frac{1}{C_2C_3R_1R_2+C_2C_3R_2R_3+C_3C_5R_2R_3}} \\ \frac{(C_2R_2+C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2)\sqrt{\frac{1}{C_2C_3R_1R_2+C_2C_3R_2R_3+C_3C_5R_2R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ \frac{(C_2R_2+C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2)\sqrt{\frac{1}{C_2C_3R_1R_2+C_2C_3R_2R_3+C_3C_5R_2R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ \frac{(C_2R_2+C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2)\sqrt{\frac{1}{C_2C_3R_1R_2+C_2C_3R_2R_3+C_3C_5R_2R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ \frac{(C_2R_2+C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2)\sqrt{\frac{1}{C_2C_3R_1R_2+C_2C_3R_2R_3+C_3C_5R_2R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ \frac{(C_2R_2+C_3R_1+C_3R_2+C_3R_3+C_4R_3-C_5R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ \frac{(C_2R_2+C_3R_1+C_2R_3+C_4R_3-C_5R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ \frac{(C_2R_2+C_3R_1+C_2R_3+C_4R_3-C_5R_3+C_4R_3-C_5R_3+C_4R_3-C_5R_3+C_4R_3-C_5R_3+C_4R_3-C_5R_3} + \sqrt{C_3$$

**6.20 HP-20** 
$$Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_2C_3R_1R_2R_4 + C_2C_3R_2R_3R_4 + C_3C_4R_2R_3R_4 - C_3C_5R_2R_3R_4\right) + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 + C_4R_2R_4 - C_5R_2R_4\right)}$$

$$Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ wo: \sqrt{R_2+R_4}\sqrt{\frac{1}{C_2C_3R_1R_2R_4+C_2C_3R_2R_3R_4+C_3C_3R_2R_3R_4+C_3R_2R_4+C_3R_2R_4+C_3R_2R_4+C_5R_2R_4}} \\ bandwidth: \frac{\sqrt{R_2+R_4}(C_2R_2R_4+C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4)}\sqrt{\frac{1}{C_2C_3R_1R_2R_4+C_2C_3R_2R_3R_4+C_3C_5R_3R_4}} \\ c_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}} \\ k-LP: 0\\ k-HP: \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}} \\ k-BP: 0\\ Qz: None\\ Wz: None$$

**6.21 HP-21** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_3R_1R_4 + C_3R_2R_4 - C_5R_2R_4\right)}$$

$$Q\colon \frac{\sqrt{C_{1}}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}}{C_{1}R_{1}R_{2}+C_{1}R_{1}R_{4}+C_{3}R_{1}R_{4}+C_{3}R_{2}R_{4}-C_{5}R_{2}R_{4}}\\ \text{wo: } \sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{4}}}\\ \text{bandwidth: } \frac{\sqrt{R_{2}+R_{4}}(C_{1}R_{1}R_{2}+C_{1}R_{1}R_{4}+C_{3}R_{1}R_{4}+C_{3}R_{2}R_{4}-C_{5}R_{2}R_{4})\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{4}}}}{\sqrt{C_{1}C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}-C_{1}C_{5}}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None}$$

# **6.22** HP-22 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^2\left(C_1C_3R_1R_2 + C_1C_4R_1R_2 - C_1C_5R_1R_2\right) + s\left(C_1R_1 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2\right) + 1}$$

## Parameters:

**6.23 HP-23** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_1C_3R_1R_2R_4 + C_1C_4R_1R_2R_4 - C_1C_5R_1R_2R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4\right)}$$

Q: 
$$\frac{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} + \sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} }{\frac{C_{1}R_{1}R_{2}+C_{1}R_{1}R_{4}+C_{3}R_{1}R_{4}+C_{3}R_{2}R_{4}+C_{4}R_{2}R_{4}-C_{5}R_{2}R_{4}}}{C_{1}C_{3}R_{1}R_{2}R_{4}+C_{1}C_{5}R_{1}R_{2}R_{4}}}}$$
wo: 
$$\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{4}+C_{1}C_{4}R_{1}R_{2}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{4}}}}$$
bandwidth: 
$$\frac{\sqrt{R_{2}+R_{4}}(C_{1}R_{1}R_{2}+C_{1}R_{1}R_{4}+C_{3}R_{2}R_{4}+C_{4}R_{2}R_{4}-C_{5}R_{2}R_{4})\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{4}+C_{1}C_{5}R_{1}R_{2}R_{4}}}}{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}} + \sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}} - \sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}}$$
K-LP: 0

K-HP: 
$$\frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}}}{C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}}}$$
K-BP: 0

Qz: None
Wz: None

**6.24 HP-24** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^2\left(C_1C_2R_1R_4 + C_1C_3R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_1R_4\right) + s\left(C_1R_1 + C_2R_4 + C_3R_4 - C_5R_4\right) + 1}$$

$$Q: \frac{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}+C_{2}R_{4}+C_{3}R_{4}-C_{5}R_{4}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C$$

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_4+C_1C_3R_1R_4-C_1C_5R_1R_4+C_2C_3R_1R_4}}$ 

 $\text{bandwidth: } \frac{(C_1R_1 + C_2R_4 + C_3R_4 - C_5R_4)\sqrt{\frac{1}{C_1C_2R_1R_4 + C_1C_3R_1R_4 + C_2C_3R_1R_4}}}{C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} - C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}}} + C_2C_3\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{\frac{1$ 

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$ K-BP: 0

Qz: None Wz: None

# **6.25** HP-25 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^2\left(C_1C_2R_1R_4 + C_1C_3R_1R_4 + C_1C_4R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_1R_4\right) + s\left(C_1R_1 + C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4\right) + 1}$$

#### Parameters:

 $Q: \frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_$ 

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_4+C_1C_3R_1R_4+C_1C_4R_1R_4-C_1C_5R_1R_4+C_2C_3R_1R_4}}$ 

 $(C_1R_1 + C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4)\sqrt{\frac{1}{C_1C_2R_1R_4 + C_1C_3R_1R_4 + C_1C_4R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_1R_4}}$ 

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$ K-BP: 0

Qz: None Wz: None

**6.26 HP-26** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4 + C_2C_3R_1R_2R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 - C_5R_2R_4\right)}$$

#### Parameters:

$$Q: \frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{$$

wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 - C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4}$ 

 $\text{bandwidth: } \frac{\sqrt{R_2 + R_4}(C_1 R_1 R_2 + C_1 R_1 R_4 + C_2 R_2 R_4 + C_3 R_1 R_4 + C_3 R_2 R_4 - C_5 R_2 R_4) \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 - C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4}}{C_1 C_2 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt$ 

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$ K-BP: 0

Qz: None Wz: None

**6.27** HP-27 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^2\left(C_1C_2R_1R_2 + C_1C_3R_1R_2 + C_1C_4R_1R_2 - C_1C_5R_1R_2 + C_2C_3R_1R_2\right) + s\left(C_1R_1 + C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2\right) + 1}$$

**6.28 HP-28** 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_1C_4R_1R_2R_4 - C_1C_5R_1R_2R_4 + C_2C_3R_1R_2R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4\right)}$$

#### Parameters:

Qz: None Wz: None

```
Q: \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_3+C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_
```

# 7 LP

7.1 LP-1 
$$Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{R_1 R_2 R_6}{C_4 C_6 R_2 R_3 R_5 R_6 s^2 + R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s \left(C_4 R_2 R_3 R_5 + C_6 R_1 R_5 R_6 - C_6 R_2 R_3 R_6 + C_6 R_2 R_5 R_6 + C_6 R_3 R_5 R_6\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_4}\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{C_4R_2R_3R_5+C_6R_1R_5R_6-C_6R_2R_3R_6+C_6R_2R_5R_6+C_6R_3R_5R_6}$  wo:  $\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{R_6}}$  bandwidth:  $\frac{C_4R_2R_3R_5+C_6R_1R_5R_6-C_6R_2R_3R_6+C_6R_2R_5R_6+C_6R_3R_5R_6}{C_4C_6R_2R_3R_5R_6}$  K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

7.2 LP-2 
$$Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2}{C_4 C_5 C_6 R_2 R_3 R_5 s^2 + C_6 R_1 + C_6 R_2 + C_6 R_3 + s \left( C_4 C_6 R_2 R_3 + C_5 C_6 R_1 R_5 - C_5 C_6 R_2 R_3 + C_5 C_6 R_2 R_5 + C_5 C_6 R_3 R_5 \right)}$$

Q:  $\frac{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{R_1+R_2+R_3}}{C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$ wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}$ bandwidth:  $\frac{C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}{C_4C_5R_2R_3R_5}$ 

K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$ K-HP: 0

K-BP: 0 Qz: None Wz: None

**7.3** LP-3  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{R_1 R_2 R_4 R_6}{C_4 C_6 R_2 R_3 R_4 R_5 R_6 s^2 + R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(C_4 R_2 R_3 R_4 R_5 + C_6 R_1 R_4 R_5 R_6 - C_6 R_2 R_3 R_4 R_6 + C_6 R_2 R_3 R_5 R_6 + C_6 R_2 R_4 R_5 R_6 + C_6 R_3 R_4 R_5 R_6\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_4\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1}R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{C_4R_2R_3R_4R_5 + C_6R_1R_4R_5R_6 - C_6R_2R_3R_4R_6 + C_6R_2R_3R_5R_6 + C_6R_2R_4R_5R_6 + C_6R_3R_4R_5R_6}}{\sqrt{C_4\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}}}$  wo:  $\frac{\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{\sqrt{C_4\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}}}$  bandwidth:  $\frac{C_4R_2R_3R_4R_5 + C_6R_1R_4R_5R_6 - C_6R_2R_3R_4R_6 + C_6R_2R_3R_5R_6 + C_6R_2R_4R_5R_6 + C_6R_3R_4R_5R_6}}{C_4C_6R_2R_3R_4R_5R_6}}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP: 0

K-BP: 0

Qz: None

Wz: None

7.4 LP-4 
$$Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_4}{C_4 C_5 C_6 R_2 R_3 R_4 R_5 s^2 + C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s \left(C_4 C_6 R_2 R_3 R_4 + C_5 C_6 R_1 R_4 R_5 - C_5 C_6 R_2 R_3 R_4 + C_5 C_6 R_2 R_3 R_5 + C_5 C_6 R_2 R_4 R_5 + C_5 C_6 R_3 R_4 R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{C_4C_5R_2R_3R_4R_5}$ 

K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.5** LP-5  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_{3s}}, \frac{1}{C_{4s}}, R_5, \frac{1}{C_{6s}}\right)$ 

$$H(s) = \frac{C_3 R_1 R_2}{C_3 C_4 C_6 R_2 R_3 R_5 s^2 - C_6 R_2 + C_6 R_5 + s \left( C_3 C_6 R_1 R_5 - C_3 C_6 R_2 R_3 + C_3 C_6 R_2 R_5 + C_3 C_6 R_3 R_5 + C_4 C_6 R_2 R_5 \right)}$$

```
K-LP: -\frac{C_3R_1R_2}{C_6R_2-C_6R_5}
K-HP: 0
K-BP: 0
Qz: None
Wz: None
```

**7.6** LP-6 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4}{C_3 C_4 C_6 R_2 R_3 R_4 R_5 s^2 - C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s \left( C_3 C_6 R_1 R_4 R_5 - C_3 C_6 R_2 R_3 R_4 + C_3 C_6 R_2 R_3 R_5 + C_3 C_6 R_2 R_4 R_5 + C_4 C_6 R_2 R_4 R_5 \right)}$$

7.7 LP-7  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(C_2 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_3 R_4 R_5 R_6\right) + s \left(C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 - C_6 R_3 R_4 R_6 + C_6 R_3 R_5 R_6 + C_6 R_4 R_5 R_6\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_3}\sqrt{-R_3}R_4+R_3R_5+R_4R_5}{C_2R_1R_4R_5+C_2R_3R_4R_5-C_6R_3R_4R_6+C_6R_3R_5R_6+C_6R_4R_5R_6}$  wo:  $\frac{\sqrt{-R_3}R_4+R_3R_5+R_4R_5}{\sqrt{C_2C_6}R_1R_4R_5R_6+C_2C_6R_3R_4R_5+R_6}$  bandwidth:  $\frac{C_2R_1R_4R_5+C_2R_3R_4R_5-C_6R_3R_4R_6+C_6R_3R_5R_6+C_6R_4R_5R_6}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_3}\sqrt{C_2C_6R_1R_4R_5R_6+C_2C_6R_3R_4R_5R_6}}$  K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$  K-HP: 0 K-BP: 0 Qz: None

7.8 LP-8  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s^2 \left(C_2 C_5 C_6 R_1 R_4 R_5 + C_2 C_5 C_6 R_3 R_4 R_5\right) + s \left(C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 - C_5 C_6 R_3 R_4 + C_5 C_6 R_3 R_5 + C_5 C_6 R_4 R_5\right)}$$

## Parameters:

Wz: None

**7.9** LP-9 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{R_1 R_6}{-R_3 + R_5 + s^2 \left(C_2 C_6 R_1 R_5 R_6 + C_2 C_6 R_3 R_5 R_6 + C_4 C_6 R_3 R_5 R_6\right) + s \left(C_2 R_1 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5 - C_6 R_3 R_6 + C_6 R_5 R_6\right)}$$

Q:  $\frac{\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-R_3+R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}}{C_2R_1R_5+C_2R_3R_5+C_4R_3R_5-C_6R_3R_6+C_6R_5R_6}$ WO:  $\frac{\sqrt{-R_3+R_5}}{\sqrt{-R_3+R_5}}$ 

wo:  $\frac{\sqrt{-R_3+R_5}}{\sqrt{C_2C_6R_1R_5R_6+C_2C_6R_3R_5R_6+C_4C_6R_3R_5R_6}}$  bandwidth:  $\frac{C_2R_1R_5+C_2R_3R_5+C_4R_3R_5-C_6R_3R_6+C_6R_5R_6}{\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_6R_1R_5R_6+C_2C_6R_3R_5R_6+C_4C_6R_3R_5R_6}}$  K-LP:  $-\frac{R_1R_6}{R_3-R_5}$  K-HP: 0

K-BP: 0 Qz: None Wz: None

**7.10** LP-10  $Z(s) = \left(R_1, \frac{1}{C_{2s}}, R_3, \frac{1}{C_{4s}}, R_5 + \frac{1}{C_{5s}}, \frac{1}{C_{6s}}\right)$ 

$$H(s) = \frac{C_5 R_1}{C_6 + s^2 \left(C_2 C_5 C_6 R_1 R_5 + C_2 C_5 C_6 R_3 R_5 + C_4 C_5 C_6 R_3 R_5\right) + s \left(C_2 C_6 R_1 + C_2 C_6 R_3 + C_4 C_6 R_3 - C_5 C_6 R_3 + C_5 C_6 R_5\right)}$$

#### Parameters:

wo:  $\frac{1}{\sqrt{C_2C_5R_1R_5+C_2C_5R_3R_5+C_4C_5R_3R_5}}$  bandwidth:  $\frac{C_2R_1+C_2R_3+C_4R_3-C_5R_3+C_5R_5}{\sqrt{C_5}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_5R_1R_5+C_2C_5R_3R_5+C_4C_5R_3R_5}}$  K-LP:  $\frac{C_5R_1}{C_6}$  K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.11** LP-11  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-1}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_6R_1R_4R_5R_6 + C_2C_6R_3R_4R_5R_6 + C_4C_6R_3R_4R_5R_6\right) + s\left(C_2R_1R_4R_5 + C_2R_3R_4R_5 + C_4R_3R_4R_5 - C_6R_3R_4R_6 + C_6R_3R_5R_6 + C_6R_4R_5R_6\right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{C_2R_1R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5-C_6R_3R_4R_6+C_6R_3R_5R_6+C_6R_4R_5R_6}}$  wo:  $\frac{\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{\sqrt{C_2C_6R_1R_4R_5R_6+C_2C_6R_3R_4R_5+C_4C_6R_3R_4R_5R_6}}$  bandwidth:  $\frac{C_2R_1R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5-C_6R_3R_4R_6+C_6R_3R_5R_6+C_6R_4R_5R_6}{\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_6R_1R_4R_5R_6+C_2C_6R_3R_4R_5R_6+C_4C_6R_3R_4R_5R_6}}$  K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$  K-HP: 0

K-BP: 0 Qz: None Wz: None

**7.12** LP-12  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s^2 \left(C_2 C_5 C_6 R_1 R_4 R_5 + C_2 C_5 C_6 R_3 R_4 R_5 + C_4 C_5 C_6 R_3 R_4 R_5\right) + s \left(C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 + C_4 C_6 R_3 R_4 + C_5 C_6 R_3 R_4 + C_5 C_6 R_3 R_5 + C_5 C_6 R_4 R_5\right)}{c_6 R_3 + c_6 R_4 + s^2 \left(C_2 C_5 C_6 R_1 R_4 R_5 + C_2 C_5 C_6 R_3 R_4 R_5 + C_4 C_5 C_6 R_3 R_4 R_5\right) + s \left(C_2 C_6 R_1 R_4 + C_4 C_6 R_3 R_4 + C_5 C_6 R_3 R_4 + C_5 C_6 R_3 R_5 + C_5 C_6 R_3 R_4 R_5\right)}$ 

## Parameters:

wo:  $\frac{\sqrt{R_3 + R_4}}{\sqrt{C_2 C_5 R_1 R_4 R_5 + C_2 C_5 R_3 R_4 R_5 + C_4 C_5 R_3 R_4 R_5}}{\sqrt{C_2 C_5 R_3 R_4 R_5 + C_2 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4 + C_5 R_3 R_5 + C_5 R_4 R_5}}$ bandwidth:  $\frac{C_2 R_1 R_4 + C_2 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4 + C_5 R_3 R_5 + C_5 R_4 R_5}{\sqrt{C_5 \sqrt{R_4} \sqrt{R_5} \sqrt{C_2 R_1 + C_2 R_3 + C_4 R_3} \sqrt{C_2 C_5 R_1 R_4 R_5 + C_2 C_5 R_3 R_4 R_5 + C_4 C_5 R_3 R_4 R_5}}}$ 

K-LP:  $\frac{C_5R_1R_4}{C_6R_3+C_6R_4}$ K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.13** LP-13 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_3 R_1 R_4}{C_2 C_3 C_6 R_1 R_4 R_5 s^2 - C_6 R_4 + C_6 R_5 + s \left(C_2 C_6 R_4 R_5 + C_3 C_6 R_4 R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$  K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.14** LP-14  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1}{C_2 C_3 C_6 R_1 R_5 s^2 - C_6 + s \left(C_2 C_6 R_5 + C_3 C_6 R_5 + C_4 C_6 R_5\right)}$ 

#### Parameters:

Q:  $\frac{i\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}}$  wo:  $\frac{i}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_5}}$  bandwidth:  $\frac{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}}{C_2C_3R_1\sqrt{R_5}}$  K-LP:  $-\frac{C_3R_1}{C_6}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.15** LP-15  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1}{C_2C_3C_5C_6R_1R_5s^2 + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_2C_3C_6R_1 + C_2C_5C_6R_5 + C_3C_5C_6R_5 + C_4C_5C_6R_5\right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}\sqrt{C_2+C_3+C_4-C_5}}{C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}$  wo:  $\frac{\sqrt{C_2+C_3+C_4-C_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$  bandwidth:  $\frac{C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}{C_2C_3C_5R_1R_5}$  K-LP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.16** LP-16 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_4}{C_2 C_3 C_6 R_1 R_4 R_5 s^2 - C_6 R_4 + C_6 R_5 + s \left( C_2 C_6 R_4 R_5 + C_3 C_6 R_4 R_5 + C_4 C_6 R_4 R_5 \right)}$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$ 

K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.17** LP-17  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_1 R_4}{-C_6 R_4 + C_6 R_5 + s^2 \left(C_2 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5\right) + s \left(C_2 C_6 R_4 R_5 - C_3 C_6 R_3 R_4 + C_3 C_6 R_3 R_5 + C_3 C_6 R_4 R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{-R_4+R_5}}{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2}C_3R_1R_4R_5+C_2C_3R_3R_4R_5}}$  K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$  K-HP: 0

K-BP: 0 Qz: None Wz: None

**7.18** LP-18  $Z(s) = \left(R_1, \frac{1}{C_{2s}}, R_3 + \frac{1}{C_{3s}}, \frac{1}{C_{4s}}, R_5, \frac{1}{C_{6s}}\right)$ 

$$H(s) = \frac{C_3 R_1}{-C_6 + s^2 \left(C_2 C_3 C_6 R_1 R_5 + C_2 C_3 C_6 R_3 R_5 + C_3 C_4 C_6 R_3 R_5\right) + s \left(C_2 C_6 R_5 - C_3 C_6 R_3 + C_3 C_6 R_5 + C_4 C_6 R_5\right)}$$

## Parameters:

Wo:  $\frac{c_2R_5 - c_3R_3 + c_3R_5 + c_4R_5}{\sqrt{C_2C_3R_1R_5 + C_2C_3R_3R_5 + C_3C_4R_3R_5}}$  bandwidth:  $\frac{c_2R_5 - c_3R_3 + c_3R_5 + c_4R_5}{\sqrt{C_3}\sqrt{R_5}\sqrt{C_2R_1 + C_2R_3 + C_4R_3}\sqrt{C_2C_3R_1R_5 + C_2C_3R_3R_5 + C_3C_4R_3R_5}}$  K-LP:  $-\frac{C_3R_1}{C_6}$  K-LP: 0

K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.19** LP-19 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_5C_6R_1R_5 + C_2C_3C_5C_6R_3R_5 + C_3C_4C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_2C_5C_6R_5 + C_3C_4C_6R_3 - C_3C_5C_6R_3 + C_3C_5C_6R_5 + C_4C_5C_6R_5\right)}{s^2}$$

## Parameters:

 $\begin{array}{l} Q\colon \frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_5}\sqrt{C_2R_1} + C_2R_3 + C_4R_3}{C_2C_3R_1 + C_2C_3R_3 + C_4C_5} \\ \text{wo: } \frac{\sqrt{C_2 + C_3 + C_4 - C_5}}{\sqrt{C_2C_3C_5R_1R_5 + C_2C_3C_5}R_3R_5 + C_3C_4C_5R_3R_5} \\ \text{bandwidth: } \frac{C_2C_3R_1 + C_2C_3R_3 + C_2C_5R_3 + C_3C_4R_3 - C_3C_5R_3 + C_3C_5R_5 + C_4C_5R_5}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_5}\sqrt{C_2R_1 + C_2R_3 + C_4R_3}\sqrt{C_2C_3C_5R_1R_5 + C_2C_3C_5R_3R_5 + C_4C_5R_3}} \end{array}$ 

```
K-LP: \frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}
K-HP: 0
K-BP: 0
Qz: None
Wz: None
```

**7.20** LP-20 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_4}{-C_6 R_4 + C_6 R_5 + s^2 \left(C_2 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5 + C_3 C_4 C_6 R_3 R_4 R_5\right) + s \left(C_2 C_6 R_4 R_5 - C_3 C_6 R_3 R_4 + C_3 C_6 R_3 R_5 + C_3 C_6 R_4 R_5 + C_4 C_6 R_4 R_5\right)}$$

**7.21** LP-21 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)$$

 $H(s) = \frac{R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s^2 \left(C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_6 R_2 R_3 R_4 R_5 + C_2 R_2 R_3 R_4 R_5 + C_6 R_1 R_4 R_5 R_6 - C_6 R_2 R_3 R_4 R_6 + C_6 R_2 R_3 R_5 R_6 + C_6 R_2 R_4 R_5 R_6 + C_6 R_3 R_4 R_5 R_6\right)}$ 

## Parameters:

Wz: None

Q:  $\frac{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_3}\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{C_2R_1R_2R_4R_5+C_2R_2R_3R_4R_5+C_6R_1R_4R_5R_6-C_6R_2R_3R_4R_6+C_6R_2R_3R_5R_6+C_6R_2R_4R_5R_6+C_6R_3R_4R_5R_6}$  wo:  $\frac{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{\sqrt{C_2C_6R_1R_2R_4R_5R_6+C_2C_6R_2R_3R_4R_5R_6}}$  bandwidth:  $\frac{C_2R_1R_2R_4R_5+C_2R_2R_3R_4R_5+C_6R_1R_4R_5R_6-C_6R_2R_3R_4R_6+C_6R_2R_3R_5R_6+C_6R_2R_4R_5R_6+C_6R_3R_4R_5R_6}}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_3}\sqrt{C_2C_6R_1R_2R_4R_5R_6+C_2C_6R_2R_3R_4R_5R_6}}}$  K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.22** LP-22 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s^2 \left(C_2 C_5 C_6 R_1 R_2 R_4 R_5 + C_2 C_5 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_2 C_6 R_1 R_2 R_4 + C_5 C_6 R_2 R_3 R_4 + C_5 C_6 R_4 R_5 + C_5 C_6 R_5 R_5 + C_5$ 

#### Parameters:

Wz: None

Q:  $\frac{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_2R_1R_2R_4+C_2R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_2C_5R_1R_2R_4+C_5R_2R_3R_4+C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_1R_2R_4+C_2R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2}C_5R_1R_2R_4R_5+C_2C_5R_2R_3R_4R_5}}$  K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}}$  K-HP: 0 K-BP: 0 Qz: None

**7.23** LP-23 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$$

$$H(s) = \frac{R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^2 \left(C_2 C_6 R_1 R_2 R_5 R_6 + C_2 C_6 R_2 R_3 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6\right) + s \left(C_2 R_1 R_2 R_5 + C_4 R_2 R_3 R_5 + C_4 R_2 R_3 R_5 + C_6 R_1 R_5 R_6 - C_6 R_2 R_3 R_6 + C_6 R_2 R_5 R_6 + C_6 R_3 R_5 R_6\right)}$$

Q:  $\frac{\sqrt{C_6}\sqrt{R_2}\sqrt{R_5}\sqrt{R_6}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_4R_2R_3R_5+C_6R_1R_5R_6-C_6R_2R_3R_6+C_6R_2R_5R_6+C_6R_3R_5R_6}$  wo:  $\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_2C_6R_1R_2R_5R_6+C_2C_6R_2R_3R_5R_6+C_4C_6R_2R_3R_5R_6}}$  bandwidth:  $\frac{C_2R_1R_2R_5+C_2R_2R_3R_5+C_4R_2R_3R_5+C_6R_1R_5R_6-C_6R_2R_3R_6+C_6R_2R_5R_6+C_6R_3R_5R_6}{\sqrt{C_6}\sqrt{R_2}\sqrt{R_5}\sqrt{R_6}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_6R_1R_2R_5R_6+C_2C_6R_2R_3R_5R_6+C_4C_6R_2R_3R_5R_6}}$  K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$  K-HP: 0

K-BP: 0

Qz: None Wz: None

**7.24** LP-24 
$$Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3 + s^2 \left(C_2 C_5 C_6 R_1 R_2 R_5 + C_2 C_5 C_6 R_2 R_3 R_5 + C_4 C_5 C_6 R_2 R_3 R_5\right) + s \left(C_2 C_6 R_1 R_2 + C_2 C_6 R_2 R_3 + C_4 C_6 R_2 R_3 + C_5 C_6 R_3 R_3 + C_5 C_6 R_3$$

#### Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{R_1+R_2+R_3}\sqrt{C_2R_1+C_2R_3+C_4R_3}}{C_2R_1R_2+C_2R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$  wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_2C_5R_1R_2R_5+C_2C_5R_2R_3R_5+C_4C_5R_2R_3R_5}}$  bandwidth:  $\frac{C_2R_1R_2+C_2R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}{\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_5R_1R_2R_5+C_2C_5R_2R_3R_5+C_4C_5R_2R_3R_5}}$  K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$  K-HP: 0

K-BP: 0 Qz: None

Wz: None

**7.25** LP-25 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$$

 $R_1R_2R_4R_6$ 

 $\overline{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+s^{2}\left(C_{2}C_{6}R_{1}R_{2}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{4}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{4}R_{2}R_{3}R_{4}R_{5}+C_{6}R_{1}R_{4}R_{5}R_{6}+C_{6}R_{2}R_{3}R_{4}R_{5}+C_{6}R$ 

#### Parameters:

Q:  $\frac{\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_2R_1} + C_2R_3 + C_4R_3}{\sqrt{R_1R_4R_5} - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{\sqrt{R_2R_1R_2R_4R_5 + C_2R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}$ wo:  $\frac{\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{\sqrt{C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 + R_6}}}$ bandwidth:  $\frac{C_2R_1R_2R_4R_5 + C_2R_2R_3R_4R_5 + C_4R_2R_3R_4R_5 + C_6R_2R_3R_4R_5 + C_6R_2R_3R_4R_5R_6}}{\sqrt{C_6\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_2}R_1 + C_2R_3 + C_4R_3}\sqrt{C_2C_6R_1R_2R_4R_5R_6 + C_2C_6R_2R_3R_4R_5R_6 + C_4C_6R_2R_3R_4R_5R_6}}}}$ K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}}$ K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.26** LP-26 
$$Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $C_5R_1R_2R_4$  $H(s) = \frac{1}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_2C_5C_6R_1R_2R_4R_5 + C_2C_5C_6R_2R_3R_4R_5 + C_4C_5C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 + C_$ 

#### Parameters:

 $\begin{array}{l} \text{Q:} \ \ \frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_2R_1R_2R_4+C_2R_2R_3R_4+C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5} \\ \text{wo:} \ \ \frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_2C_5R_1R_2R_4R_5+C_2C_5R_2R_3R_4+C_5R_2R_3R_4+C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_2R_4R_5+C_5R_2R_3R_4+C_5R_3R_4+R_5+C_5R_2R_3R_4$ 

```
K-LP: \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4} K-HP: 0
K-BP: 0
Qz: None
Wz: None
```

**7.27** LP-27 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5, \frac{1}{C_6s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4}{C_2 C_3 C_6 R_1 R_2 R_4 R_5 s^2 - C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s \left( C_2 C_6 R_2 R_4 R_5 + C_3 C_6 R_1 R_4 R_5 + C_3 C_6 R_2 R_4 R_5 \right)}$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$  K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.28** LP-28  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3 R_1 R_2}{C_2 C_3 C_6 R_1 R_2 R_5 s^2 - C_6 R_2 + C_6 R_5 + s \left( C_2 C_6 R_2 R_5 + C_3 C_6 R_1 R_5 + C_3 C_6 R_2 R_5 + C_4 C_6 R_2 R_5 \right)}$$

#### Parameters:

**7.29** LP-29  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4}{C_2 C_3 C_6 R_1 R_2 R_4 R_5 s^2 - C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s \left( C_2 C_6 R_2 R_4 R_5 + C_3 C_6 R_1 R_4 R_5 + C_3 C_6 R_2 R_4 R_5 + C_4 C_6 R_2 R_4 R_5 \right)}$ 

## Parameters:

Wz: None

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2}R_4+R_2}{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}+C_4R_2\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2}R_4+R_2R_5+R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}+C_4R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$  K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$  K-HP: 0 K-BP: 0 Qz: None

**7.30** LP-30 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5, \frac{1}{C_6s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4}{-C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s^2 \left(C_2 C_3 C_6 R_1 R_2 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_2 C_6 R_2 R_4 R_5 + C_3 C_6 R_2 R_3 R_4 + C_3 C_6 R_2 R_3 R_5 + C_3 C_6 R_2 R_4 R_5 + C_3 C_6 R_4 R_5 + C_3 C_6 R_2 R_4 R_5 + C_3 C_6 R_4 R_5 + C_3 C_6 R_5 R_5 + C_5 C_5$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_2R_2R_4R_5+C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5}$  wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_2R_4R_5+C_2C_3R_2R_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_3R_1R_2R_4R_5+C_3R_3R_4R_5}}$  K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$  K-HP: 0

K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.31** LP-31  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3 R_1 R_2}{-C_6 R_2 + C_6 R_5 + s^2 \left(C_2 C_3 C_6 R_1 R_2 R_5 + C_2 C_3 C_6 R_2 R_3 R_5 + C_3 C_4 C_6 R_2 R_3 R_5\right) + s \left(C_2 C_6 R_2 R_5 + C_3 C_6 R_1 R_5 - C_3 C_6 R_2 R_3 + C_3 C_6 R_2 R_5 + C_3 C_6 R_3 R_5 + C_4 C_6 R_2 R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_3}\sqrt{R_2}\sqrt{R_5}\sqrt{-R_2+R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}}{C_2R_2R_5+C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5}$  wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_2C_3R_1R_2R_5+C_2C_3R_2R_3R_5+C_3C_4R_2R_3R_5}}$  bandwidth:  $\frac{C_2R_2R_5+C_3C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5}{\sqrt{C_3}\sqrt{R_2}\sqrt{R_2}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_3R_1R_2R_5+C_2C_3R_2R_3R_5+C_3C_4R_2R_3R_5}}$  K-LP:  $-\frac{C_3R_1R_2}{C_6R_2-C_6R_5}$  K-HP: 0

K-BP: 0 Qz: None

Wz: None

**7.32** LP-32  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$ 

 $C_3R_1R_2R_4$  $H(s) = \frac{1}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_3R_4 + C$ 

#### Parameters:

 $\begin{array}{l} \text{Q:} \ \, \frac{\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_2R_2R_4R_5+C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5} \\ \text{wo:} \ \, \frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5+C_3C_4R_2R_3R_4R_5}} \\ \text{bandwidth:} \ \, \frac{C_2R_2R_4R_5+C_2C_3R_2R_3R_4R_5+C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5}{\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5+C_3C_4R_2R_3R_4R_5}} \\ \text{K-LP:} \ \, -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5} \\ \text{K-HP:} \ \, 0 \end{array}$ 

K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.33** LP-33  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{R_2 R_4 R_6}{R_4 R_5 + s^2 \left(-C_1 C_6 R_2 R_3 R_4 R_6 + C_1 C_6 R_2 R_3 R_5 R_6 + C_1 C_6 R_2 R_4 R_5 R_6 + C_1 C_6 R_3 R_4 R_5 R_6\right) + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 + C_6 R_4 R_5 R_6\right)}$$

#### Parameters:

 $Q: \frac{\sqrt{C_{1}}\sqrt{C_{6}}R_{2}R_{3}R_{4}^{\frac{3}{2}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}{C_{1}R_{2}R_{3}R_{4}-C_{1}R_{2}R_{3}R_{5}-C_{1}R_{2}R_{4}R_{5}-C_{1}R_{3}R_{4}-C_{1}R_{3}R_{4}R_{5}-C_{1}R_{3}R_{4}-C_{1}R_{5}-C_{1}R_{5}-C_{1}R_{5}-C_{1}R_{5}-C_{1}R_{5}-C_{1}R_{5}-C_{1}R_{5}-C_{1}R_{5}-C_{$ wo:  $\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_6R_2R_3R_4R_6-C_1C_6R_2R_3R_5R_6-C_1C_6R_2R_4R_5R_6-C_1C_6R_3R_4R_5R_6}}$ 

```
 \begin{array}{c} \text{bandwidth:} & \frac{\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_6R_2R_3R_4R_6-C_1C_6R_2R_4R_5R_6-C_1C_6R_2R_4R_5R_6}}{\sqrt{C_1\sqrt{C_6}R_2R_3R_4^2\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}-\sqrt{C_1\sqrt{C_6}R_2R_3R_4R_5+R_3R_4R_5}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3\frac{3}{R_4}R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_2R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5R_6}-\sqrt{C_1\sqrt{C_6}R_3R_4R_5}-\sqrt{C_1\sqrt{C_6
```

K-BP: 0 Qz: None Wz: None

**7.34** LP-34  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_2 R_4}{-C_1 C_5 C_6 R_2 R_3 R_4 s^2 + C_6 R_4 + s \left(C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_3 R_4\right)}$$

#### Parameters:

Q:  $-\frac{i\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}R_4}{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}$  wo:  $\frac{i}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}$  bandwidth:  $-\frac{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}{\sqrt{C_1}C_5R_2R_3R_4}$  K-LP:  $\frac{C_5R_2}{C_6}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.35** LP-35  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_2 R_4}{C_6 R_4 + s^2 \left(-C_1 C_5 C_6 R_2 R_3 R_4 + C_1 C_5 C_6 R_2 R_3 R_5 + C_1 C_5 C_6 R_2 R_4 R_5 + C_1 C_5 C_6 R_3 R_4 R_5\right) + s \left(C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_3 R_4 + C_5 C_6 R_4 R_5\right)}$$

## Parameters:

$$Q: \frac{-\sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}^{\frac{3}{2}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}{C_{1}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{4}^{\frac{3}{2}}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R$$

**7.36** LP-36  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{R_2 R_6}{C_1 C_4 R_2 R_3 R_5 s^2 + R_5 + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5\right)}$$

## Parameters:

Q:  $-\frac{\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}R_5}{\sqrt{C_1R_2R_3}-\sqrt{C_1}R_2R_5-\sqrt{C_1}R_3R_5}$  wo:  $\frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}}$  bandwidth:  $-\frac{\sqrt{C_1R_2R_3}-\sqrt{C_1}R_2R_5-\sqrt{C_1}R_3R_5}{\sqrt{C_1}C_4R_2R_3R_5}$  K-LP:  $\frac{R_2R_6}{R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.37** LP-37 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_2}{C_6 + s^2 \left(C_1 C_4 C_6 R_2 R_3 - C_1 C_5 C_6 R_2 R_3\right) + s \left(C_1 C_6 R_2 + C_1 C_6 R_3\right)}$$

$$\begin{array}{l} Q\colon \frac{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_2+\sqrt{C_1}R_3} \\ \text{wo: } \sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{\left(\sqrt{C_1}R_2+\sqrt{C_1}R_3\right)\sqrt{\frac{1}{C_1C_4R_2R_3}-C_1C_5R_2R_3}}{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}} \\ \text{K-LP: } \frac{C_5R_2}{C_6} \\ \text{K-HP: 0} \\ \text{K-BP: 0} \\ \text{Qz: None} \\ \text{Wz: None} \end{array}$$

**7.38** LP-38 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{R_2 R_4 R_6}{C_1 C_4 R_2 R_3 R_4 R_5 s^2 + R_4 R_5 + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5\right)}$$

Parameters:

Q: 
$$-\frac{\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}R_4R_5}{\sqrt{C_1}R_2R_3R_4-\sqrt{C_1}R_2R_3R_5-\sqrt{C_1}R_2R_4R_5-\sqrt{C_1}R_3R_4R_5}$$
 wo:  $\frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}}$  bandwidth:  $-\frac{\sqrt{C_1}R_2R_3R_4-\sqrt{C_1}R_2R_3R_5-\sqrt{C_1}R_2R_4R_5-\sqrt{C_1}R_3R_4R_5}{\sqrt{C_1}C_4R_2R_3R_4R_5}$  K-LP:  $\frac{R_2R_6}{R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.39** LP-39 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_2 R_4}{C_6 R_4 + s^2 \left(C_1 C_4 C_6 R_2 R_3 R_4 - C_1 C_5 C_6 R_2 R_3 R_4\right) + s \left(C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_3 R_4\right)}$$

Parameters:

$$\begin{array}{l} Q\colon \frac{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}\\ \text{wo: } \sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}\\ \text{bandwidth: } \frac{\left(\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4\right)\sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}}{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: } \frac{C_5R_2}{C_6}\\ \text{K-HP: } 0\\ \text{K-BP: } 0\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

**7.40** LP-40 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_2 R_4 R_6}{C_1 C_3 C_6 R_2 R_4 R_5 R_6 s^2 - C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left( C_1 C_3 R_2 R_4 R_5 - C_1 C_6 R_2 R_4 R_6 + C_1 C_6 R_2 R_5 R_6 + C_1 C_6 R_4 R_5 R_6 + C_3 C_6 R_4 R_5 R_6 \right)}{C_1 C_3 C_6 R_2 R_4 R_5 R_6 s^2 - C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left( C_1 C_3 R_2 R_4 R_5 - C_1 C_6 R_2 R_4 R_6 + C_1 C_6 R_2 R_5 R_6 + C_1 C_6 R_4 R_5 R_6 \right)}$$

```
Q: \frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_3R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_4R_5R_6}} wo: \frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}} bandwidth: \frac{C_1C_3R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_4R_5R_6}{C_1C_3C_6R_2R_4R_5R_6}}
```

K-HP: 0

K-BP: 0 Qz: None Wz: None

**7.41** LP-41 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_2R_4}{C_1C_3C_5C_6R_2R_4R_5s^2 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_4R_5 + C_3C_5C_6R_4R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}$ wo:  $\frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}{C_1C_3C_5R_2R_4R_5}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0 K-BP: 0

Qz: None Wz: None

**7.42** LP-42 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_2 R_6}{-C_1 R_2 + C_1 R_5 + C_3 R_5 + s^2 \left(C_1 C_3 C_6 R_2 R_5 R_6 + C_1 C_4 C_6 R_2 R_5 R_6\right) + s \left(C_1 C_3 R_2 R_5 + C_1 C_4 R_2 R_5 - C_1 C_6 R_2 R_6 + C_1 C_6 R_5 R_6 + C_3 C_6 R_5 R_6\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_6}\sqrt{R_2}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3+C_4}\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_3C_6R_5R_6}}$  wo:  $\frac{\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{\sqrt{C_1C_3C_6R_2R_5R_6+C_1C_4C_6R_2R_5R_6}}$  bandwidth:  $\frac{C_1C_3R_2R_5+C_1C_4C_6R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_3C_6R_5R_6}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_2}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3+C_4}\sqrt{C_1C_3C_6R_2R_5R_6+C_1C_4C_6R_2R_5R_6}}}$  K-LP:  $-\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}$  K-HP: 0

K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.43** LP-43 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5\right) + s\left(C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_3C_5C_6R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_1+C_3}\sqrt{C_3+C_4}}{C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}$ wo:  $\frac{\sqrt{C_1+C_3}}{\sqrt{C_1C_3C_5R_2R_5+C_1C_4C_5R_2R_5}}$ bandwidth:  $\frac{C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_1C_3C_5R_2R_5+C_1C_4C_5R_2R_5}}$ K-LP:  $\frac{C_3C_5R_2}{C_1C_6+C_3C_6}$ K-HP: 0

K-BP: 0

Qz: None Wz: None

**7.44** LP-44 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$C_3R_2R_4R_6$$

 $H(s) = \frac{1}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_3C_6R_2R_4R_5R_6 + C_1C_4C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_5 + C_1C_6R_4R_5R_6\right) + s\left(C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_5 + C_1C_6R_4R_5R_6\right) + s\left(C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_5 + C_1C_6R_4R_5R_6\right) + s\left(C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_6R_4R_5R_6 + C_1C_6R_4R_5R_6\right) + s\left(C_1C_3R_4R_5 - C_1C_6R_4R_5R_6 + C_1C_6R_4R_5R_6\right) + s\left(C_1C_3R_4R_5 - C_1C_6R_4R_5R_6\right) + s\left(C_1C_3R_4R_5R_6\right) + s\left(C_1C_$ 

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3} + C_4\sqrt{-C_1R_2R_4} + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5}{C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_4R_5R_6 + C_3C_6R_4R_5R_6}$  wo:  $\frac{\sqrt{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5}}{\sqrt{C_1C_3C_6R_2R_4R_5R_6 + C_1C_6R_2R_4R_5R_6}}$  bandwidth:  $\frac{C_1C_3R_2R_4R_5R_6 + C_1C_4R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_4R_5R_6 + C_3C_6R_4R_5R_6}}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3} + C_4\sqrt{C_1C_3C_6R_2R_4R_5R_6} + C_1C_4C_6R_2R_4R_5R_6}}$  K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4 - C_1R_2R_5 - C_1R_4R_5 - C_3R_4R_5}}{C_1R_4R_5 - C_3R_4R_5}$  K-HP: 0

K-HP: 0

K-BP: 0 Qz: None Wz: None

**7.45** LP-45  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & R_5 + \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{1}{C_1 C_6 R_2 + C_1 C_6 R_4 + C_3 C_6 R_4 + s^2 \left(C_1 C_3 C_5 C_6 R_2 R_4 R_5 + C_1 C_4 C_5 C_6 R_2 R_4 R_5\right) + s \left(C_1 C_3 C_6 R_2 R_4 + C_1 C_4 C_6 R_2 R_4 + C_1 C_5 C_6 R_2 R_4 + C_1 C_5 C_6 R_2 R_5 + C_1 C_5 C_6 R_4 R_5\right)}{c_1 C_6 R_2 R_4 + c_1 C_5 C_6 R_4 R_5 + c_1 C_5 C_6 R_2 R_5 + c_1 C_5 C_6 R_2 R_5 + c_1 C_5 C_6 R_2 R_5 + c_1 C_5 C_6 R_5 R_5 + c_1 C_5 C$ 

#### Parameters:

wo:  $\frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1C_3C_5R_2R_4R_5+C_1C_4C_5R_2R_4R_5}}$  bandwidth:  $\frac{C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_1C_3C_5R_2R_4R_5+C_1C_4C_5R_2R_4R_5}}$  K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$  K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.46** LP-46 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $C_3R_2R_4R_6$ 

 $\overline{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(-C_1C_3C_6R_2R_3R_4R_6 + C_1C_3C_6R_2R_3R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_3R_3R_5 + C_1C_3R_3R_5 + C_1C_3R$ 

#### Parameters:

 $\overline{\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{6}}R_{2}R_{3}R_{4}\sqrt{R_{6}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{6}}R_{2}R_{3}R_{5}\sqrt{R_{6}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{6}}R_{2}R_{3}R_{5}\sqrt{R_{6}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{3}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} + \frac{C_{1}R_{2}R_{3}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}} + \frac{C_{1}R_{2}R_{3}R_{5}}{-R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}$ 

K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ 

K-HP: 0 K-BP: 0

Qz: None

Wz: None

7.47 LP-47  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4}{-C_1C_3C_5C_6R_2R_3R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_2R_4\right)}$$

#### Parameters:

 $\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}$  $\frac{\sqrt{C_1C_3R_2R_3} + \sqrt{C_1C_3R_2}R_4 + \sqrt{C_1}C_3R_3R_4 - \sqrt{C_1}C_5R_2R_4}{\sqrt{-C_1R_2 - C_1R_4 - C_3R_4}} \frac{\sqrt{-C_1R_2 - C_1R_4 - C_3R_4}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ 

```
bandwidth: \frac{i\sqrt{-C_1R_2-C_1R_4-C_3R_4}\left(\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4-\sqrt{C_1}C_5R_2R_4\right)}{\sqrt{C_1}C_3C_5R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}} K-LP: \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4} K-HP: 0 K-BP: 0 Qz: None
```

**7.48** LP-48 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(-C_1C_3C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_5C_6R_5R_$ 

#### Parameters:

Wz: None

$$Q: \frac{-\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_3R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt$$

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0 K-BP: 0

Qz: None Wz: None

**7.49** LP-49 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_2 R_6}{C_1 C_3 C_4 R_2 R_3 R_5 s^2 - C_1 R_2 + C_1 R_5 + C_3 R_5 + s \left( -C_1 C_3 R_2 R_3 + C_1 C_3 R_2 R_5 + C_1 C_3 R_3 R_5 + C_1 C_4 R_2 R_5 \right)}$$

## Parameters:

Q: 
$$-\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{\sqrt{C_1C_3}R_2R_3-\sqrt{C_1C_3}R_2R_5-\sqrt{C_1}C_3R_3R_5-\sqrt{C_1}C_4R_2R_5}$$
 wo:  $\frac{\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}$  bandwidth:  $-\frac{\sqrt{C_1C_3}R_2R_3-\sqrt{C_1}C_3R_2R_5-\sqrt{C_1}C_3R_3R_5-\sqrt{C_1}C_4R_2R_5}}{\sqrt{C_1}C_3C_4R_2R_3R_5}$  K-LP:  $-\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.50** LP-50 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3\right) + s\left(C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2\right)}$$

$$\begin{array}{l} Q\colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_2+\sqrt{C_1}C_3R_3+\sqrt{C_1}C_4R_2-\sqrt{C_1}C_5R_2}\\ \text{wo: } \sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_3C_4R_2R_3-C_1C_3C_5R_2R_3}}\\ \text{bandwidth: } \frac{\sqrt{C_1+C_3}\left(\sqrt{C_1}C_3R_2+\sqrt{C_1}C_3R_3+\sqrt{C_1}C_4R_2-\sqrt{C_1}C_5R_2\right)\sqrt{\frac{1}{C_1C_3C_4R_2R_3-C_1C_3C_5R_2R_3}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: } \frac{C_3C_5R_2}{C_1C_6+C_3C_6}\\ \text{K-HP: 0}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

**7.51** LP-51 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_2 R_4 R_6}{C_1 C_3 C_4 R_2 R_3 R_4 R_5 s^2 - C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left(-C_1 C_3 R_2 R_3 R_4 + C_1 C_3 R_2 R_3 R_5 + C_1 C_3 R_2 R_4 R_5 + C_1 C_3 R_2 R_5 + C_1 C_3 R_2 R_5 + C_1 C_3 R_2 R_5 + C_1 C_3 R_5 R_5 + C$$

 $\begin{array}{l} Q: -\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1}C_3R_2R_3R_4-\sqrt{C_1}C_3R_2R_3R_5-\sqrt{C_1}C_3R_2R_4R_5-\sqrt{C_1}C_3R_3R_4R_5-\sqrt{C_1}C_4R_2R_4R_5}}\\ wo: \frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}}\\ bandwidth: -\frac{\sqrt{C_1C_3R_2R_3R_4-\sqrt{C_1}C_3R_2R_3R_5-\sqrt{C_1}C_3R_2R_4R_5-\sqrt{C_1}C_3R_3R_4R_5-\sqrt{C_1}C_4R_2R_4R_5}}{\sqrt{C_1}C_3C_4R_2R_3R_4R_5}}\\ K-LP: -\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}}{K-HP: 0}\\ K-BP: 0\\ Qz: None\\ Wz: None \end{array}$ 

**7.52** LP-52 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_4C_6R_2R_3R_4 - C_1C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$$

## Parameters:

$$Q\colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4+\sqrt{C_1}C_4}R_2R_4-\sqrt{C_1}C_5R_2R_4}\\ \text{wo: } \sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4-C_1C_3C_5R_2R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{C_1C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4+\sqrt{C_1}C_4R_2R_4-\sqrt{C_1}C_5R_2R_4})\sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4-C_1C_3C_5R_2R_3R_4}}\\ \text{K-LP: } \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}\\ \text{K-HP: 0}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None}$$

**7.53** LP-53 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4 + s^2 \left(C_1 C_2 C_6 R_3 R_4 R_6 - C_1 C_5 C_6 R_3 R_4 R_6\right) + s \left(C_1 C_2 R_3 R_4 - C_1 C_5 R_3 R_4 + C_1 C_6 R_3 R_6 + C_1 C_6 R_4 R_6 + C_2 C_6 R_4 R_6\right)}$$

## Parameters:

$$Q \colon \frac{\sqrt{C_1}C_2\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1}R_3 + C_1R_4 + C_2R_4}{C_1C_5R_3R_4 + C_1C_5R_3R_6 + C_1C_6\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1}R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2-C_5}}}{C_1C_2R_3R_4 - C_1C_5R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6 + C_2C_6R_4R_6}}$$
 wo: 
$$\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2C_6R_3R_4R_6 - C_1C_5C_6R_3R_4R_6}}$$
 bandwidth: 
$$\frac{\sqrt{C_1R_3 + C_1R_4 + C_2R_4}(C_1C_2R_3R_4 - C_1C_5R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6 + C_2C_6R_4R_6)\sqrt{\frac{1}{C_1C_2C_6R_3R_4R_6 - C_1C_5C_6R_3R_4R_6}}}{\sqrt{C_1C_2}\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2-C_5}} - \sqrt{C_1}C_5\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2-C_5}}}}$$
 K-LP: 
$$\frac{C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4}$$
 K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.54** LP-54 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_4 R_6}{C_1 C_2 C_5 R_3 R_4 R_5 s^2 + C_1 R_3 + C_1 R_4 + C_2 R_4 + s \left( C_1 C_2 R_3 R_4 - C_1 C_5 R_3 R_4 + C_1 C_5 R_3 R_5 + C_1 C_5 R_4 R_5 + C_2 C_5 R_4 R_5 \right)}$$

```
Q: \frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1R_3+C_1R_4+C_2R_4}}{C_1C_2R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5} wo: \frac{\sqrt{C_1R_3+C_1R_4+C_2R_4}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}} bandwidth: \frac{C_1C_2R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}{C_1C_2C_5R_3R_4R_5} K-LP: \frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4} K-HP: 0 K-BP: 0 Qz: None
```

**7.55** LP-55 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_6}{C_1 + C_2 + s^2 \left(C_1 C_2 C_6 R_3 R_6 + C_1 C_4 C_6 R_3 R_6 - C_1 C_5 C_6 R_3 R_6\right) + s \left(C_1 C_2 R_3 + C_1 C_4 R_3 - C_1 C_5 R_3 + C_1 C_6 R_6 + C_2 C_6 R_6\right)}$$

Wz: None

$$Q \colon \frac{\sqrt{C_1}C_2\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1C_2R_3+C_1C_4R_3-C_1C_5R_3+C_1C_6R_6+C_2C_6R_6} \\ \text{wo: } \sqrt{C_1+C_2}\sqrt{\frac{1}{C_1C_2C_6R_3R_6+C_1C_4C_6R_3R_6-C_1C_5C_6R_3R_6}} \\ \text{bandwidth: } \frac{\sqrt{C_1+C_2}(C_1C_2R_3+C_1C_4R_3-C_1C_5R_3+C_1C_6R_6+C_2C_6R_6)\sqrt{\frac{1}{C_1C_2C_6R_3R_6+C_1C_4C_6R_3R_6-C_1C_5C_6R_3R_6}}}{\sqrt{C_1C_2\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2+C_4-C_5}}} + \sqrt{C_1}C_4\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2+C_4-C_5}}}} \\ \text{K-LP: } \frac{C_5R_6}{C_1+C_2} \\ \text{K-HP: 0} \\ \text{K-BP: 0} \\ \text{Qz: None} \\ \text{Wz: None} \\ \end{aligned}$$

**7.56** LP-56 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_6}{C_1 + C_2 + s^2 \left(C_1 C_2 C_5 R_3 R_5 + C_1 C_4 C_5 R_3 R_5\right) + s \left(C_1 C_2 R_3 + C_1 C_4 R_3 - C_1 C_5 R_3 + C_1 C_5 R_5 + C_2 C_5 R_5\right)}$$

#### Parameters:

**7.57** LP-57 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4 + s^2 \left(C_1 C_2 C_6 R_3 R_4 R_6 + C_1 C_4 C_6 R_3 R_4 R_6 - C_1 C_5 C_6 R_3 R_4 R_6\right) + s \left(C_1 C_2 R_3 R_4 + C_1 C_4 R_3 R_4 - C_1 C_5 R_3 R_4 + C_1 C_6 R_3 R_6 + C_1 C_6 R_4 R_6 + C_2 C_6 R_4 R_6\right)}$$

$$Q\colon \frac{\sqrt{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{4}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}{\frac{C_{1}C_{2}R_{3}R_{4}+C_{1}C_{4}R_{3}R_{4}-C_{1}C_{5}R_{3}R_{4}+C_{1}C_{6}R_{3}R_{6}+C_{1}C_{6}R_{4}R_{6}+C_{2}C_{6}R_{4}R_{6}}}{\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}C_{6}R_{3}R_{4}R_{6}}+C_{1}C_{4}C_{6}R_{3}R_{4}+C_{1}C_{5}R_{3}R_{4}+C_{1}C_{6}R_{3}R_{6}+C_{1}C_{6}R_{4}R_{6}+C_{2}C_{6}R_{4}R_{6}}}}$$
bandwidth: 
$$\frac{\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}C_{6}R_{3}R_{4}R_{6}}+C_{1}C_{5}C_{6}R_{3}R_{4}R_{6}}}{\sqrt{C_{1}C_{2}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{4}\sqrt{R_{6}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}+\sqrt{C_{1}C_{4}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{4}\sqrt{R_{6}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}}}$$

$$\times LP: \frac{C_{5}R_{4}R_{6}}{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{4}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{4}\sqrt{R_{6}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}-\sqrt{C_{1}C_{5}\sqrt{C_{6}\sqrt{R_{3}\sqrt{R_{4}\sqrt{R_{6}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}}}}}}$$

$$K-LP: \frac{C_{5}R_{4}R_{6}}{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{4}\sqrt{C_{6}\sqrt{R_{3}\sqrt{R_{4}\sqrt{R_{6}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}-\sqrt{C_{1}C_{5}\sqrt{C_{6}\sqrt{R_{3}\sqrt{R_{4}\sqrt{R_{6}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}}}}}}}$$

$$K-LP: 0$$

Qz: None Wz: None

**7.58** LP-58 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4 + s^2 \left(C_1 C_2 C_5 R_3 R_4 R_5 + C_1 C_4 C_5 R_3 R_4 R_5\right) + s \left(C_1 C_2 R_3 R_4 + C_1 C_4 R_3 R_4 - C_1 C_5 R_3 R_4 + C_1 C_5 R_3 R_5 + C_1 C_5 R_4 R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}}{C_1C_2R_3R_4+C_1C_4R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}$  wo:  $\frac{\sqrt{C_1R_3+C_1R_4+C_2R_4}}{\sqrt{C_1C_2C_5R_3R_4R_5+C_1C_4C_5R_3R_4R_5}}$  bandwidth:  $\frac{C_1C_2R_3R_4+C_1C_4R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{C_1C_2C_5R_3R_4R_5+C_1C_4C_5R_3R_4R_5}}$  K-LP:  $\frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4}$  K-HP: 0

K-BP: 0

Qz: None Wz: None

**7.59** LP-59  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_6R_4R_5R_6 + C_1C_3C_6R_4R_5R_6 + C_2C_3C_6R_4R_5R_6\right) + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_6R_4R_6 + C_1C_6R_5R_6 + C_2C_3R_4R_5\right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-R_4+R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}}{C_1C_2R_4R_5+C_1C_3R_4R_5-C_1C_6R_4R_6+C_1C_6R_5R_6+C_2C_3R_4R_5}}$  wo:  $\frac{\sqrt{-C_1R_4+C_1R_5}}{\sqrt{C_1C_2C_6R_4R_5R_6+C_1C_3C_6R_4R_5R_6+C_2C_3C_6R_4R_5R_6}}$  bandwidth:  $\frac{\sqrt{-C_1R_4+C_1R_5}(C_1C_2R_4R_5+C_1C_3R_4R_5-C_1C_6R_4R_6+C_1C_6R_5R_6+C_2C_3R_4R_5)}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-R_4+R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_6R_4R_5R_6+C_1C_3C_6R_4R_5R_6+C_2C_3C_6R_4R_5R_6}}$  K-LP:  $\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$  K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.60** LP-60  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_3C_5R_4$  $H(s) = \frac{1}{C_1C_6 + s^2 \left( C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_2C_3C_5C_6R_4R_5 \right) + s\left( C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4 \right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}}{C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}$ wo:  $\frac{\sqrt{C_1}}{\sqrt{C_1C_2C_5R_4R_5+C_1C_3C_5R_4R_5}}$ bandwidth:  $\frac{C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_5R_4R_5+C_1C_3C_5R_4R_5}+C_2C_3C_5R_4R_5}$ K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-HP: 0
K-DD. 0

K-BP: 0

Qz: None

Wz: None

**7.61** LP-61 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_6}{-C_1 + s^2 \left(C_1 C_2 C_6 R_5 R_6 + C_1 C_3 C_6 R_5 R_6 + C_1 C_4 C_6 R_5 R_6 + C_2 C_3 C_6 R_5 R_6\right) + s \left(C_1 C_2 R_5 + C_1 C_3 R_5 + C_1 C_4 R_5 - C_1 C_6 R_6 + C_2 C_3 R_5\right)}$$

wo:  $\frac{i\sqrt{C_1}}{\sqrt{C_1C_2C_6R_5R_6+C_1C_3C_6R_5R_6+C_1C_4C_6R_5R_6+C_2C_3C_6R_5R_6}}$ bandwidth:  $\frac{C_1C_2R_5+C_1C_3R_5+C_1C_4R_5-C_1C_6R_6+C_2C_3R_5}{\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_6R_5R_6+C_1C_3C_6R_5R_6+C_1C_5C_6R_5R_6+C_1C_5C_6R_5R_6+C_1C_5C_6R_5R_6+C_1C_5C_6R_5R_6+C_1C_5C_6R_5R_6+C_1C_5C_6R_5R_6+C_1C_5C_6R_5R_6+C_1C_$ 

K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.62** LP-62  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{c_3 c_3 c_4 c_6}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3 + s^2 \left(C_1 C_2 C_5 C_6 R_5 R_6 + C_1 C_3 C_5 C_6 R_5 R_6 + C_2 C_3 C_5 C_6 R_5 R_6\right) + s \left(C_1 C_2 C_5 R_5 + C_1 C_3 C_6 R_6 + C_1 C_4 C_5 R_5 + C_1 C_4 C_6 R_6 + C_1 C_4 C_5 R_6 + C_2 C_3 C_5 R_5 + C_1 C_4 C_6 R_6 + C_1 C_4 C_5 R_6 + C_1 C_$ 

## Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{C_1C_2C_5R_5+C_1C_2C_6R_6+C_1C_3C_5R_5+C_1C_3C_6R_6+C_1C_4C_5R_5+C_1C_4C_6R_6-C_1C_5C_6R_6+C_2C_3C_5R_5+C_2C_3C_6R_6}$ wo:  $\frac{\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{\sqrt{C_1C_2C_5C_6R_5R_6+C_1C_3C_5C_6R_5R_6+C_2C_3C_5C_6R_5R_6}}$ bandwidth:  $\frac{C_1C_2C_5R_5+C_1C_2C_6R_6+C_1C_3C_5R_5R_6+C_2C_3C_5C_6R_5R_6}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_5C_6R_5R_6+C_1C_3C_5R_5R_6+C_1C_3C_5C_6R_5R_6+C_1C_3C_5C_5C_6R_5R_6+C_1C_3C_5C$ 

K-BP: 0 Qz: None

Wz: None

**7.63** LP-63  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_6R_4R_5R_6 + C_1C_3C_6R_4R_5R_6 + C_2C_3C_6R_4R_5R_6\right) + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_6R_4R_6 + C_1C_6R_5R_6 + C_2C_3R_4R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-R_4+R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1C_2R_4R_5+C_1C_3R_4R_5+C_1C_4R_4R_5-C_1C_6R_4R_6+C_1C_6R_5R_6+C_2C_3R_4R_5}$ wo:  $\frac{\sqrt{-C_1R_4+C_1R_5}}{\sqrt{C_1C_2C_6R_4R_5R_6+C_1C_3C_6R_4R_5R_6+C_1C_4C_6R_4R_5R_6+C_2C_3C_6R_4R_5R_6}}$ bandwidth:  $\frac{\sqrt{-C_1R_4+C_1R_5}(C_1C_2R_4R_5+C_1C_3R_4R_5+C_1C_4R_4R_5-C_1C_6R_4R_6+C_1C_6R_5R_6+C_2C_3R_4R_5)}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-R_4+R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_6R_4R_5R_6+C_1C_3C_6R_4R_5R_6+C_1C_4C_6R_4R_5R_6+C_2C_3C_6R_4R_5R_6}}$ K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$ K-HP: 0

K-BP: 0 Qz: None Wz: None

**7.64** LP-64  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_2C_3C_5C_6R_4R_5\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4\right)}$ 

#### Parameters:

 $\begin{array}{l} \text{Q:} \ \frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1C_2R_4+C_1C_3R_4+C_1C_4R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4} \\ \text{wo:} \ \frac{\sqrt{C_1}}{\sqrt{C_1C_2C_5R_4R_5+C_1C_3C_5R_4R_5+C_1C_4C_5R_4R_5+C_2C_3C_5R_4R_5}} \\ \text{bandwidth:} \ \frac{C_1C_2R_4+C_1C_3R_4+C_1C_4R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_5R_4R_5+C_1C_3C_5R_4R_5+C_1C_4C_5R_4$ 

```
K-LP: \frac{C_3C_5R_4}{C_1C_6}
K-HP: 0
K-BP: 0
Qz: None
Wz: None
```

**7.65** LP-65 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_4 R_6}{C_1 C_2 C_3 R_3 R_4 R_5 s^2 - C_1 R_4 + C_1 R_5 + s \left( C_1 C_2 R_4 R_5 - C_1 C_3 R_3 R_4 + C_1 C_3 R_3 R_5 + C_1 C_3 R_4 R_5 + C_2 C_3 R_4 R_5 \right)}$$

**7.66** LP-66 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_3R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

#### Parameters:

 $\begin{aligned} & \text{Q:} \ \frac{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}} - C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}}}{C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4} \\ & \text{wo:} \ \sqrt{\frac{1}{C_2C_3R_3R_4 - C_3C_5R_3R_4}} \\ & \text{bandwidth:} \ \frac{(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_3R_4 - C_3C_5R_3R_4}}}{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}} - C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}}} \\ & \text{K-LP:} \ \frac{C_3C_5R_4}{C_1C_6} \\ & \text{K-HP:} \ 0 \\ & \text{K-BP:} \ 0 \\ & \text{Qz:} \ \text{None} \\ & \text{Wz:} \ \text{None} \end{aligned}$ 

**7.67** LP-67 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_6}{-C_1 + s^2 \left(C_1 C_2 C_3 R_3 R_5 + C_1 C_3 C_4 R_3 R_5\right) + s \left(C_1 C_2 R_5 - C_1 C_3 R_3 + C_1 C_3 R_5 + C_1 C_4 R_5 + C_2 C_3 R_5\right)}$$

## Parameters:

**7.68** LP-68 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_6R_3R_6 + C_1C_3C_4C_6R_3R_6 - C_1C_3C_5C_6R_3R_6\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_6R_6 + C_1C_3C_4R_3 - C_1C_3C_5R_3 + C_1C_3C_6R_6 + C_1C_4C_6R_6 - C_1C_5C_6R_6 + C_2C_3C_6R_6\right)}$$

 $\frac{\sqrt{\frac{c_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}}{c_{1}c_{2}c_{2}c_{3}c_{6}c_{8}c_{8}c_{6}-c_{1}c_{3}c_{5}c_{6}c_{8}c_{8}}}(c_{1}c_{2}c_{3}c_{4}c_{6}+c_{1}c_{3}c_{4}c_{6}+c_{1}c_{3}c_{5}c_{6}c_{8}c_{8}}(c_{1}c_{2}c_{3}c_{6}+c_{1}c_{3}c_{5}c_{6}c_{8}+c_{1}c_{3}c_{5}c_{6}c_{8}c_{6}}(c_{1}c_{2}c_{3}c_{6}+c_{1}c_{3}c_{5}c_{6}c_{8}+c_{1}c_{3}c_{5}c_{6}c_{8}+c_{1}c_{3}c_{5}c_{6}c_{8}+c_{1}c_{3}c_{5}c_{6}c_{8}+c_{1}c_{3}c_{5}c_{6}c_{8}+c_{1}c_{3}c_{5}c_{6}c_{8}+c_{1}c_{3}c_{5}c_{6}c_{8}+c_{1}c_{3}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}c_{6}+c_{1}c_{5}c_{6}+c_{1}c_{5}+c_{1}c_{5}c_{6}+c_{1}c_{5}+$ 

K-BP: 0 Qz: None

Wz: None

**7.69** LP-69  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_5R_3R_5 + C_1C_3C_4C_5R_3R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_5R_5 + C_1C_3C_4R_3 - C_1C_3C_5R_3 + C_1C_3C_5R_5 + C_1C_4C_5R_5 + C_2C_3C_5R_5\right)}$$

#### **Parameters:**

K-BP: 0 Qz: None

Wz: None

**7.70** LP-70  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $C_3R_4R_6$  $H(s) = \frac{1}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_3R_4R_5 + C_1C_3C_4R_3R_4R_5\right) + s\left(C_1C_2R_4R_5 - C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 + C_2C_3R_4R_5\right)}$ 

#### Parameters:

bandwidth:  $\frac{C_1C_2R_4R_5 - C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 + C_2C_3R_4R_5}{C_1\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2 + C_4}\sqrt{C_2C_3R_3R_4R_5 + C_3C_4R_3R_4R_5}}$ 

K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$ K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.71** LP-71  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

#### Parameters:

 $Q: \frac{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} + C_1\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} - C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_2C_3R_4}$ 

wo: 
$$\sqrt{\frac{1}{C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}$$
 bandwidth:  $\frac{(C_1C_2R_4+C_1C_3R_3+C_1C_3R_4+C_1C_4R_4-C_1C_5R_4+C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}}{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}+C_1\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}-C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}$  K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$  K-HP: 0 K-BP: 0 Qz: None

**7.72** LP-72 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, R_6\right)$$

$$H(s) = \frac{R_2 R_4 R_6}{C_1 C_2 R_2 R_3 R_4 R_5 s^2 + R_4 R_5 + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 + C_2 R_2 R_4 R_5\right)}$$

Wz: None

Q: 
$$-\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{R_2}\sqrt{R_3}R_4R_5}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5}$$
 wo:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_2}\sqrt{R_3}}$  bandwidth:  $-\frac{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5}{C_1C_2R_2R_3R_4R_5}$  K-LP:  $\frac{R_2R_6}{R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.73** LP-73 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_2 R_4}{C_6 R_4 + s^2 \left(C_1 C_2 C_6 R_2 R_3 R_4 - C_1 C_5 C_6 R_2 R_3 R_4\right) + s \left(C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_3 R_4 + C_2 C_6 R_2 R_4\right)}$$

#### Parameters:

$$\begin{array}{l} Q\colon \frac{\sqrt{C_{1}}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}-C_{5}}}}{C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}}\\ \text{wo: } \sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}\\ \text{bandwidth: } \frac{(C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}{\sqrt{C_{1}}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}-C_{5}}}}\\ \text{K-LP: } \frac{C_{5}R_{2}}{C_{6}}\\ \text{K-HP: } 0\\ \text{K-BP: } 0\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

**7.74** LP-74 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{R_2 R_6}{R_5 + s^2 \left(C_1 C_2 R_2 R_3 R_5 + C_1 C_4 R_2 R_3 R_5\right) + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_2 R_2 R_5\right)}$$

**7.75** LP-75 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_2}{C_6 + s^2 \left( C_1 C_2 C_6 R_2 R_3 + C_1 C_4 C_6 R_2 R_3 - C_1 C_5 C_6 R_2 R_3 \right) + s \left( C_1 C_6 R_2 + C_1 C_6 R_3 + C_2 C_6 R_2 \right)}$$

$$\begin{array}{l} Q\colon \frac{\sqrt{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}{C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2}}\\ \text{wo: } \sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}\\ \text{bandwidth: } \frac{(C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}{\sqrt{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}\\ \text{K-LP: } \frac{C_{5}R_{2}}{C_{6}}\\ \text{K-HP: } 0\\ \text{K-BP: } 0\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

**7.76** LP-76 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{R_2 R_4 R_6}{R_4 R_5 + s^2 \left(C_1 C_2 R_2 R_3 R_4 R_5 + C_1 C_4 R_2 R_3 R_4 R_5\right) + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 + C_2 R_2 R_4 R_5\right)}$$

Parameters:

Q: 
$$-\frac{\sqrt{C_1}\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{C_2+C_4}}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5}$$
 wo:  $\frac{1}{\sqrt{C_1C_2R_2R_3+C_1C_4R_2R_3}}$  bandwidth:  $-\frac{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5}{\sqrt{C_1}\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{C_2+C_4}\sqrt{C_1C_2R_2R_3+C_1C_4R_2R_3}}$  K-LP:  $\frac{R_2R_6}{R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.77** LP-77 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_2 R_4}{C_6 R_4 + s^2 \left(C_1 C_2 C_6 R_2 R_3 R_4 + C_1 C_4 C_6 R_2 R_3 R_4 - C_1 C_5 C_6 R_2 R_3 R_4\right) + s \left(C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_3 R_4 + C_2 C_6 R_2 R_4\right)}$$

Parameters:

$$\begin{array}{l} Q\colon \frac{\sqrt{C_{1}}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}\\ & C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}\\ \text{Wo: } \sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}\\ \text{bandwidth: } \frac{(C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}{\sqrt{C_{1}}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}\\ \text{K-LP: } \frac{C_{5}R_{2}}{C_{6}}\\ \text{K-HP: } 0\\ \text{K-BP: } 0\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

**7.78** LP-78 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_2 R_4 R_6}{-C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s^2 \left(C_1 C_2 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_6 R_2 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_4 R_5 R_6 \right) + s \left(C_1 C_2 R_2 R_4 R_5 + C_1 C_6 R_2 R_4 R_6 + C_1 C_6 R_2 R_5 R_6 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_4 R_5 R_6 + C_1 C_6 R_5 R_6 + C_1$$

Q:  $\frac{\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_2R_2R_4R_5+C_1C_3R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_2C_3R_2R_4R_5+C_3C_6R_4R_5R_6}$  wo:  $\frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1C_2C_6R_3R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6+C_2C_3C_6R_2R_4R_5R_6}}$  bandwidth:  $\frac{C_1C_2R_2R_4R_5+C_1C_3R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_2C_3R_2R_4R_5+C_3C_6R_4R_5R_6}{\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_6R_2R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6+C_2C_3C_6R_2R_4R_5R_6}}$  K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$  K-HP: 0 K-BP: 0 Qz: None

**7.79** LP-79 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + c_2C_3C_5C_6R_2R_4R_5\right) + s\left(C_1C_2C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_4R$ 

#### Parameters:

Wz: None

Q:  $\frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{C_1C_2R_2R_4+C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_2C_3R_2R_4+C_3C_5R_4R_5}$  wo:  $\frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1C_2C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_2C_3C_5R_2R_4R_5}}$  bandwidth:  $\frac{C_1C_2R_2R_4+C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_2C_3R_2R_4+C_3C_5R_4R_5}{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_2C_3C_5R_2R_4R_5+C_2C_3C_5R_2R_4R_5+C_2C_3C_5R_2R_4R_5+C_2C_3C_5R_2R_4R_5}}$  K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.80** LP-80 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_3 R_2 R_6}{-C_1 R_2 + C_1 R_5 + C_3 R_5 + s^2 \left(C_1 C_2 C_6 R_2 R_5 R_6 + C_1 C_3 C_6 R_2 R_5 R_6 + C_2 C_3 C_6 R_2 R_5 R_6\right) + s \left(C_1 C_2 R_2 R_5 + C_1 C_3 R_2 R_5 + C_1 C_4 R_2 R_5 - C_1 C_6 R_2 R_6 + C_1 C_6 R_5 R_6 + C_2 C_3 R_2 R_5 + C_3 C_6 R_5 R_6\right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_6}\sqrt{R_2}\sqrt{R_5}\sqrt{R_6}\sqrt{-C_1R_2+C_1R_5+C_3R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1C_2R_2R_5+C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_2C_3R_2R_5+C_3C_6R_5R_6}$  wo:  $\frac{\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{\sqrt{C_1C_2C_6R_2R_5R_6+C_1C_3C_6R_2R_5R_6+C_1C_4C_6R_2R_5R_6+C_2C_3C_6R_2R_5R_6}}$  bandwidth:  $\frac{C_1C_2R_2R_5+C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_2C_3R_2R_5+C_3C_6R_2R_5R_6}{\sqrt{C_6}\sqrt{R_2}\sqrt{R_5}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_6R_2R_5R_6+C_1C_3C_6R$ 

**7.81** LP-81 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_2C_3C_5C_6R_2R_5\right) + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_2C_3C_6R_2 + C_3C_5C_6R_5\right)}$ 

## Parameters:

Wz: None

Q:  $\frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_1+C_3}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1C_2R_2+C_1C_3R_2+C_1C_5R_2+C_1C_5R_5+C_2C_3R_2+C_3C_5R_5}$  wo:  $\frac{\sqrt{C_1+C_3}}{\sqrt{C_1C_2C_5R_2R_5+C_1C_3C_5R_2R_5+C_1C_4C_5R_2R_5+C_2C_3C_5R_2R_5}}$  bandwidth:  $\frac{C_1C_2R_2+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_2C_3R_2+C_3C_5R_5}{\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_5R_2R_5+C_1C_3C_5R_2R_5+C_1C_4C_5R_5+C_1C_4C_5R_5+C_1C_4C_5R_5+C_1C_4C$ 

**7.82** LP-82 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $C_3R_2R_4R_6$  $\overline{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + S^2\left(C_1C_2C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_4C_6R_2R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + C_1C_4R_2R_4R_5 + C_1C_4R_4R_5R_5 + C_1C_4R_5R_5 + C_1C_4R_5R_5 + C_1C_4R_5R_5 + C_1C_4R_5R_5 + C_1C_4R_5R_5 + C_1C_4R_5R_5 + C_$ 

#### Parameters:

 $\begin{array}{l} \text{Q:} \ \frac{\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_2R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_4R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_2C_3R_2R_4R_5+C_3C_6R_4R_5R_6}}\\ \text{wo:} \ \frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1C_2C_6R_2R_4R_5R_6+C_1C_3C_6R_2R_4R_5+C_1C_4C_6R_2R_4R_5R_6}}\\ \text{bandwidth:} \ \frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_1C_4C_6R_2R_4R_5R_6+C_2C_3C_6R_2R_4R_5R_6}}{\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_6R_2R_4R_5R_6+C_1C_6R_4R_5R_6+C_2C_3R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_6R_2R_4R_5R_6+C_1C_3C_6R_2$ 

K-BP: 0 Qz: None Wz: None

**7.83** LP-83  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & R_5 + \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $\frac{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1$ 

## Parameters:

 $Q\colon \frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1R_2} + C_1R_4 + C_3R_4}{C_1C_2R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_2C_3R_2R_4 + C_3C_5R_4R_5}}{Wo: \frac{\sqrt{C_1R_2} + C_1R_4 + C_3R_4}{\sqrt{C_1C_2C_5R_2R_4} + C_1C_5R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_4R_5}}{\frac{C_1C_2R_2R_4 + C_1C_3C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5 + C_2C_3C_5R_2R_4R_5}{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2} + C_1C_3R_2R_4 + C_1C_5R_2R_4 +$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0

K-BP: 0

Qz: None Wz: None

**7.84** LP-84  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

 $H(s) = \frac{1}{C_1 C_2 C_3 R_2 R_3 R_4 R_5 s^2 - C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left( C_1 C_2 R_2 R_4 R_5 - C_1 C_3 R_2 R_3 R_4 + C_1 C_3 R_2 R_3 R_5 + C_1 C_3 R_2 R_4 R_5 + C_1 C_3 R_5 R_5 + C_1 C_5 R$ 

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-C_1}R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_2R_2R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_5+C_1C_3R_2R_4R_5+C_1C_3R_3R_4R_5+C_2C_3R_2R_4R_5}$  wo:  $\frac{\sqrt{-C_1}R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_1C_2R_2R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5}{C_1C_2C_3R_2R_3R_4R_5}$ 

K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.85** LP-85  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

## Parameters:

 $Q \colon \frac{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2-C_5}}}{C_1C_2R_2R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4+C_2C_3R_2R_4}$ wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}$ 

```
bandwidth: \frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}(C_1C_2R_2R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4+C_2C_3R_2R_4)\sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4-C_1C_3C_5R_2R_3R_4}}}{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}}\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2-C_5}}} K-LP: \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4} K-HP: 0 K-BP: 0 Qz: None
```

**7.86** LP-86 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_2 R_6}{-C_1 R_2 + C_1 R_5 + C_3 R_5 + s^2 \left(C_1 C_2 C_3 R_2 R_3 R_5 + C_1 C_3 C_4 R_2 R_3 R_5\right) + s \left(C_1 C_2 R_2 R_5 - C_1 C_3 R_2 R_3 + C_1 C_3 R_2 R_5 + C_1 C_3 R_3 R_5 + C_1 C_4 R_2 R_5 + C_2 C_3 R_2 R_5\right)}$$

Wz: None

**7.87** LP-87 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3\right) + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2\right)}$$

#### Parameters:

$$Q \colon \frac{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1C_2R_2+C_1C_3R_2+C_1C_3R_3+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}\\ \text{wo: } \sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_2C_3R_2R_3+C_1C_3C_4R_2}R_3-C_1C_3C_5R_2R_3}\\ \text{bandwidth: } \frac{\sqrt{C_1+C_3}(C_1C_2R_2+C_1C_3R_2+C_1C_3R_3+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2)\sqrt{\frac{1}{C_1C_2C_3R_2R_3+C_1C_3C_5R_2R_3}}}{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}\\ \text{K-LP: } \frac{C_3C_5R_2}{C_1C_6+C_3C_6}\\ \text{K-HP: 0}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None}$$

**7.88** LP-88 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_2 R_4 R_6}{-C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s^2 \left(C_1 C_2 C_3 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 R_2 R_3 R_4 R_5\right) + s \left(C_1 C_2 R_2 R_4 R_5 - C_1 C_3 R_2 R_3 R_4 + C_1 C_3 R_2 R_3 R_5 + C_1 C_3 R_2 R_4 R_5 + C_1 C_3 R_2 R_4 R_5 + C_1 C_3 R_2 R_4 R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_2R_2R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_5+C_1C_3R_2R_4R_5+C_1C_3R_3R_4R_5+C_1C_4R_2R_4R_5+C_2C_3R_2R_4R_5}$  wo:  $\frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1C_2C_3R_2R_3R_4R_5+C_1C_3C_4R_2R_3R_4R_5}}$  bandwidth:  $\frac{C_1C_2R_2R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5}$  K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.89** LP-89 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6$$

 $\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}-C_1C_2R_2R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_2C_3R_2R_4$ 

 $\text{wo: } \sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4 + C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}(C_1C_2R_2R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4)}{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}} \frac{1}{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_3}} + \sqrt{C_1C_2C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{C_1R_2 + C_1R_4 + C_1R_4 + C_1R_4}\sqrt{C_1R_4 + C_1R_4 + C_1R_4 + C_1R_4}\sqrt{C_1R_4 + C_1R_4 + C_1R_4 + C_1R_4}\sqrt{C_1R_4 + C_1R_4 + C$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0

K-BP: 0

Qz: None Wz: None

**7.90** LP-90  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $R_1R_2R_4R_6$  $\overline{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + S^2 \left(-C_1 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 R_1 R_2 R_3 R_5 + C_1 R_1 R_2 R_3 R_5 + C_1 R_1 R_2 R_4 R_5 + C_1 R_1 R_4 R_5 + C_1$ 

#### Parameters:

 $Q: \frac{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}R_2R_3R_4\sqrt{R_6}\sqrt{\frac{R_1R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \frac{R_2R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_2R_3R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_6}\sqrt{R_1}R_2R_3R_5\sqrt{R_6}\sqrt{\frac{R_1R_4R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \frac{R_2R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \frac{R_2R_3R_4}{-R_2R_3R_4+R_2R_$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.91** LP-91 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_4}{-C_1 C_5 C_6 R_1 R_2 R_3 R_4 s^2 + C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s \left(C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_4 + C_1 C_6 R_1 R_3 R_4 - C_5 C_6 R_2 R_3 R_4\right)}$$

## Parameters:

bandwidth:  $i\sqrt{-R_1R_4-R_2R_3-R_2R_4-R_3R_4}(C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4-C_5R_2R_3R_4)$ 

 $C_1C_5R_1R_2\overline{R_3R_4\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}$ K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.92** LP-92 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $C_5R_1R_2R_4$  $\overline{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(-C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_5 + C_1C_5C_6R_1R_2R_3R_5 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_3R_4 + C_5C_6R_1R_3R_4 + C_$ 

```
Q: \frac{-\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}R_2R_3R_4\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4\sqrt{\frac{1}{-R_2}R_3R_4 + R_3R_4\sqrt{\frac{1}{-R_2}R_4 + R_3R_4}+ R_3R_4\sqrt{\frac{1}{-R_2}R_4 + R_3R_4}+ R_3R_4\sqrt{\frac{1}{-R_2}R_4 + R_3R_4}+ R_3R_4\sqrt
```

**7.93** LP-93 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{R_1 R_2 R_6}{C_1 C_4 R_1 R_2 R_3 R_5 s^2 + R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s \left( -C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_5 + C_1 R_1 R_3 R_5 + C_4 R_2 R_3 R_5 \right)}$$

Q:  $-\frac{\sqrt{C_{1}}\sqrt{C_{4}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{R_{1}R_{5}}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}}{C_{1}R_{1}R_{2}R_{3}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{3}R_{5}-C_{4}R_{2}R_{3}R_{5}}$  wo:  $\frac{\sqrt{R_{1}R_{5}}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}}{\sqrt{C_{1}}\sqrt{C_{4}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}}$  bandwidth:  $-\frac{C_{1}R_{1}R_{2}R_{3}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{3}R_{5}-C_{4}R_{2}R_{3}R_{5}}{C_{1}C_{4}R_{1}R_{2}R_{3}R_{5}}$  K-LP:  $\frac{R_{1}R_{2}R_{6}}{R_{1}R_{5}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.94** LP-94 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3 + s^2 \left(C_1 C_4 C_6 R_1 R_2 R_3 - C_1 C_5 C_6 R_1 R_2 R_3\right) + s \left(C_1 C_6 R_1 R_2 + C_1 C_6 R_1 R_3 + C_4 C_6 R_2 R_3 - C_5 C_6 R_2 R_3\right)}$$

#### Parameters:

$$Q \colon \frac{\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_1R_1R_2+C_1R_1R_3+C_4R_2R_3-C_5R_2R_3} \\ \text{wo: } \sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_4R_1R_2R_3-C_1C_5R_1R_2R_3}} \\ \text{bandwidth: } \frac{\sqrt{R_1+R_2+R_3}(C_1R_1R_2+C_1R_1R_3+C_4R_2R_3-C_5R_2R_3)\sqrt{\frac{1}{C_1C_4R_1R_2R_3-C_1C_5R_1R_2R_3}}}{\sqrt{C_1C_4}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}}} \\ \text{K-LP: } \frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3} \\ \text{K-HP: 0} \\ \text{K-BP: 0} \\ \text{Qz: None} \\ \text{Wz: None}$$

**7.95** LP-95 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{R_1 R_2 R_4 R_6}{C_1 C_4 R_1 R_2 R_3 R_4 R_5 s^2 + R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(-C_1 R_1 R_2 R_3 R_4 + C_1 R_1 R_2 R_3 R_5 + C_1 R_1 R_2 R_4 R_5 + C_1 R_1 R_4 R_5 + C_1 R_1 R_2 R_4 R_5 + C_1 R_1 R_5$$

#### Parameters:

 $\begin{array}{l} Q\colon -\frac{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5-C_4R_2R_3R_4R_5}\\ wo: & \frac{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}}\\ bandwidth: & -\frac{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5-C_4R_2R_3R_4R_5}{C_1C_4R_1R_2R_3R_4R_5}\\ K\text{-LP:} & \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}\\ K\text{-HP:} & 0\\ K\text{-BP:} & 0 \end{array}$ 

Qz: None Wz: None

**7.96** LP-96 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s^2 \left(C_1 C_4 C_6 R_1 R_2 R_3 R_4 - C_1 C_5 C_6 R_1 R_2 R_3 R_4\right) + s \left(C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_4 + C_1 C_6 R_1 R_3 R_4 + C_4 C_6 R_2 R_3 R_4 - C_5 C_6 R_2 R_3 R_4\right)}$$

#### Parameters:

$$Q \colon \frac{\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4}}$$

$$\text{wo: } \sqrt{R_1R_4 + R_2R_3} + R_2R_4 + R_3R_4\sqrt{\frac{1}{C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}}}$$

$$\text{bandwidth: } \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4)\sqrt{\frac{1}{C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}}}{\sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_4-C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_4-C_5}}}}$$

$$\text{K-LP: } \frac{C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4}}{K-\text{HP: 0}}$$

$$\text{K-BP: 0}$$

$$\text{Qz: None}$$

**7.97** LP-97 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4}{C_1 C_3 C_6 R_1 R_2 R_4 R_5 s^2 - C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s \left(-C_1 C_6 R_1 R_2 R_4 + C_1 C_6 R_1 R_2 R_5 + C_1 C_6 R_1 R_4 R_5 + C_3 C_6 R_1 R_4 R_5 + C_3 C_6 R_2 R_4 R_5\right)}$$

#### Parameters:

Wz: None

$$\begin{array}{l} Q\colon -\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_2}R_4+R_2R_5+R_4R_5}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}\\ \text{wo: } \frac{\sqrt{-R_2}R_4+R_2R_5+R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}\\ \text{bandwidth: } -\frac{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}{C_1C_3R_1R_2R_4R_5}\\ \text{K-LP: } -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}\\ \text{K-HP: 0}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

**7.98** LP-98 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2}{-C_6 R_2 + C_6 R_5 + s^2 \left(C_1 C_3 C_6 R_1 R_2 R_5 + C_1 C_4 C_6 R_1 R_2 R_5\right) + s \left(-C_1 C_6 R_1 R_2 + C_1 C_6 R_1 R_5 + C_3 C_6 R_1 R_5 + C_3 C_6 R_2 R_5 + C_4 C_6 R_2 R_5\right)}$$

Q: 
$$-\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{-R_2+R_5}}{C_1R_1R_2-C_1R_1R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}$$
 wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5}}$  bandwidth:  $-\frac{C_1R_1R_2-C_1R_1R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5}}$  K-LP:  $-\frac{C_3R_1R_2}{C_6R_2-C_6R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.99** LP-99 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_3C_6R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5\right)}$$

 $\begin{array}{l} \text{Q:} -\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5} \\ \text{wo:} \ \frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_1C_3R_1R_2R_4R_5+C_1C_4R_1R_2R_4R_5}} \\ \text{bandwidth:} \ -\frac{C_1R_1R_2R_4-C_1R_1R_2R_4-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_1C_3R_1R_2R_4+C_1C_4R_1R_2R_4R_5}} \\ \text{K-LP:} \ -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5} \\ \text{K-HP:} \ 0 \end{array}$ 

K-HP: 0

K-BP: 0 Qz: None Wz: None

**7.100** LP-100  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $\frac{C_{3}R_{1}R_{2}R_{4}}{-C_{6}R_{2}R_{5}+C_{6}R_{4}R_{5}+s^{2}\left(-C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{4}+C_{1}C_{6}R_{1}R_{2}R_{5}+C_{1}C_{6}R_{1}R_{2}$ 

#### Parameters:

 $Q: \frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}} - \sqrt{C_1}\sqrt{C_1}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4}}} - \sqrt{C_1}\sqrt{C_1}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_2R_4}{-$ 

Wo:  $\sqrt{\frac{R_2R_4 - R_2R_5 - R_4R_5}{C_1C_3R_1R_2R_3R_4 - C_1C_3R_1R_2R_3R_5 - C_1C_3R_1R_2R_4R_5 - C_1C_3R_1R_3R_4R_5}}$ 

 $\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4\sqrt{-\frac{R_2R_4}{C_1}}\frac{R_2R_4}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}R_2R_3R_5}-\frac{R_4R_5}{\sqrt{C_1}\sqrt{$ 

K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$ K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.101** LP-101  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, R_5, R_6\right)$ 

 $H(s) = \frac{R_1 R_4 R_6}{C_1 C_2 R_1 R_3 R_4 R_5 s^2 - R_3 R_4 + R_3 R_5 + R_4 R_5 + s \left(-C_1 R_1 R_3 R_4 + C_1 R_1 R_3 R_5 + C_1 R_1 R_4 R_5 + C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5\right)}$ 

#### Parameters:

Q:  $-\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_3}R_4 + R_3R_5 + R_4R_5}{C_1R_1R_3R_4 - C_1R_1R_3R_5 - C_1R_1R_4R_5 - C_2R_1R_4R_5 - C_2R_3R_4R_5}$  wo:  $\frac{\sqrt{-R_3}R_4 + R_3R_5 + R_4R_5}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $-\frac{C_1R_1R_3R_4 - C_1R_1R_3R_5 - C_1R_1R_4R_5 - C_2R_1R_4R_5 - C_2R_3R_4R_5}{C_1C_2R_1R_3R_4R_5}$ 

K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP: 0

K-BP: 0

Qz: None

Wz: None

**7.102** LP-102  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s^2 \left(C_1 C_2 C_6 R_1 R_3 R_4 - C_1 C_5 C_6 R_1 R_3 R_4\right) + s \left(C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_4 + C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 - C_5 C_6 R_3 R_4\right)}$$

$$\text{Q: } \frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2-C_5}}}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4-C_5R_3R_4}$$

```
wo: \sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2R_1R_3R_4-C_1C_5R_1R_3R_4}} bandwidth: \frac{\sqrt{R_3+R_4}(C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4-C_5R_3R_4)\sqrt{\frac{1}{C_1C_2R_1R_3R_4-C_1C_5R_1R_3R_4}}}{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2-C_5}}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2-C_5}}} K-LP: \frac{C_5R_1R_4}{C_6R_3+C_6R_4} K-HP: 0 K-BP: 0 Qz: None
```

**7.103** LP-103  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_6}{-R_3 + R_5 + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 R_1 R_3 R_5\right) + s \left(-C_1 R_1 R_3 + C_1 R_1 R_5 + C_2 R_1 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5\right)}$$

#### Parameters:

Wz: None

 $\begin{array}{l} \mathrm{Q:} -\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_3}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{-R_3+R_5}}{C_1R_1R_3-C_1R_1R_5-C_2R_1R_5-C_2R_3R_5-C_4R_3R_5}\\ \mathrm{wo:} \ \frac{\sqrt{-R_3+R_5}}{\sqrt{C_1C_2R_1R_3R_5+C_1C_4R_1R_3R_5}}\\ \mathrm{bandwidth:} \ -\frac{C_1R_1R_3-C_1R_1R_5-C_2R_1R_5-C_2R_3R_5-C_4R_3R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_3}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{C_1C_2R_1R_3R_5+C_1C_4R_1R_3R_5}}\\ \mathrm{K-LP:} \ -\frac{R_1R_6}{R_3-R_5}\\ \mathrm{K-HP:} \ 0\\ \mathrm{K-BP:} \ 0\\ \mathrm{Qz:} \ \mathrm{None}\\ \mathrm{Wz:} \ \mathrm{None} \end{array}$ 

**7.104** LP-104  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1}{C_6 + s^2 \left(C_1 C_2 C_6 R_1 R_3 + C_1 C_4 C_6 R_1 R_3 - C_1 C_5 C_6 R_1 R_3\right) + s \left(C_1 C_6 R_1 + C_2 C_6 R_1 + C_2 C_6 R_3 + C_4 C_6 R_3 - C_5 C_6 R_3\right)}$$

#### Parameters:

$$Q\colon \frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1R_1+C_2R_1+C_2R_3+C_4R_3-C_5R_3}\\ \text{wo: } \sqrt{\frac{1}{C_1C_2R_1R_3+C_1C_4R_1R_3-C_1C_5R_1R_3}}\\ \text{bandwidth: } \frac{(C_1R_1+C_2R_1+C_2R_3+C_4R_3-C_5R_3)\sqrt{\frac{1}{C_1C_2R_1R_3+C_1C_4R_1R_3-C_1C_5R_1R_3}}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}}\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}\\ \text{K-LP: } \frac{C_5R_1}{C_6}\\ \text{K-HP: 0}\\ \text{K-BP: 0}\\ \text{Qz: None}\\ \text{Wz: None}$$

**7.105** LP-105  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(C_1 C_2 R_1 R_3 R_4 R_5 + C_1 C_4 R_1 R_3 R_4 R_5\right) + s \left(-C_1 R_1 R_3 R_4 + C_1 R_1 R_3 R_5 + C_1 R_1 R_4 R_5 + C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 + C_4 R_3 R_4 R_5\right)}$$

#### Parameters:

Q:  $-\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5-C_4R_3R_4R_5}$  wo:  $\frac{\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{\sqrt{C_1C_2R_1R_3R_4+R_5+C_1C_4R_1R_3R_4R_5}}$  bandwidth:  $-\frac{C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5-C_4R_3R_4R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{C_1C_2R_1R_3R_4R_5+C_1C_4R_1R_3R_4R_5}}$  K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.106** LP-106 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s^2 \left(C_1 C_2 C_6 R_1 R_3 R_4 + C_1 C_4 C_6 R_1 R_3 R_4 - C_1 C_5 C_6 R_1 R_3 R_4\right) + s \left(C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_4 + C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 + C_4 C_6 R_3 R_4 - C_5 C_6 R_3 R_4\right)}{c_6 R_3 + c_6 R_4 + s^2 \left(C_1 C_2 C_6 R_1 R_3 R_4 + C_1 C_4 C_6 R_1 R_3 R_4 - C_1 C_5 C_6 R_1 R_3 R_4\right) + s \left(C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_4 + C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 + C_4 C_6 R_3 R_4 - C_5 C_6 R_3 R_4\right)}$$

$$Q \colon \frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4}\\ \text{wo: } \sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2R_1R_3R_4+C_1C_4R_1R_3R_4-C_1C_5R_1R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{R_3+R_4}(C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4)\sqrt{\frac{1}{C_1C_2R_1R_3R_4+C_1C_4R_1R_3R_4-C_1C_5R_1R_3R_4}}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}}}\\ \text{K-LP: } \frac{C_5R_1R_4}{C_6R_3+C_6R_4}\\ \text{K-HP: 0}\\ \text{Qz: None}\\ \text{Wz: None}$$

**7.107** LP-107 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_4}{-C_6 R_4 + C_6 R_5 + s^2 \left(C_1 C_2 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5\right) + s \left(-C_1 C_6 R_1 R_4 + C_1 C_6 R_1 R_5 + C_2 C_6 R_4 R_5 + C_3 C_6 R_4 R_5\right)}$$

#### Parameters:

**7.108** LP-108 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1}{-C_6 + s^2 \left(C_1 C_2 C_6 R_1 R_5 + C_1 C_3 C_6 R_1 R_5 + C_1 C_4 C_6 R_1 R_5 + C_2 C_3 C_6 R_1 R_5\right) + s \left(-C_1 C_6 R_1 + C_2 C_6 R_5 + C_3 C_6 R_5 + C_4 C_6 R_5\right)}$$

#### Parameters:

Q: 
$$-\frac{i\sqrt{R_1}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1R_1-C_2R_5-C_3R_5-C_4R_5}$$
 wo:  $\frac{i}{\sqrt{C_1C_2R_1R_5+C_1C_3R_1R_5+C_1C_4R_1R_5+C_2C_3R_1R_5}}$  bandwidth:  $-\frac{C_1R_1-C_2R_5-C_3R_5-C_4R_5}{\sqrt{R_1}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2R_1R_5+C_1C_3R_1R_5+C_1C_4R_1R_5+C_2C_3R_1R_5}}$  K-LP:  $-\frac{C_3R_1}{C_6}$  K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.109** LP-109 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_1C_2C_5C_6R_1R_5 + C_1C_3C_5C_6R_1R_5 + C_2C_3C_5C_6R_1R_5\right) + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_4C_6R_1 - C_1C_5C_6R_1 + C_2C_3C_6R_1 + C_2C_5C_6R_5 + C_3C_5C_6R_5\right)}$$

$$\begin{array}{c} \text{Q:} \ \frac{\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}\sqrt{C_2+C_3+C_4-C_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5} \\ \text{wo:} \ \frac{\sqrt{C_2+C_3+C_4-C_5}}{\sqrt{C_1C_2C_5R_1R_5+C_1C_3C_5R_1R_5+C_1C_4C_5R_1R_5+C_2C_3C_5R_1R_5}} \end{array}$$

**7.110** LP-110 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_4}{-C_6 R_4 + C_6 R_5 + s^2 \left(C_1 C_2 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_1 C_4 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5\right) + s \left(-C_1 C_6 R_1 R_4 + C_1 C_6 R_1 R_5 + C_2 C_6 R_4 R_5 + C_3 C_6 R_4 R_5 + C_4 C_6 R_4 R_5\right)}$$

```
\begin{array}{l} \mathrm{Q:} \ -\frac{\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_4+R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5} \\ \mathrm{wo:} \ \frac{\sqrt{-R_4+R_5}}{\sqrt{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_1C_4R_1R_4R_5+C_2C_3R_1R_4R_5}} \\ \mathrm{bandwidth:} \ -\frac{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5}{\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_1C_4R_1R_4R_5+C_2C_3R_1R_4R_5}} \\ \mathrm{K-LP:} \ -\frac{C_3R_1R_4}{C_6R_4-C_6R_5} \\ \mathrm{K-HP:} \ 0 \\ \mathrm{K-BP:} \ 0 \\ \mathrm{Qz:} \ \mathrm{None} \\ \mathrm{Wz:} \ \mathrm{None} \end{array}
```

**7.111** LP-111 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_1C_2C_3C_6R_1R_3 + C_1C_3C_4C_6R_1R_3 - C_1C_3C_5C_6R_1R_3\right) + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_4C_6R_1 - C_1C_5C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_3C_4C_6R_3 - C_3C_5C_6R_3\right)}$$

#### Parameters:

$$Q: \frac{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{C_2}{C_2+C_4-C_5} + \frac{C_3}{C_2+C_4-C_5} + \frac{C_4}{C_2+C_4-C_5} - \frac{C_5}{C_2+C_4-C_5} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{C_2}{C_2+C_4-C_5} + \frac{C_3}{C_2+C_4-C_5} - \frac{C_5}{C_2+C_4-C_5} - \frac{C_5}{C_2+C_4-C_5} - \frac{C_5}{C_2+C_4-C_5} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{C_2}{C_2+C_4-C_5} + \frac{C_3}{C_2+C_4-C_5} + \frac{C_4}{C_2+C_4-C_5} - \frac{C_5}{C_2+C_4-C_5}} } \\ wo: \sqrt{\frac{C_2+C_3+C_4-C_5}{\sqrt{C_1C_2C_3R_1R_3+C_1C_3C_4R_1R_3-C_1C_3C_5R_1R_3}}}{\sqrt{\frac{C_1C_2C_3R_1R_3+C_1C_3C_4R_1R_3-C_1C_3C_5R_1R_3}{\sqrt{C_1C_2C_3R_1R_3+C_1C_3C_4R_1R_3-C_1C_3C_5R_1R_3}}}} \sqrt{\frac{C_2+C_3+C_4-C_5}{C_2+C_4-C_5} + \frac{C_3}{C_2+C_4-C_5} + \frac{C_4}{C_2+C_4-C_5} - \frac{C_5}{C_2+C_4-C_5} - \frac{C_5}{C_2+C$$

**7.112** LP-112 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, R_6\right)$$

$$H(s) = \frac{R_1 R_2 R_4 R_6}{C_1 C_2 R_1 R_2 R_3 R_4 R_5 s^2 + R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + s \left(-C_1 R_1 R_2 R_3 R_4 + C_1 R_1 R_2 R_3 R_5 + C_1 R_1 R_2 R_4 R_5 + C_2 R_1 R_2 R_4 R_5 + C_2 R_2 R_3 R_4 R_5\right)}$$

#### Parameters:

Q: 
$$-\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1R_4R_5}-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_2R_1R_2R_4R_5-C_2R_1R_2R_4R_5-C_2R_2R_3R_4R_5}$$
 wo: 
$$\frac{\sqrt{R_1R_4R_5}-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$$
 bandwidth: 
$$-\frac{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5-C_2R_1R_2R_4R_5-C_2R_2R_3R_4R_5}{C_1C_2R_1R_2R_3R_4R_5}$$
 K-LP: 
$$\frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}$$
 K-HP: 0 K-BP: 0 Qz: None

**7.113** LP-113 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s^2 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_4 - C_1 C_5 C_6 R_1 R_2 R_3 R_4\right) + s \left(C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_4 + C_1 C_6 R_1 R_3 R_4 + C_2 C_6 R_1 R_2 R_4 + C_2 C_6 R_1 R_2 R_4 + C_2 C_6 R_2 R_3 R_4\right)}$$

$$Q \colon \frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}R_4 + R_2}{C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}R_4 + R_2}R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2-C_5}} } \\ wo: \sqrt{R_1R_4 + R_2R_3} + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_1C_2R_1}R_2R_3R_4 + C_1R_2R_2R_4 + C_2}R_2R_3R_4 - C_5R_2R_3R_4} \\ bandwidth: \frac{\sqrt{R_1R_4 + R_2R_3 + R_2}R_4 + R_3R_4}\sqrt{C_1C_2R_1R_2}R_3R_4 - C_1C_5R_1R_2R_3R_4} - \sqrt{C_1C_2R_1R_2}R_3R_4 - C_5R_2R_3R_4 - C_5R_2R_3R_4} \sqrt{\frac{1}{C_1C_2R_1}R_2}R_3R_4 - \frac{1}{C_1C_2R_1}R_2R_3R_4 - C_1C_5R_1R_2}R_3R_4} \\ k-LP \colon \frac{C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}R_4 + R_2R_3 + R_2}R_4 + R_3R_4}\sqrt{\frac{1}{C_2-C_5}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}R_4 + R_2}R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2-C_5}}} \\ K-BP \colon 0 \\ Qz: None \\ Wz: None \\$$

**7.114** LP-114 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_5 + C_1 C_4 R_1 R_2 R_3 R_5\right) + s \left(-C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_5 + C_1 R_1 R_3 R_5 + C_2 R_1 R_2 R_5 + C_2 R_2 R_3 R_5 + C_4 R_2 R_3 R_5\right)}$$

Parameters:

Q: 
$$-\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{C_1R_1R_2R_3-C_1R_1R_2R_5-C_1R_1R_3R_5-C_2R_1R_2R_5-C_2R_2R_3R_5-C_4R_2R_3R_5}$$
 wo: 
$$\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_1C_2R_1R_2R_3R_5+C_1C_4R_1R_2R_3R_5}}$$
 bandwidth: 
$$-\frac{C_1R_1R_2R_3-C_1R_1R_2R_3-C_1R_1R_3R_5-C_2R_1R_2R_5-C_2R_2R_3R_5-C_4R_2R_3R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{C_1C_2R_1R_2R_3R_5+C_1C_4R_1R_2R_3R_5}}}$$
 K-LP: 
$$\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$$
 K-HP: 0 K-BP: 0 Qz: None Wz: None

**7.115** LP-115 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3 + s^2 \left(C_1 C_2 C_6 R_1 R_2 R_3 + C_1 C_4 C_6 R_1 R_2 R_3 - C_1 C_5 C_6 R_1 R_2 R_3\right) + s \left(C_1 C_6 R_1 R_2 + C_1 C_6 R_1 R_3 + C_2 C_6 R_1 R_2 + C_2 C_6 R_2 R_3 + C_4 C_6 R_2 R_3 - C_5 C_6 R_2 R_3\right)}$$

Parameters:

**7.116** LP-116 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_4 R_5 + C_1 C_4 R_1 R_2 R_3 R_4 + C_1 R_1 R_2 R_3 R_5 + C_1 R_1 R_2 R_4 R_5 + C_2 R_1 R_2 R_4 R_5 + C_2 R_2 R_3 R_4 R_5 + C_4 R_2 R_3 R_4 R_5 \right)}$$

```
Q: -\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5-C_2R_1R_2R_4R_5-C_2R_2R_3R_4R_5-C_4R_2R_3R_4R_5}
wo: \frac{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{\sqrt{C_1C_2R_1R_2R_3R_4R_5+C_1C_4R_1R_2R_3R_4R_5}}
bandwidth: -\frac{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5-C_2R_1R_2R_4R_5-C_2R_2R_3R_4R_5-C_4R_2R_3R_4R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2+C_4}\sqrt{C_1C_2R_1R_2R_3R_4R_5+C_1C_4R_1R_2R_3R_4R_5}}}
K-LP: \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}
K-HP: 0
              K-BP: 0
               Qz: None
              Wz: None
7.117 LP-117 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_5R_1R_2R_4
                                            H(s) = \frac{C_5 n_1 n_2 n_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s^2 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_4 + C_2 C_6 R_1 R_2 R_4 + C_2 C_6 R_2 R_3 R_4 + C_4 C_6 R_2 R_3 R_4 - C_5 C_6 R_2 R_3 R_4 \right)}
      Parameters:
               \text{Q:} \frac{\sqrt{C_{1}}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\frac{1}{C_{1}R_{1}R_{2}R_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\frac{1}{C_{1}R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\frac{1}{C_{1}R_{1}R_{2}R_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\frac{1}{C_{1}R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\frac{1}{C_{1}R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\frac{1}{C_{1}R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\frac{1}{C_{1}R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\frac{1}{C_{1}R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R_{4}+R_{2}R
             wo: \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}}

bandwidth: \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4)\sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_5R_1R_2R_3R_4}}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}\sqrt{\frac{1}{C_2 + C_4 - C_5}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}\sqrt{\frac{1}{C_2 + C_4 - C_5}}}
            K-LP: \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}
K-HP: 0
              K-BP: 0
               Qz: None
              Wz: None
7.118 LP-118 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_3R_1R_2R_4
                                                                                               H(s) = \frac{1}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_4R_5 + C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R_5 + C_3C_6R_1R
      Parameters:
           Q: -\frac{\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{2}C_{3}}\sqrt{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}}{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}}}
wo: \frac{\sqrt{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}}{\sqrt{C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}}}}
bandwidth: -\frac{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}}}{\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{2}C_{3}}\sqrt{C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}}}
              K-LP: -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}
K-HP: 0
              K-BP: 0
                 Qz: None
              Wz: None
7.119 LP-119 Z(s) = \begin{pmatrix} \frac{R_1}{C_1 R_1 s + 1}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_3R_1R_2
                                                                                                                                                   H(s) = \frac{1}{-C_6R_2 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_2R_5 + C_1C_3C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_5 + C_2C_3C_6R_1R_2R_5\right) + s\left(-C_1C_6R_1R_2 + C_1C_6R_1R_5 + C_2C_6R_2R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5\right)}
      Parameters:
               Q: -\frac{\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-R_2+R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}

WO: \frac{\sqrt{-R_2+R_5}}{\sqrt{-R_2+R_5}}
              wo: \frac{\sqrt{C_1C_2R_1R_2R_5 + C_1C_3R_1R_2R_5 + C_2C_3R_1R_2R_5}}{\sqrt{C_1C_2R_1R_2R_5 + C_1C_3R_1R_2R_5 + C_2C_3R_1R_2R_5}} bandwidth: -\frac{C_1R_1R_2 - C_1R_1R_5 - C_2R_2R_5 - C_3R_1R_5 - C_3R_2R_5 - C_4R_2R_5}{\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_1C_2 + C_1C_3 + C_1C_4 + C_2C_3}\sqrt{C_1C_2R_1R_2R_5 + C_1C_3R_1R_2R_5 + C_1C_4R_1R_2R_5 + C_2C_3R_1R_2R_5}}
             K-LP: -\frac{C_3 R_1 R_2}{C_6 R_2 - C_6 R_5}
K-HP: 0
               K-BP: 0
```

Qz: None Wz: None

**7.120** LP-120 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

 $C_3R_1R_2R_4$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4}{-C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s^2 \left(C_1 C_2 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_2 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_6 R_1 R_2 R_4 + C_1 C_6 R_1 R_2 R_4 + C_1 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_4 R_5 + C_3 C_6 R_1 R_4 R_5 + C_3 C_6 R_1 R_2 R_4 R_5 + C_4 C_6 R_4 R_5$ 

#### Parameters:

 $\begin{aligned} & Q \colon -\frac{\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_2R_4+R_2R_5+R_4R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{\sqrt{-R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_2R_2R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5}} \\ & \text{wo: } \frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5}} \\ & \text{bandwidth: } -\frac{C_1R_1R_2R_4-C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_2R_4R_5-C_3R_2R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5}{\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_$ 

K-BP: 0 Qz: None Wz: None

#### X-INVALID-NUMER

8.1 X-INVALID-NUMER-1  $Z(s) = \left(R_1, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_5R_1R_2R_4R_5R_6s + R_1R_2R_4R_6$  $H(s) = \frac{-C_5C_6R_2R_3R_4R_5R_6s^2 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s\left(-C_5R_2R_3R_4R_5 + C_6R_1R_4R_5R_6 - C_6R_2R_3R_4R_6 + C_6R_2R_3R_5R_6 + C_6R_2R_4R_5R_6 + C_6R_3R_4R_5R_6\right)}{-C_5C_6R_2R_3R_4R_5R_6s^2 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + s\left(-C_5R_2R_3R_4R_5 + C_6R_1R_4R_5R_6 - C_6R_2R_3R_4R_6 + C_6R_2R_3R_5R_6 + C_6R_2R_4R_5R_6\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-R_1}R_4R_5 + R_2R_3R_4 - R_2R_3R_5 - R_2R_4R_5 - R_3R_4R_5}{C_5R_2R_3R_4R_5 - C_6R_1R_4R_5R_6 + C_6R_2R_3R_4R_6 - C_6R_2R_3R_5R_6 - C_6R_2R_4R_5R_6 - C_6R_3R_4R_5R_6}$ wo:  $\frac{\sqrt{-R_1}R_4R_5 + R_2R_3R_4 - R_2R_3R_5 - R_2R_4R_5 - R_3R_4R_5}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}$ bandwidth:  $\frac{C_5R_2R_3R_4R_5 - C_6R_1R_4R_5R_6 + C_6R_2R_3R_4R_6 - C_6R_2R_3R_5R_6 - C_6R_2R_4R_5R_6 - C_6R_3R_4R_5R_6}{C_5C_6R_2R_3R_4R_5R_6}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP: 0

 $\text{K-BP:} - \frac{C_5 R_1 R_2 R_4 R_5 R_6}{C_5 R_2 R_3 R_4 R_5 - C_6 R_1 R_4 R_5 R_6 + C_6 R_2 R_3 R_4 R_6 - C_6 R_2 R_3 R_5 R_6 - C_6 R_2 R_4 R_5 R_6 - C_6 R_3 R_4 R_5 R_6}$ 

Qz: None Wz: None

**8.2** X-INVALID-NUMER-2  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_2R_6s + C_5R_1R_2}{C_4C_5C_6R_2R_3R_5s^2 + C_6R_1 + C_6R_2 + C_6R_3 + s\left(C_4C_6R_2R_3 + C_5C_6R_1R_5 - C_5C_6R_2R_3 + C_5C_6R_2R_5 + C_5C_6R_3R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{R_1+R_2+R_3}}{C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$ wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}$ bandwidth:  $\frac{C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}{C_4C_5R_2R_3R_5}$ 

K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_6}{C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$  Qz: None

Wz: None

**8.3** X-INVALID-NUMER-3  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_5R_1R_2R_5R_6s + R_1R_2R_6$  $\frac{1}{R_{1}R_{5}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}+s^{2}\left(C_{4}C_{6}R_{2}R_{3}R_{5}R_{6}-C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}\right)+s\left(C_{4}R_{2}R_{3}R_{5}-C_{5}R_{2}R_{3}R_{5}+C_{6}R_{1}R_{5}R_{6}-C_{6}R_{2}R_{3}R_{6}+C_{6}R_{2}R_{5}R_{6}+C_{6}R_{3}R_{5}R_{6}\right)}$ 

### 8.4 X-INVALID-NUMER-4 $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$

 $H(s) = \frac{C_4 R_1 R_2 R_4 R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^2 \left(C_4 C_6 R_1 R_4 R_5 R_6 - C_4 C_6 R_2 R_3 R_4 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 + C_4 C_6 R_2 R_4 R_5 R_6 + C_4 C_6 R_3 R_4 R_5 R_6 \right) + s \left(C_4 R_1 R_4 R_5 - C_4 R_2 R_3 R_4 + C_4 R_2 R_3 R_5 + C_4 R_2 R_4 R_5 + C_6 R_1 R_5 R_6 - C_6 R_2 R_3 R_6 + C_6 R_2 R_5 R_6 + C_6 R_2 R_5 R_6 + C_6 R_2 R_5 R_6 \right) + s \left(C_4 R_1 R_4 R_5 - C_4 R_2 R_3 R_5 + C_4 R_2 R_4 R_5 + C_6 R_1 R_5 R_6 - C_6 R_2 R_3 R_6 + C_6 R_2 R_5 R_6 \right) + s \left(C_4 R_1 R_4 R_5 - C_4 R_2 R_3 R_5 + C_4 R_2 R_4 R_5 + C_6 R_2 R_5 R_6 \right) + s \left(C_4 R_1 R_4 R_5 - C_4 R_2 R_5 R_6 + C_6 R_5 R_5$ 

#### Parameters:

```
Q: \frac{R_{1}R_{5}}{\sqrt{C_{4}}\sqrt{C_{6}}R_{1}R_{4}R_{5}\sqrt{R_{6}}\sqrt{\frac{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} - \sqrt{C_{4}\sqrt{C_{6}}R_{2}R_{3}R_{4}\sqrt{R_{6}}\sqrt{\frac{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} - \sqrt{C_{4}\sqrt{C_{6}}R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} - \sqrt{C_{4}\sqrt{C_{6}}R_{2}R_{3}R_{4}+R_{2
```

8.5 X-INVALID-NUMER-5  $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{-C_4C_5R_2R_3R_4s^2 + R_1 + R_2 + R_3 + s\left(C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3\right)}$ 

#### Parameters:

Qz: None Wz: None

```
Q: -\frac{i\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1+R_2+R_3}}{C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4-C_5R_2R_3} wo: \frac{\sqrt{-R_1-R_2-R_3}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}} bandwidth: \frac{i\sqrt{-R_1-R_2-R_3}(C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4-C_5R_2R_3)}{C_4C_5R_2R_3R_4\sqrt{R_1+R_2+R_3}} K-LP: 0 K-HP: -\frac{R_1R_6}{R_3} K-BP: \frac{C_5R_1R_2R_6}{C_4R_1R_4+C_4R_2R_4+C_5R_2R_3} Qz: None Wz: None
```

**8.6** X-INVALID-NUMER-6  $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4s + C_5R_1R_2}{-C_4C_5C_6R_2R_3R_4s^2 + C_6R_1 + C_6R_2 + C_6R_3 + s\left(C_4C_6R_1R_4 + C_4C_6R_2R_3 + C_4C_6R_2R_4 + C_4C_6R_3R_4 - C_5C_6R_2R_3\right)}$ 

Q: 
$$-\frac{i\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1+R_2+R_3}}{C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4-C_5R_2R_3}$$
 wo: 
$$\frac{\sqrt{-R_1-R_2-R_3}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$$
 bandwidth: 
$$\frac{i\sqrt{-R_1-R_2-R_3}(C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4-C_5R_2R_3)}{C_4C_5R_2R_3R_4\sqrt{R_1+R_2+R_3}}$$
 K-LP: 
$$\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$$
 K-HP: 0
K-BP: 
$$\frac{C_4C_5R_1R_2R_4}{C_4C_6R_1R_4+C_4C_6R_2R_3+C_4C_6R_2R_4+C_4C_6R_3R_4-C_5C_6R_2R_3}$$

```
Qz: None
Wz: None
```

### 8.7 X-INVALID-NUMER-7 $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^2\left(C_4C_5R_1R_4R_5 - C_4C_5R_2R_3R_4 + C_4C_5R_2R_3R_5 + C_4C_5R_2R_4R_5 + C_4C_5R_3R_4R_5\right) + s\left(C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 + C_5R_1R_5 - C_5R_2R_3 + C_5R_2R_5 + C_5R_3R_5\right)}$ 

#### Parameters:

 $Q: \frac{\sqrt{C_4}\sqrt{C_5}R_1R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_3R_4\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_3R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_4R_5+R_3R_4R_5}}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_3R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_3R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_3R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_3R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_3R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_3R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R$ 

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_4 C_5 R_1 R_4 R_5 - C_4 C_5 R_2 R_3 R_4 + C_4 C_5 R_2 R_3 R_5 + C_4 C_5 R_2 R_4 R_5 + C_4 C_5 R_3 R_4 R_5}$ 

 $\sqrt{R_1 + R_2 + R_3} (C_4 R_1 R_4 + C_4 R_2 R_3 + C_4 R_2 R_4 + C_4 R_3 R_4 + C_5 R_1 R_5 - C_5 R_2 R_3 + C_5 R_2 R_5 + C_5 R_3 R_5) \sqrt{\frac{C_4 C_5 R_1 R_4 R_5 - C_4 C_5 R_2 R_3 R_4 + C_4 C_5 R_2 R_4 R_5 + C_4 C_5 R_3 R_4 R_5}{C_4 C_5 R_2 R_3 R_4 + C_4 R_3 R_4 + C_5 R_3 R_4 + C_5 R_3 R_4 R_5}}$  $\frac{\sqrt{C_4\sqrt{C_5}R_1R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+\frac{1}{R_2}R_3R_5+R_2R_4R_5+R_3R_4R_5}}}{\sqrt{C_4\sqrt{C_5}R_1R_4R_5-R_2R_3R_4+\frac{1}{R_2}R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5+R_3R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_3R_4+R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_5R_4R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt{C_4\sqrt{C_5}R_5R_5}+\sqrt$ 

K-LP: 0

K-HP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP: } \frac{C_5R_1R_2R_6}{C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5} \\ \text{Qz: None}$ 

Wz: None

# 8.8 X-INVALID-NUMER-8 $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_4C_5R_1R_2R_4s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_4C_5C_6R_1R_4R_5 - C_4C_5C_6R_2R_3R_4 + C_4C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_4R_5 + C_4C_5C_6R_3R_4R_5\right) + s\left(C_4C_6R_1R_4 + C_4C_6R_2R_4 + C_4C_6R_3R_4 + C_5C_6R_1R_5 - C_5C_6R_2R_3 + C_5C_6R_2R_5 + C_5C_6R_3R_5\right)}$ 

#### **Parameters:**

 $Q: \frac{\sqrt{C_4}\sqrt{C_5}R_1R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}\sqrt{C_5}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}\sqrt{C_5}R_3R_4+R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}\sqrt{C_5}R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}$ 

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_4 C_5 R_1 R_4 R_5 - C_4 C_5 R_2 R_3 R_4 + C_4 C_5 R_2 R_3 R_5 + C_4 C_5 R_2 R_4 R_5 + C_4 C_5 R_3 R_4 R_5}$ 

 $\frac{\sqrt{R_1 + R_2 + R_3}(C_4 R_1 R_4 + C_4 R_2 R_3 + C_4 R_2 R_4 + C_4 R_3 R_4 + C_5 R_1 R_5 - C_5 R_2 R_3 + C_5 R_3 R_5)\sqrt{\frac{1}{C_4 C_5 R_1 R_4 R_5 - C_4 C_5 R_2 R_3 R_4 + C_4 C_5 R_2 R_4 R_5 + C_4 C_5 R_4$ 

K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$ K-HP: 0

 $\text{K-BP: } \frac{C_4C_5R_1R_2R_4}{C_4C_6R_1R_4 + C_4C_6R_2R_3 + C_4C_6R_2R_4 + C_4C_6R_3R_4 + C_5C_6R_1R_5 - C_5C_6R_2R_3 + C_5C_6R_2R_5 + C_5C_6R_3R_5}$ 

Qz: None Wz: None

# **8.9** X-INVALID-NUMER-9 $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_4C_5C_6R_2R_3R_4R_5s^2 + C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_4C_6R_2R_3R_4 + C_5C_6R_1R_4R_5 - C_5C_6R_2R_3R_4 + C_5C_6R_2R_3R_5 + C_5C_6R_2R_4R_5 + C_5C_6R_3R_4R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{C_4C_5R_2R_3R_4R_5}$ 

K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_4R_2R_3R_4 + C_5R_1R_4R_5 - C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2R_4R_5 + C_5R_3R_4R_5}$ 

Qz: None Wz: None

### **8.10** X-INVALID-NUMER-10 $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$

 $C_5R_1R_2R_4R_5R_6s + R_1R_2R_4R_6$ 

 $H(s) = \frac{c_5 n_1 n_2 n_4 n_5 n_6 s + n_1 n_2 n_4 n_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s^2 \left(C_4 C_6 R_2 R_3 R_4 R_5 R_6 - C_5 C_6 R_2 R_3 R_4 R_5 - C_5 R_2 R_3 R_4 R_5 + C_6 R_1 R_4 R_5 R_6 - C_6 R_2 R_3 R_4 R_6 + C_6 R_2 R_3 R_4 R_5 + C_6 R_2 R_$ 

#### Parameters:

 $\frac{\sqrt{\frac{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}{C_{4}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}-C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}}}(C_{4}R_{2}R_{3}R_{4}R_{5}-C_{5}R_{2}R_{3}R_{4}R_{5}+C_{6}R_{1}R_{4}R_{5}R_{6}-C_{6}R_{2}R_{3}R_{4}R_{6}+C_{6}R_{2}R_{4}R_{5}R_{6}+C_{6}R_{2}R_{4}R_{5}R_{6}+C_{6}R_{3}R_{4}R_{5}R_{6}})}{C_{4}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{4}-C_{5}}+\frac{R_{2}R_{3}R_{5}}{C_{4}-C_{5}}+\frac{R_{2}R_{4}R_{5}}{C_{4}-C_{5}}+\frac{R_{3}R_{4}R_{5}}{C_{4}-C_{5}}-C_{5}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{4}-C_{5}}+\frac{R_{2}R_{3}R_{5}}{C_{4}-C_{5}}+\frac{R_{3}R_{4}R_{5}}{C_{4}-C_{5}}+\frac{R_{3}R_{4}R_{5}}{C_{4}-C_{5}}}$ 

K-BP:  $\frac{C_5R_1R_2R_4R_5R_6}{C_4R_2R_3R_4R_5-C_5R_2R_3R_4R_5+C_6R_1R_4R_5R_6-C_6R_2R_3R_4R_6+C_6R_2R_3R_5R_6+C_6R_2R_4R_5R_6+C_6R_3R_4R_5R_6}$  Qz: None

Wz: None

### **8.11** X-INVALID-NUMER-11 $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5\right) + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_4 - C_5C_6R_2R_4 + C_5C_6R_2R_5 + C_5C_6R_4R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{R_2+R_4}}{C_3R_1R_4+C_3R_2R_4-C_5R_2R_4+C_5R_2R_5+C_5R_4R_5}$ wo:  $\frac{\sqrt{R_2+R_4}}{\sqrt{C_3C_5R_1R_4R_5+C_3C_5R_2R_4R_5}}$ bandwidth:  $\frac{C_3R_1R_4+C_3R_2R_4-C_5R_2R_4+C_5R_2R_5+C_5R_4R_5}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_5R_1R_4R_5+C_3C_5R_2R_4R_5}}$ W. I.B. 0

K-LP: 0

K-HP:  $\frac{R_1R_2R_6}{R_1R_5+R_2R_5}$ 

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4+C_3C_6R_2R_4-C_5C_6R_2R_4+C_5C_6R_2R_5+C_5C_6R_4R_5}$  Qz: None

Wz: None

**8.12** X-INVALID-NUMER-12  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_3C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6 - C_5C_6R_2R_4R_5R_6\right) + s\left(C_3R_1R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5 - C_6R_2R_4R_6 + C_6R_2R_5R_6 + C_6R_4R_5R_6\right)}$ 

#### Parameters:

 $\frac{C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_2R_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{R_4R_5}{C_3R_1+C_3R_2-C_5R_2}}{+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_4R_5}{C_3R_1+C_3R_2-C_5R_2}} - C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_4R_5}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_4R_5}{C_3R_1+C_3R_2-C_5R_2} +$ 

 $\frac{-R_2R_4+R_2R_5+R_4R_5}{\sqrt{C_3C_6R_1R_4R_5R_6+C_3C_6R_2R_4R_5+C_6R_2R_4R_5-C_5R_2R_4R_5-C_5R_2R_4R_5-C_6R_2R_4R_6+C_6R_2R_5R_6+C_6R_4R_5R_6)}}{C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2-C_5R_2}+\frac{R_4R_5}{C_3R_1+C_3R_2-C_5R_2}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2-C_5R_2}+\frac{R_4R_5}{C$ 

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5+C_3R_2R_4R_5-C_5R_2R_4R_5-C_6R_2R_4R_6+C_6R_2R_5R_6+C_6R_4R_5R_6}$  Qz: None

Wz: None

8.13 X-INVALID-NUMER-13  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s^2\left(C_3C_5C_6R_1R_5 + C_3C_5C_6R_2R_5 + C_4C_5C_6R_2R_5\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2 + C_5C_6R_5\right)}$ 

wo:  $\frac{1}{\sqrt{C_3C_5R_1R_5 + C_3C_5R_2R_5 + C_4C_5R_2R_5}}$  bandwidth:  $\frac{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_5R_5}{\sqrt{C_5}\sqrt{R_5}\sqrt{C_3R_1 + C_3R_2 + C_4R_2}\sqrt{C_3C_5R_1R_5 + C_3C_5R_2R_5 + C_4C_5R_2R_5}}$ 

K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  K-BP:  $\frac{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2+C_5C_6R_5}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2+C_5C_6R_5}$  Qz: None

Wz: None

# 8.14 X-INVALID-NUMER-14 $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^2\left(C_3C_6R_1R_5R_6 + C_3C_6R_2R_5R_6 + C_4C_6R_2R_5R_6 - C_5C_6R_2R_5R_6\right) + s\left(C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5 - C_5R_2R_5 - C_6R_2R_6 + C_6R_5R_6\right)}$$

#### Parameters:

 $Q: \frac{C_3\sqrt{C_6}R_1\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{R_5$ Wo:  $\sqrt{\frac{-R_2+R_5}{C_3C_6R_1R_5R_6+C_3C_6R_2R_5R_6+C_4C_6R_2R_5R_6-C_5C_6R_2R_5R_6}}$ 

 $\frac{-R_2 + R_5}{\sqrt{C_3 C_6 R_1 R_5 R_6 + C_3 C_6 R_2 R_5 R_6}} (C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5 - C_5 R_2 R_5 - C_6 R_2 R_6 + C_6 R_5 R_6)}{C_3 \sqrt{C_6 R_1} \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_3 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_4 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_4 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_4 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + C_5 \sqrt{C_6} R_2 \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{R_$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5-C_5R_2R_5-C_6R_2R_6+C_6R_5R_6}$  Qz: None

Wz: None

### **8.15** X-INVALID-NUMER-15 $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^2\left(C_3C_4R_1R_4R_5 + C_3C_4R_2R_4R_5\right) + s\left(C_3R_1R_5 + C_3R_2R_5 - C_4R_2R_4 + C_4R_2R_5 + C_4R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{-R_2+R_5}}{C_3R_1R_5+C_3R_2R_5-C_4R_2R_4+C_4R_2R_5+C_4R_4R_5}$ wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_3C_4R_1R_4R_5+C_3C_4R_2R_4R_5}}$ bandwidth:  $\frac{C_3R_1R_5+C_3R_2R_5-C_4R_2R_4+C_4R_2R_5+C_4R_4R_5}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_4R_1R_4R_5+C_3C_4R_2R_4R_5}}$ V. I.D. 0

K-HP:  $\frac{R_1 R_2 R_6}{R_1 R_5 + R_2 R_5}$ 

K-BP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5-C_4R_2R_4+C_4R_2R_5+C_4R_4R_5}$  Qz: None

Wz: None

# **8.16** X-INVALID-NUMER-16 $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_4R_1R_2R_4s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^2\left(C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_2R_4R_5\right) + s\left(C_3C_6R_1R_5 + C_3C_6R_2R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_4R_5\right)}$$

#### Parameters:

wo:  $\frac{1}{\sqrt{C_3C_4R_1R_4R_5+C_3C_4R_2R_4R_5}}$ bandwidth:  $\frac{C_3R_1R_5+C_3R_2R_5-C_4R_2R_4+C_4R_2R_5+C_4R_4R_5}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_4R_1R_4R_5+C_3C_4R_2R_4R_5}}$ 

K-LP:  $-\frac{C_3R_1R_2}{C_6R_2-C_6R_5}$ K-HP: 0

K-BP:  $\frac{C_3C_4R_1R_2R_4}{C_3C_6R_1R_5 + C_3C_6R_2R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_4R_5}$ 

Qz: None Wz: None

### **8.17** X-INVALID-NUMER-17 $Z(s) = \left(R_1, R_2, \frac{1}{C_{3s}}, R_4 + \frac{1}{C_{4s}}, \frac{1}{C_{5s}}, \frac{1}{C_{6s}}\right)$

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{C_6 + s^2\left(C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_4 - C_4C_5C_6R_2R_4\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 + C_4C_6R_4 - C_5C_6R_2\right)}$$

#### Parameters:

 $\frac{C_3\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}+C_3\sqrt{C_4}R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-\sqrt{C_4}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}}{C_3R_1+C_3R_2+C_4R_2+C_4R_4-C_5R_2}$ wo:  $\sqrt{\frac{1}{C_3C_4R_1R_4 + C_3C_4R_2R_4 - C_4C_5R_2R_4}}$ bandwidth:  $\frac{(C_3R_1 + C_3R_2 + C_4R_2 + C_4R_4 - C_5R_2)\sqrt{\frac{1}{C_3C_4R_1R_4 + C_3C_4R_2R_4 - C_4C_5R_2R_4}}}{C_3\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}} + C_3\sqrt{C_4}R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}} - \sqrt{C_4}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}}$ K-LP: 0 K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2+C_4C_6R_4-C_5C_6R_2}$  Qz: None Wz: None

# 8.18 X-INVALID-NUMER-18 $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

#### Parameters:

K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4+C_3C_6R_2R_4+C_4C_6R_2R_4-C_5C_6R_2R_4+C_5C_6R_2R_5+C_5C_6R_4R_5}$  Qz: None Wz: None

### **8.19** X-INVALID-NUMER-19 $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_3C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6 - C_5C_6R_2R_4R_5R_6\right) + s\left(C_3R_1R_4R_5 + C_4R_2R_4R_5 - C_5R_2R_4R_5 - C_6R_2R_4R_6 + C_6R_2R_5R_6 + C_6R_4R_5R_6\right)}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_3C_6R_1R_4R_5R_6 + C_4C_6R_2R_4R_5R_6 - C_5C_6R_2R_4R_5R_6\right) + s\left(C_3R_1R_4R_5 + C_4R_2R_4R_5 - C_5R_2R_4R_5 - C_6R_2R_4R_5 + C_6R_2R_4R_5R_6\right)}$ 

#### **Parameters:**

 $Q: \frac{C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{R_2R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4R_5}{C_3R$  $\frac{-R_2R_4+R_2R_5+R_4R_5}{C_3C_6R_1R_4R_5R_6+C_3C_6R_2R_4R_5+C_4C_6R_2R_4R_5+C_4C_6R_2R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5-C_5R_2R_4R_5-C_5R_2R_4R_5-C_6R_2R_4R_6+C_6R_2R_5R_6+C_6R_4R_5R_6)}{C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\frac{R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3R_4\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_5}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_5}}+C_3\sqrt{R_5}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_5}}+C_$  $\begin{array}{l} \text{K-HP: } \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2} \\ \text{K-BP: } \frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5+C_3R_2R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5-C_6R_2R_4R_6+C_6R_2R_5R_6+C_6R_4R_5R_6} \\ \text{Qz: None} \end{array}$ 

Wz: None

## **8.20** X-INVALID-NUMER-20 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{-C_3C_5C_6R_2R_3R_4s^2 + C_6R_2 + C_6R_4 + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_3R_4 - C_5C_6R_2R_4\right)}$$

```
Q: -\frac{i\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}}{C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4}
```

bandwidth:  $\frac{i\sqrt{-R_2-R_4}(C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4)}{i\sqrt{-R_2-R_4}(C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4+C_5R_2R_4)}$ 

K-LP: 0 K-HP:  $-\frac{R_1R_6}{R_3}$ 

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4+C_3C_6R_2R_3+C_3C_6R_2R_4+C_3C_6R_3R_4-C_5C_6R_2R_4}$  Qz: None

Wz: None

### **8.21** X-INVALID-NUMER-21 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s$  $H(s) = \frac{1}{C_{6}R_{2} + C_{6}R_{4} + s^{2}\left(C_{3}C_{5}C_{6}R_{1}R_{4}R_{5} - C_{3}C_{5}C_{6}R_{2}R_{3}R_{4} + C_{3}C_{5}C_{6}R_{2}R_{3}R_{5} + C_{3}C_{5}C_{6}R_{2}R_{4}R_{5} + C_{3}C_{5}C_{6}R_{3}R_{4}R_{5}\right) + s\left(C_{3}C_{6}R_{1}R_{4} + C_{3}C_{6}R_{2}R_{3} + C_{3}C_{6}R_{2}R_{4} + C_{5}C_{6}R_{2}R_{4} + C_{5}C_{6}R_$ 

#### Parameters:

 $Q: \frac{\sqrt{C_3}\sqrt{C_5}R_1R_4R_5\sqrt{R_2} + R_4}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5} - \sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{R_2} + R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2} + R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2} + R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2} + R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2} + R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2} + R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2} + R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{R_2}} + \sqrt{C_3}\sqrt{C_5}R_4R_5\sqrt{R_2}} + \sqrt{C_3}\sqrt{C_5}R_4R_5\sqrt{R_2} + \sqrt{C_3}\sqrt{C_5}R_4R_5\sqrt{R_2}} + \sqrt{C_3}\sqrt{C_5}R_4R_5\sqrt{R_2}} + \sqrt{C_3}\sqrt{C_5}R_4R_5\sqrt{R_2}} + \sqrt{C$ 

wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_3 C_5 R_1 R_4 R_5 - C_3 C_5 R_2 R_3 R_4 + C_3 C_5 R_2 R_3 R_5 + C_3 C_5 R_2 R_4 R_5 + C_3 C_5 R_3 R_4 R_5}$ 

K-LP: 0

K-HP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP: } \frac{C_3C_5R_1R_2R_4}{C_3C_6R_2R_4+C_3C_6R_2R_4+C_5C_6R_2R_4+C_5C_6R_2R_5+C_5C_6R_4R_5} \\ \text{Qz: None}$ 

Wz: None

8.22 X-INVALID-NUMER-22  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s$  $H(s) = \frac{-3.534122433535 + 3.44253}{-C_3C_5R_2R_3R_4R_5s^2 - R_2R_4 + R_2R_5 + R_4R_5 + s\left(C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 - C_5R_2R_4R_5\right)}$ 

#### Parameters:

 $\begin{array}{l} \text{Q:} & -\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_2R_4-R_2R_5-R_4R_5}}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5-C_5R_2R_4R_5} \\ \text{wo:} & \frac{\sqrt{R_2R_4-R_2R_5-R_4R_5}}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}} \\ \text{bandwidth:} & -\frac{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5-C_5R_2R_4R_5}{C_3C_5R_2R_3R_4R_5} \\ \text{W. I.B. 0} \end{array}$ 

K-LP: 0

K-HP:  $-\frac{R_1R_6}{R_2}$ 

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5-C_5R_2R_4R_5}$  Qz: None

Wz: None

8.23 X-INVALID-NUMER-23  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4$  $H(s) = \frac{-C_3C_5C_6R_2R_3R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_3R_4R_5 - C_5C_6R_2R_4R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 +$ 

#### Parameters:

Q:  $-\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_2}R_4 - R_2R_5 - R_4R_5}{C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 - C_5R_2R_4R_5}$ wo:  $\frac{\sqrt{R_2R_4 - R_2R_5 - R_4R_5}}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $-\frac{C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 - C_5R_2R_4R_5}{C_3C_5R_2R_3R_4R_5}$ 

K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$ 

K-HP: 0

 $\text{K-BP: } \frac{C_3C_5R_1R_2R_4R_5}{C_3C_6R_1R_4R_5-C_3C_6R_2R_3R_4+C_3C_6R_2R_3R_5+C_3C_6R_2R_4R_5+C_3C_6R_3R_4R_5-C_5C_6R_2R_4R_5}$ 

Qz: None Wz: None

### **8.24** X-INVALID-NUMER-24 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_6R_1R_2R_6s + C_3R_1R_2}{C_3C_4C_6R_2R_3R_5s^2 - C_6R_2 + C_6R_5 + s\left(C_3C_6R_1R_5 - C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_3R_5 + C_4C_6R_2R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-R_2+R_5}}{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5}$ wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}$ bandwidth:  $\frac{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5}{C_3C_4R_2R_3R_5}$ K-LP:  $-\frac{C_3R_1R_2}{C_6R_2-C_6R_5}$ K-HP: 0 K-BP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5}$  Qz: None

Wz: None

# 8.25 X-INVALID-NUMER-25 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s^2\left(C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_2 - C_5C_6R_2\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2}$ bandwidth:  $\frac{(C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 - C_5R_2)\sqrt{\frac{1}{C_3C_4R_2R_3 - C_3C_5R_2R_3}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4 - C_5}}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4 - C_5}}}$  $\begin{array}{c} \text{K-LP: 0} \\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3} \\ \text{K-BP: } \frac{C_3C_6R_1+C_3C_6R_2+C_3C_6R_3+C_4C_6R_2-C_5C_6R_2}{C_3C_6R_1+C_3C_6R_2+C_3C_6R_3+C_4C_6R_2-C_5C_6R_2} \\ \text{Qz: None} \end{array}$ Wz: None

8.26 X-INVALID-NUMER-26  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^2\left(C_3C_4R_2R_3R_5 - C_3C_5R_2R_3R_5\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5 - C_5R_2R_5\right)}$$

$$\begin{array}{l} Q\colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}}{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5-C_5R_2R_5}\\ \text{wo: } \sqrt{\frac{-R_2+R_5}{C_3C_4R_2R_3R_5-C_3C_5R_2R_3R_5}}\\ \text{bandwidth: } \frac{\frac{-R_2+R_5}{C_3C_4R_2R_3R_5-C_3C_5R_2R_3R_5}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3}\\ \text{K-BP: } \frac{C_3R_1R_2R_6}{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5-C_5R_2R_5}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

8.27 X-INVALID-NUMER-27 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_5s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^2\left(C_3C_4C_6R_2R_3R_5 - C_3C_5C_6R_2R_3R_5\right) + s\left(C_3C_6R_1R_5 - C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_3R_5 + C_4C_6R_2R_5 - C_5C_6R_2R_5\right)}$$

Q:  $\frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}}{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5-C_5R_2R_5}$ bandwidth:  $\frac{\sqrt{\frac{-R_2+R_5}{C_3C_4R_2R_3R_5-C_3C_5R_2R_3R_5}}(C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5-C_5R_2R_5)}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}}$ K-LP:  $-\frac{C_3R_1R_2}{C_6R_2-C_6R_5}$ K-HP: 0 K-BP:  $\frac{C_3C_5R_1R_2R_5}{C_3C_6R_1R_5-C_3C_6R_2R_3+C_3C_6R_2R_5+C_3C_6R_3R_5+C_4C_6R_2R_5-C_5C_6R_2R_5}$  Qz: None Wz: None

### 8.28 X-INVALID-NUMER-28 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

 $C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s$  $H(s) = \frac{C_3C_4R_1R_2R_4R_6s + C_3R_1R_2R_6s}{-R_2 + R_5 + s^2\left(C_3C_4R_1R_4R_5 - C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_4R_5 + C_3C_4R_3R_4R_5\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 - C_4R_2R_4 + C_4R_2R_5 + C_4R_4R_5\right)}$ 

#### Parameters:

 $Q \colon \frac{\sqrt{C_3}\sqrt{C_4}R_1R_4R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_4 - \frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5 + \frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5 + \frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_4R_5} + \frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_4R_5} + \frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_4R_5} + \frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5} + \frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_$ Wo:  $\sqrt{\frac{-R_2+R_5}{C_3C_4R_1R_4R_5-C_3C_4R_2R_3R_4+C_3C_4R_2R_3R_5+C_3C_4R_2R_4R_5+C_3C_4R_3R_4R_5}}$  $\frac{\sqrt{C_3}\sqrt{C_4}R_1R_4R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4}+\frac{R_2}{R_1R_4R_5-R_2R_3R_4}+\frac{R_2}{R_1R_4R_5$ 

 $\begin{array}{l} \text{K-HP:} \ \, \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP:} \ \, \frac{C_3R_1R_2R_6}{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5-C_4R_2R_4+C_4R_2R_5+C_4R_4R_5} \\ \text{Qz:} \ \, \text{None} \end{array}$ 

Wz: None

# **8.29** X-INVALID-NUMER-29 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$

 $C_3C_4R_1R_2R_4s + C_3R_1R_2$  $H(s) = \frac{-C_6R_2 + C_6R_5 + s^2\left(C_3C_4C_6R_1R_4R_5 - C_3C_4C_6R_2R_3R_4 + C_3C_4C_6R_2R_3R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_3R_4R_5\right) + s\left(C_3C_6R_1R_5 - C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_$ 

#### Parameters:

 $Q: \frac{\sqrt{C_3}\sqrt{C_4}R_1R_4R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_3R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_3R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_$ Wo:  $\sqrt{\frac{-R_2+R_5}{C_3C_4R_1R_4R_5-C_3C_4R_2R_3R_4+C_3C_4R_2R_3R_5+C_3C_4R_2R_4R_5+C_3C_4R_3R_4R_5}}$ 

 $\frac{R_2}{\sqrt{C_3}\sqrt{C_4}R_1R_4R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R_1R_4R_5}+\frac{R_5}{R$ 

K-HP: 0

K-BP:  $\frac{C_3C_4R_1R_2R_4}{C_3C_6R_1R_5-C_3C_6R_2R_3+C_3C_6R_2R_5+C_3C_6R_3R_5-C_4C_6R_2R_4+C_4C_6R_2R_5+C_4C_6R_4R_5}$  Qz: None

**8.30** X-INVALID-NUMER-30 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{C_3C_4C_6R_2R_3R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_5R_5 + C_3C_6R_5 + C$$

Q:  $\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5}$  wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5}{C_3C_4R_2R_3R_4R_5}$ 

K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 + C_4R_2R_4R_5}$ 

Wz: None

### **8.31** X-INVALID-NUMER-31 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_{3s}}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_3C_4C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4\right) + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_3R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

#### Parameters:

 $\frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4+C_4R_2R_4-C_5R_2R_4}$ 

wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_3 C_4 R_2 R_3 R_4 - C_3 C_5 R_2 R_3 R_4}}$ 

bandwidth:  $\frac{\sqrt{R_2 + R_4}(C_3 R_1 R_4 + C_3 R_2 R_3 + C_3 R_2 R_4 + C_3 R_3 R_4 + C_4 R_2 R_4 - C_5 R_2 R_4) \sqrt{\frac{1}{C_3 C_4 R_2 R_3 R_4 - C_3 C_5 R_2 R_3 R_4}}}{\sqrt{C_3 C_4 \sqrt{R_2} \sqrt{R_3} \sqrt{R_4} \sqrt{R_2 + R_4}} \sqrt{\frac{1}{C_4 - C_5}} - \sqrt{C_3 C_5 \sqrt{R_2} \sqrt{R_3} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_4 - C_5}}}$ 

K-LP: 0

K-HP:  $\frac{C_5 R_1 R_6}{C_4 R_3 - C_5 R_3}$ 

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_3R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4}$ 

Qz: None

Wz: None

## **8.32** X-INVALID-NUMER-32 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_3C_4R_2R_3R_4R_5 - C_3C_5R_2R_3R_4R_5\right) + s\left(C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 + C_4R_2R_4R_5 - C_5R_2R_4R_5\right)}$$

#### Parameters:

$$Q: \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5}$$

 $\sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_3C_4R_2R_3R_4R_5-C_3C_5R_2R_3R_4R_5}}(C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5)$ bandwidth:

 $\frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}$ 

K-LP: 0

K-HP:  $\frac{C_5 R_1 R_6}{C_4 R_3 - C_5 R_3}$ 

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5}{\rm Qz.\ None}$ 

Wz: None

**8.33** X-INVALID-NUMER-33 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_3C_4C_6R_2R_3R_4R_5 - C_3C_5C_6R_2R_3R_4R_5\right) + s\left(C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_2R_4R_5\right)}$$

```
Q \colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5}
          \frac{\sqrt{C_3C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}-\sqrt{C_3C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}}{\sqrt{R_3C_4\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}}}
          K-HP: 0
          \begin{array}{l} \text{K-BP:} \ \frac{C_3C_5R_1R_2R_4R_5}{C_3C_6R_1R_4R_5-C_3C_6R_2R_3R_4+C_3C_6R_2R_3R_5+C_3C_6R_2R_4R_5+C_3C_6R_3R_4R_5+C_4C_6R_2R_4R_5-C_5C_6R_2R_4R_5} \\ \text{Qz: None} \end{array} 
          Wz: None
8.34 X-INVALID-NUMER-34 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)
                                                                                                                                                                                                                                                                                                                                                          C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6
                                         H(s) = \frac{C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s^2\left(C_3C_6R_1R_3R_4R_5R_6 + C_3C_6R_2R_3R_4R_5 + C_3R_1R_3R_4R_5 + C_6R_1R_4R_5R_6 - C_6R_2R_3R_4R_6 + C_6R_2R_3R_5R_6 + C_6R_2R_4R_5R_6 + C_6R_3R_4R_5R_6\right)}
    Parameters:
       \begin{array}{l} \text{Q:} \ \frac{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_2}\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{C_3R_1R_3R_4R_5+C_3R_2R_3R_4R_5+C_6R_1R_4R_5R_6-C_6R_2R_3R_4R_6+C_6R_2R_3R_5R_6+C_6R_2R_4R_5R_6+C_6R_3R_4R_5R_6} \\ \text{wo:} \ \frac{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{\sqrt{C_3C_6R_1R_3R_4R_5R_6+C_3C_6R_2R_3R_4R_5R_6}} \\ \text{bandwidth:} \ \frac{C_3R_1R_3R_4R_5+C_3R_2R_3R_4R_5+C_6R_1R_4R_5R_6-C_6R_2R_3R_4R_6+C_6R_2R_3R_5R_6+C_6R_2R_4R_5R_6+C_6R_3R_4R_5R_6}}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_2}\sqrt{C_3}C_6R_1R_3R_4R_5R_6+C_6R_2R_3R_4R_5R_6}} \\ \text{K-LP:} \ \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{R_1R_4R_5-R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-HP:} \ 0 \end{array}
          \text{K-BP:} \ \frac{C_3R_1R_2R_3R_4R_6}{C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 + C_6R_1R_4R_5R_6 - C_6R_2R_3R_4R_6 + C_6R_2R_3R_5R_6 + C_6R_2R_4R_5R_6 + C_6R_3R_4R_5R_6} 
           Qz: None
           Wz: None
8.35 X-INVALID-NUMER-35 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
                                                                                   H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_3C_6R_1R_3R_4R_6 + C_3C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6\right) + s\left(C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4 + C_6R_1R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6\right)}
     Parameters:
                   \frac{C_3\sqrt{C_6}R_1\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}+C_3\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2R_3+R_4+R_3}-C_6\sqrt{R_1R_4+R_2R_3+R_4+R_3}-C_6\sqrt{R_1R_4+R_2R_3+R_4+R_3}-C_6\sqrt{R_1R_4+R_3}-C_6\sqrt{R_1R_4+R_3}-C_6\sqrt{R_1R_4+R_3}-C_6\sqrt{
         wo: \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3C_6R_1R_3R_4R_6 + C_5C_6R_2R_3R_4R_6}}

\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_3R_1R_3R_4 + C_5R_2R_3R_4 + C_6R_1R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_3R_4R_6)}\sqrt{\frac{1}{C_3C_6R_1R_3R_4R_6 + C_5C_6R_2R_3R_4R_6}}
         K-LP: 0
         K-HP: \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}
        K-BP: \frac{C_5R_1R_2R_4R_6}{C_3R_1R_3R_4+C_3R_2R_3R_4-C_5R_2R_3R_4+C_6R_1R_4R_6+C_6R_2R_3R_6+C_6R_2R_4R_6+C_6R_3R_4R_6} Qz: None
          Wz: None
8.36 X-INVALID-NUMER-36 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_3C_5R_1R_3R_4R_5 + C_3C_5R_2R_3R_4R_5\right) + s\left(C_3R_1R_3R_4 + C_5R_1R_4R_5 - C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2R_4R_5 + C_5R_3R_4R_5\right)}
     Parameters:
        Q: \frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_3R_1R_3R_4+C_3R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5} wo: \frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_3C_5R_1R_3R_4+C_5R_2R_3R_4+C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}}{\sqrt{C_3\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_5R_1R_3R_4R_5+C_5R_2R_3R_4+C_5R_2R_3R_4+C_5R_2R_3R_4R_5}}} bandwidth: \frac{C_3R_1R_3R_4+C_3R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{\sqrt{C_3\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_5R_1R_3R_4R_5+C_3C_5R_2R_3R_4R_5}}} W. I.P. 0
```

K-LP: 0

K-HP:  $\frac{R_1R_2R_6}{R_1R_5+R_2R_5}$ 

K-BP:  $\frac{C_5 R_1 R_2 R_4 R_6}{C_3 R_1 R_3 R_4 + C_3 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5}$ 

Qz: None Wz: None

### **8.37** X-INVALID-NUMER-37 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4$ 

 $H(s) = \frac{1}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_$ 

#### Parameters:

Q:  $\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_3R_1R_3R_4+C_3R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_3C_5R_1R_3R_4R_5+C_3C_5R_2R_3R_4R_5}}$  bandwidth:  $\frac{C_3R_1R_3R_4+C_3R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_3R_5+C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_3R_4R_5}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_5R_1R_3R_4R_5+C_3C_5R_2R_3R_4R_5}}$  K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$  K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_3R_4}{C_3C_6R_1R_3R_4+C_5C_6R_2R_3R_4+C_5C_6R_1R_4R_5-C_5C_6R_2R_3R_4+C_5C_6R_2R_3R_5+C_5C_6R_2R_4R_5+C_5C_6R_3R_4R_5}$  Qz: None

Wz: None

**8.38** X-INVALID-NUMER-38  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3R_1R_2R_3R_6s + R_1R_2R_6}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_3C_6R_1R_3R_5R_6 + C_3C_6R_2R_3R_5R_6 + C_4C_6R_2R_3R_5R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_5R_6 + C_6R_3R_5R_6\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_6}\sqrt{R_3}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_2R_3+R_5+R_3R_5}$  wo:  $\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_3C_6R_1R_3R_5R_6+C_3C_6R_2R_3R_5+C_4C_6R_2R_3R_5+C_6}}$  bandwidth:  $\frac{C_3R_1R_3R_5+C_3C_6R_2R_3R_5+C_4C_6R_2R_3R_5+C_6R_1R_5R_6-C_6R_2R_3R_6+C_6R_2R_5R_6+C_6R_3R_5R_6}{\sqrt{C_6}\sqrt{R_3}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_3C_6R_1R_3R_5R_6+C_3C_6R_2R_3R_5+C_4C_6R_2R_3R_5+C_6R_2R_3R_5+C_4C_6R_2R_3R_5+C_6R_2R_3R_5R_6}}$  K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$  K-HP: 0

 $\text{K-BP: } \frac{C_3R_1R_2R_3R_6}{C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_5R_6 + C_6R_3R_5R_6}$ 

Qz: None

Wz: None

**8.39** X-INVALID-NUMER-39  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^2\left(C_3C_6R_1R_3R_6 + C_3C_6R_2R_3R_6 + C_4C_6R_2R_3R_6 - C_5C_6R_2R_3R_6\right) + s\left(C_3R_1R_3 + C_4R_2R_3 - C_5R_2R_3 + C_6R_1R_6 + C_6R_2R_6 + C_6R_3R_6\right)}$ 

#### **Parameters:**

 $\frac{C_3\sqrt{C_6}R_1\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_3\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} - C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} \\ - C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3+C_6R_1R_6+C_6R_2R_6+C_6R_3R_6$ 

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 C_6 R_1 R_3 R_6 + C_3 C_6 R_2 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6}}$ 

 $\sqrt{R_1 + R_2 + R_3} (C_3 R_1 R_3 + C_3 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6) \sqrt{\frac{1}{C_3 C_6 R_1 R_3 R_6 + C_3 C_6 R_2 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6}}$ 

 $\frac{\text{bandwidth:}}{C_3\sqrt{C_6}R_1\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_3\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_4\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+C_3R_2+C_4R_2-C_5R_2}} + C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+C_3R_2+C_4R_2-C_5R_2}} + C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_6}\sqrt{R_1+C_3R_2+C_4R_2-C_5R_2}} + C_5\sqrt{C_6}R_2\sqrt{$ 

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_5R_1R_2R_6}{C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3+C_6R_1R_6+C_6R_2R_6+C_6R_3R_6}$  Qz: None

**8.40** X-INVALID-NUMER-40 
$$Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^2\left(C_3C_5R_1R_3R_5 + C_3C_5R_2R_3R_5 + C_4C_5R_2R_3R_5\right) + s\left(C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 + C_5R_1R_5 - C_5R_2R_3 + C_5R_2R_5 + C_5R_3R_5\right)}$$

Q:  $\frac{\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}\sqrt{R_1+R_2+R_3}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_3R_1R_3+C_3R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$  wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_3C_5R_1R_3R_5+C_3C_5R_2R_3R_5+C_4C_5R_2R_3R_5}}$  bandwidth:  $\frac{C_3R_1R_3+C_3R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}{\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_3C_5R_1R_3R_5+C_3C_5R_2R_3R_5+C_4C_5R_2R_3R_5}}$ 

K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  K-BP:  $\frac{C_5R_1R_2R_6}{C_3R_1R_3+C_3R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$  Qz: None

Wz: None

# 8.41 X-INVALID-NUMER-41 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_3s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_3C_5C_6R_1R_3R_5 + C_3C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_3R_5\right) + s\left(C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_5C_6R_1R_5 - C_5C_6R_2R_3 + C_5C_6R_2R_5 + C_5C_6R_2R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}\sqrt{R_1+R_2+R_3}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_3R_1R_3+C_3R_2+C_4R_2}$  wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_3C_5R_1R_3R_5+C_3C_5R_2R_3+C_4C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}}$  bandwidth:  $\frac{C_3R_1R_3+C_3R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}{\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}\sqrt{C_3}R_1+C_3R_2+C_4R_2\sqrt{C_3}C_5R_1R_3R_5+C_3C_5R_2R_3R_5+C_4C_5R_2R_3R_5}}$  K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$  K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_3}{C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3+C_5C_6R_1R_5-C_5C_6R_2R_3+C_5C_6R_2R_5+C_5C_6R_3R_5}$  Qz: None

Wz: None

### **8.42** X-INVALID-NUMER-42 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$

 $C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6$ 

 $H(s) = \frac{1}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + S^2 \left(C_3 C_6 R_1 R_3 R_4 R_5 R_6 + C_4 C_6 R_2 R_3 R_4 R_5 + C_4 R_2 R_3 R_4 R_5 + C_4 R_2 R_3 R_4 R_5 + C_6 R_2 R_4 R_5 + C_$ 

#### Parameters:

 $\begin{array}{l} \text{Q:} \ \frac{\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3}R_1 + C_3R_2 + C_4R_2}{\sqrt{R_1}R_4R_5 - R_2}\sqrt{R_1}R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5} \\ \text{wo:} \ \frac{\sqrt{R_1}R_4R_5 - R_2R_3R_4R_5 + C_4R_2R_3R_4R_5 + C_6R_1R_4R_5R_6 - C_6R_2R_3R_4R_6 + C_6R_2R_3R_5R_6 + C_6R_2R_4R_5R_6 + C_6R_3R_4R_5R_6 + C_6R_2R_3R_4R_5 + R_2R_4R_5 + R_3R_4R_5}{\sqrt{C_3}C_6R_1R_3R_4R_5R_6 + C_3R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5R_6 + C_6R_2R_3R_4R_5 + C_6R_2R$ 

 $\text{K-BP: } \frac{C_3R_1R_2R_3R_4R_6}{C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 + C_4R_2R_3R_4R_5 + C_6R_1R_4R_5R_6 - C_6R_2R_3R_4R_6 + C_6R_2R_3R_5R_6 + C_6R_2R_4R_5R_6 + C_6R_3R_4R_5R_6}$ Qz: None

Wz: None

# **8.43** X-INVALID-NUMER-43 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_3C_6R_1R_3R_4R_6 + C_4C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6\right) + s\left(C_3R_1R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4 + C_6R_1R_4R_6 + C_6R_2R_3R_6 + C_6R_2R_4R_6 + C_6R_2R_4R_6\right)}$$

#### Parameters:

 $. \frac{C_3\sqrt{C_6}R_1\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2}R_3+R_2R_4+R_3R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + C_3\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2}R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3}R_2+C_4R_2-C_5R_2} + C_4\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2}R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3}R_2+C_4R_2-C_5R_2} + C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2}R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3}R_2+C_4R_2-C_5R_2} + C_5\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{R_1R_4+R_2}R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3R_1+C_3}R_2+C_4R_3} + C_6R_2R_3R_4+C_6R_2R_3R_4+C_6R_2R_3R_4+C_6R_2R_3R_4+C_6R_2R_3R_4+C_6R_2R_3R_4+C_6R_2R_3R_4+C_6$ 

wo:  $\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_3C_6R_1R_3R_4R_6 + C_3C_6R_2R_3R_4R_6 + C_4C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6}}$ 

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$ 

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_3R_1R_3R_4+C_3R_2R_3R_4+C_4R_2R_3R_4-C_5R_2R_3R_4+C_6R_1R_4R_6+C_6R_2R_3R_6+C_6R_2R_4R_6+C_6R_3R_4R_6}{Qz. \text{ None}}$ 

Wz: None

## 8.44 X-INVALID-NUMER-44 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$

 $C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s$  $H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_3C_5R_1R_3R_4R_5 + C_3C_5R_2R_3R_4R_5 + C_4C_5R_2R_3R_4R_5\right) + s\left(C_3R_1R_3R_4 + C_4R_2R_3R_4 + C_5R_1R_4R_5 - C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2R_3R_4 + C_5$ 

#### Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3}R_1 + C_3}{C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2}\sqrt{R_1R_4 + R_2}\sqrt{R_1R_4 + R_2}R_3 + R_2}{R_4R_5 + C_5R_2R_3R_4 + C_5R_2}R_3R_4 + C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2}R_4R_5 + C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}{\sqrt{C_3C_5R_1R_3R_4 + C_5C_5R_2R_3R_4 + C_5R_2}R_3R_4R_5}}{\frac{C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 + C_5R_2R_3R_4 + C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2R_3R_5 + C_5R_2R_4R_5 + C_5R_$ 

K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$ 

 $\begin{array}{l} \text{K-BP:} \quad \frac{C_5 R_1 R_2 R_4 R_6}{C_3 R_1 R_3 R_4 + C_3 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5} \\ \end{array}$ 

Wz: None

# 8.45 X-INVALID-NUMER-45 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$

 $C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4$  $\frac{1}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_2R_3R_4R_5 + C_4C_5C_6R_2R_3R_4 + C_3C_6R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 +$ 

#### Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_3R_1R_3R_4+C_3R_2R_3R_4+C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_3C_5R_1R_3R_4R_5+C_3C_5R_2R_3R_4R_5+C_4C_5R_2R_3R_4R_5}}$  bandwidth:  $\frac{C_3R_1R_3R_4+C_3R_2R_3R_4+C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_3C_5R_1R_3R_4+C_3C_5R_2R_3R_4R_5+C_4C_5R_2R_3R_4R_5}}}$  K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}}$  K-HP: 0

 $\text{K-BP: } \frac{C_3C_5R_1R_2R_3R_4}{C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 + C_5C_6R_1R_4R_5 - C_5C_6R_2R_3R_4 + C_5C_6R_2R_3R_5 + C_5C_6R_2R_4R_5 + C_5C_6R_3R_4R_5}$ 

Qz: None Wz: None

## **8.46** X-INVALID-NUMER-46 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_5C_6R_1R_4R_6s + C_5R_1R_4$  $H(s) = \frac{C_{3}C_{6}C_{1}C_{4}C_{5}C_{6}}{C_{6}R_{3} + C_{6}R_{4} + s^{2}\left(C_{2}C_{5}C_{6}R_{1}R_{4}R_{5} + C_{2}C_{5}C_{6}R_{3}R_{4}R_{5}\right) + s\left(C_{2}C_{6}R_{1}R_{4} + C_{2}C_{6}R_{3}R_{4} - C_{5}C_{6}R_{3}R_{4} + C_{5}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{3}R_{5}\right) + s\left(C_{2}C_{6}R_{1}R_{4} + C_{2}C_{6}R_{3}R_{4} + C_{5}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{3}R_{5}\right) + s\left(C_{2}C_{6}R_{1}R_{4} + C_{2}C_{6}R_{3}R_{4} + C_{5}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{3}R_{5}\right) + s\left(C_{2}C_{6}R_{1}R_{4} + C_{5}C_{6}R_{3}R_{4} + C_{5}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{3}R_{5}\right) + s\left(C_{2}C_{6}R_{1}R_{4} + C_{5}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{3}R_{5}\right) + s\left(C_{2}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{3}R_{5}\right) + s\left(C_{2}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{3}R_{5}\right) + s\left(C_{2}C_{6}R_{3}R_{5} + C_{5}C_{6}R_{5}R_{5}\right) + s\left(C_{2}C_{6}R_{5}R_{5} + C_{5}C_{6}R_{5}R_{5}\right) + s\left(C_{2}C_{6}R_{5}R_{5}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{R_3+R_4}}{C_2R_1R_4+C_2R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}$ wo:  $\frac{\sqrt{R_3+R_4}}{\sqrt{C_2C_5R_1R_4R_5+C_2C_5R_3R_4R_5}}$ bandwidth:  $\frac{C_2R_1R_4+C_2R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_5R_1R_4R_5+C_2C_5R_3R_4R_5}}$ K-LP:  $\frac{C_5R_1R_4}{C_6R_3+C_6R_4}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_4R_6}{C_2R_1R_4+C_2R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}$  Qz: None

### **8.47** X-INVALID-NUMER-47 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_5 R_1 R_4 R_5 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(C_2 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_3 R_4 R_5 R_6 - C_5 C_6 R_3 R_4 R_5 R_6\right) + s \left(C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 - C_5 R_3 R_4 R_5 - C_6 R_3 R_4 R_6 + C_6 R_3 R_5 R_6 + C_6 R_4 R_5 R_6\right)}$$

#### Parameters:

 $\frac{C_2\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3R_4}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_3R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C$  $\sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_2C_6R_1R_4R_5R_6+C_2C_6R_3R_4R_5R_6}}(C_2R_1R_4R_5+C_2R_3R_4R_5-C_5R_3R_4R_5-C_6R_3R_4R_6+C_6R_3R_5R_6+C_6R_4R_5R_6})$   $\frac{R_3R_5}{R_3R_5} + \frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3} + \frac{R_4$ K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_4R_5R_6}{C_2R_1R_4R_5+C_2R_3R_4R_5-C_5R_3R_4R_5-C_6R_3R_4R_6+C_6R_3R_5R_6+C_6R_4R_5R_6}$  Qz: None

Wz: None

### **8.48** X-INVALID-NUMER-48 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_5C_6R_1R_6s + C_5R_1}{C_6 + s^2\left(C_2C_5C_6R_1R_5 + C_2C_5C_6R_3R_5 + C_4C_5C_6R_3R_5\right) + s\left(C_2C_6R_1 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3 + C_5C_6R_5\right)}$$

#### Parameters:

K-LP:  $\frac{C_5 R_1}{C_6}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3+C_5R_5}$  Qz: None

Wz: None

# **8.49** X-INVALID-NUMER-49 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_5 R_1 R_5 R_6 s + R_1 R_6}{-R_3 + R_5 + s^2 \left(C_2 C_6 R_1 R_5 R_6 + C_2 C_6 R_3 R_5 R_6 + C_4 C_6 R_3 R_5 R_6 - C_5 C_6 R_3 R_5 R_6\right) + s \left(C_2 R_1 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5 - C_5 R_3 R_5 - C_6 R_3 R_6 + C_6 R_5 R_6\right)}$$

#### Parameters:

 $Q: \frac{C_2\sqrt{C_6}R_1\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_5\sqrt{C_6}R_3\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3+C_4R_3-C_5R$ 

 $\frac{-R_3 + R_5}{\sqrt{C_2 C_6 R_1 R_5 R_6 + C_2 C_6 R_3 R_5 R_6 + C_4 C_6 R_3 R_5 R_6 + C_4 C_6 R_3 R_5 + C_4 R_3 R_5 - C_5 R_5 R_5$ 

K-LP:  $-\frac{R_1R_6}{R_3-R_5}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_5R_6}{C_2R_1R_5+C_2R_3R_5+C_4R_3R_5-C_5R_3R_5-C_6R_3R_6+C_6R_5R_6}$  Qz: None

Wz: None

### **8.50** X-INVALID-NUMER-50 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_4 R_1 R_4 R_6 s + R_1 R_6}{-R_3 + R_5 + s^2 \left(C_2 C_4 R_1 R_4 R_5 + C_2 C_4 R_3 R_4 R_5\right) + s \left(C_2 R_1 R_5 + C_2 R_3 R_5 - C_4 R_3 R_4 + C_4 R_3 R_5 + C_4 R_4 R_5\right)}$$

 $\text{wo: } \frac{\frac{1}{\sqrt{-R_3+R_5}}}{\sqrt{C_2C_4R_1R_4R_5}+C_2R_3R_4+C_4R_3R_4+C_4R_3R_5+C_4R_4R_5}}{\sqrt{C_2C_4R_1R_4R_5}+C_2C_4R_3R_4R_5}} \\ \text{bandwidth: } \frac{C_2R_1R_5+C_2C_4R_3R_4R_5}{\sqrt{C_2}\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_4R_1R_4R_5+C_2C_4R_3R_4R_5}}} \\ \text{K-LP: } -\frac{R_1R_6}{R_3-R_5} \\ \text{K-HP: 0} \\ \text{V DD}$ 

K-BP:  $\frac{C_4R_1R_4R_6}{C_2R_1R_5+C_2R_3R_5-C_4R_3R_4+C_4R_3R_5+C_4R_4R_5}$  Qz: None

Wz: None

# **8.51** X-INVALID-NUMER-51 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_4C_5R_1R_4R_6s^2 + C_5R_1R_6s}{s^2\left(C_2C_4R_1R_4 + C_2C_4R_3R_4 - C_4C_5R_3R_4\right) + s\left(C_2R_1 + C_2R_3 + C_4R_3 + C_4R_4 - C_5R_3\right) + 1}$$

#### Parameters:

 $Q: \frac{C_2\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_4}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_4}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}{C_2R_1+C_2R_3+C_4R_3+C_4R_4-C_5R_3}$ wo:  $\sqrt{\frac{1}{C_2C_4R_1R_4 + C_2C_4R_3R_4 - C_4C_5R_3R_4}}$ bandwidth:  $\frac{(C_2R_1 + C_2R_3 + C_4R_3 + C_4R_4 - C_5R_3)\sqrt{\frac{1}{C_2C_4R_1R_4 + C_2C_4R_3R_4 - C_4C_5R_3R_4}}}{C_2\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_2\sqrt{C_4}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - \sqrt{C_4C_5R_3\sqrt{R_4}}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}}$ 

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}$ K-BP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3+C_4R_4-C_5R_3}$ Qz: None

Wz: None

## **8.52** X-INVALID-NUMER-52 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_4C_5R_1R_4s + C_5R_1}{C_6 + s^2\left(C_2C_4C_6R_1R_4 + C_2C_4C_6R_3R_4 - C_4C_5C_6R_3R_4\right) + s\left(C_2C_6R_1 + C_2C_6R_3 + C_4C_6R_3 + C_4C_6R_4 - C_5C_6R_3\right)}$$

#### Parameters:

# **8.53** X-INVALID-NUMER-53 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_5C_6R_1R_4R_6s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^2\left(C_2C_5C_6R_1R_4R_5 + C_2C_5C_6R_3R_4R_5 + C_4C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_4C_6R_3R_4 - C_5C_6R_3R_4 + C_5C_6R_3R_5 + C_5C_6R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_3}+R_4\sqrt{C_2}R_1+C_2R_3+C_4R_3}{C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}$  wo:  $\frac{\sqrt{R_3+R_4}}{\sqrt{C_2C_5R_1R_4R_5+C_2C_5R_3R_4R_5+C_4C_5R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_5R_1R_4R_5+C_2C_5R_3R_4R_5+C_4C_5}}$  K-LP:  $\frac{C_5R_1R_4}{C_6R_3+C_6R_4}$  K-HP: 0 K-BP:  $\frac{C_5R_1R_4R_6}{C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5}$ 

Qz: None Wz: None

### **8.54** X-INVALID-NUMER-54 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$

$$H(s) = \frac{C_5 R_1 R_4 R_5 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(C_2 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_3 R_4 R_5 R_6 + C_4 C_6 R_3 R_4 R_5 R_6 - C_5 C_6 R_3 R_4 R_5 R_6\right) + s \left(C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 - C_5 R_3 R_4 R_5 - C_5 R_3 R_4 R_5 - C_6 R_3 R_4 R_5 + C_6 R_3 R_5 R_6 + C_6 R_4 R_5 R_6\right)}$$

#### Parameters:

 $Q: \frac{C_2\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_3R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_4\sqrt{C_6}R_3\sqrt{$  $\frac{-R_3R_4+R_3R_5+R_4R_5}{C_2C_6R_1A_4R_5R_6+C_2C_6R_3R_4R_5+C_2C_6R_3R_4R_5+C_2C_6R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5-C_5R_3R_4R_5-C_$ 

K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_4R_5R_6}{C_2R_1R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5-C_5R_3R_4R_5-C_6R_3R_4R_6+C_6R_3R_5R_6+C_6R_4R_5R_6}$  Qz: None

Wz: None

# **8.55** X-INVALID-NUMER-55 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_6R_1R_4R_6s + C_3R_1R_4}{C_2C_3C_6R_1R_4R_5s^2 - C_6R_4 + C_6R_5 + s\left(C_2C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$  K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$  K-HP: 0 K-BP:  $\frac{C_3R_1R_6}{C_2R_5+C_3R_5}$  Qz: None

Wz: None

**8.56** X-INVALID-NUMER-56  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_2C_3C_6R_1R_4s^2 + C_6 + s\left(C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_4}+C_3\sqrt{R_4}-C_5\sqrt{R_4}}$ wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}}$ bandwidth:  $\frac{C_2\sqrt{R_4}+C_3\sqrt{R_4}-C_5\sqrt{R_4}}{C_2C_3R_1\sqrt{R_4}}$ 

K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2C_6+C_3C_6-C_5C_6}$ Qz: None

### **8.57** X-INVALID-NUMER-57 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{C_2C_3R_1R_4R_5s^2 - R_4 + R_5 + s\left(C_2R_4R_5 + C_3R_4R_5 - C_5R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ W. I.D. 0

K-LP: 0

K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2R_5+C_3R_5-C_5R_5}$  Qz: None

Wz: None

# **8.58** X-INVALID-NUMER-58 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_4R_5s + C_3R_1R_4}{C_2C_3C_6R_1R_4R_5s^2 - C_6R_4 + C_6R_5 + s\left(C_2C_6R_4R_5 + C_3C_6R_4R_5 - C_5C_6R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6-C_5C_6}$  Qz: None

Wz: None

# **8.59** X-INVALID-NUMER-59 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_6R_1R_6s + C_3R_1}{C_2C_3C_6R_1R_5s^2 - C_6 + s\left(C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5\right)}$$

#### Parameters:

WO:  $\frac{i}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1}{C_6}$ 

K-HP: 0 K-BP:  $\frac{C_3R_1R_6}{C_2R_5+C_3R_5+C_4R_5}$ Qz: None Wz: None

**8.60** X-INVALID-NUMER-60  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_6s + C_3C_5R_1}{C_2C_3C_5C_6R_1R_5s^2 + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_2C_3C_6R_1 + C_2C_5C_6R_5 + C_3C_5C_6R_5 + C_4C_5C_6R_5\right)}$$

bandwidth:  $\frac{C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}{C_2C_3C_5R_1R_5}$ 

K-LP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_6}{C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}$  Qz: None

Wz: None

## **8.61** X-INVALID-NUMER-61 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_5R_6s^2 + C_3R_1R_6s}{C_2C_3R_1R_5s^2 + s\left(C_2R_5 + C_3R_5 + C_4R_5 - C_5R_5\right) - 1}$$

#### Parameters:

Q:  $\frac{i\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}-C_5\sqrt{R_5}}$  wo:  $\frac{i}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_5}}$  bandwidth:  $\frac{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}-C_5\sqrt{R_5}}{C_2C_3R_1\sqrt{R_5}}$ 

K-LP: 0

K-HP:  $\frac{C_5R_6}{C_2}$ K-BP:  $\frac{C_3R_1R_6}{C_2R_5+C_3R_5+C_4R_5-C_5R_5}$ Qz: None

Wz: None

8.62 X-INVALID-NUMER-62  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_5s + C_3R_1}{C_2C_3C_6R_1R_5s^2 - C_6 + s\left(C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5\right)}$$

#### Parameters:

Q:  $\frac{i\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}-C_5\sqrt{R_5}}$  wo:  $\frac{i}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_5}}$  bandwidth:  $\frac{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}-C_5\sqrt{R_5}}{C_2C_3R_1\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1}{C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$  Qz: None

Wz: None

8.63 X-INVALID-NUMER-63  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2C_3C_4R_1R_4s^2 + C_2 + C_3 + C_4 - C_5 + s\left(C_2C_3R_1 + C_2C_4R_4 + C_3C_4R_4 - C_4C_5R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}\sqrt{C_2+C_3+C_4-C_5}}{C_2C_3R_1+C_2C_4R_4+C_3C_4R_4-C_4C_5R_4}$  wo:  $\frac{\sqrt{C_2}+C_3+C_4-C_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$  bandwidth:  $\frac{C_2C_3R_1+C_2C_4R_4+C_3C_4R_4-C_4C_5R_4}{C_2C_3C_4R_1R_4}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2C_3R_1+C_2C_4R_4+C_3C_4R_4-C_4C_5R_4}$  Qz: None

**8.64** X-INVALID-NUMER-64 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_4C_5R_1R_4s + C_3C_5R_1}{C_2C_3C_4C_6R_1R_4s^2 + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_2C_3C_6R_1 + C_2C_4C_6R_4 + C_3C_4C_6R_4 - C_4C_5C_6R_4\right)}$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}\sqrt{C_2+C_3+C_4-C_5}}{C_2C_3R_1+C_2C_4R_4+C_3C_4R_4-C_4C_5R_4}$  wo:  $\frac{\sqrt{C_2+C_3+C_4-C_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$  bandwidth:  $\frac{C_2C_3R_1+C_2C_4R_4+C_3C_4R_4-C_4C_5R_4}{C_2C_3C_4R_1R_4}$  K-LP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$  K-HP: 0

K-BP:  $\frac{C_3C_4C_5R_1R_4}{C_2C_3C_6R_1+C_2C_4C_6R_4+C_3C_4C_6R_4-C_4C_5C_6R_4}$  Qz: None Wz: None

**8.65** X-INVALID-NUMER-65  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_1R_4R_6s + C_3R_1R_4}{C_2C_3C_6R_1R_4R_5s^2 - C_6R_4 + C_6R_5 + s\left(C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$ K-HP: 0

K-BP:  $\frac{C_3R_1R_6}{C_2R_5+C_3R_5+C_4R_5}$  Qz: None

Wz: None

**8.66** X-INVALID-NUMER-66  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_2C_3C_6R_1R_4s^2 + C_6 + s\left(C_2C_6R_4 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_4}+C_3\sqrt{R_4}+C_4\sqrt{R_4}-C_5\sqrt{R_4}}$  wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}}$  bandwidth:  $\frac{C_2\sqrt{R_4}+C_3\sqrt{R_4}+C_4\sqrt{R_4}-C_5\sqrt{R_4}}{C_2C_3R_1\sqrt{R_4}}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$ Qz: None

Wz: None

**8.67** X-INVALID-NUMER-67  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{C_2C_3R_1R_4R_5s^2 - R_4 + R_5 + s\left(C_2R_4R_5 + C_3R_4R_5 + C_4R_4R_5 - C_5R_4R_5\right)}$$

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$ 

bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2R_5+C_3R_5+C_4R_5-C_5R_5}$ Qz: None

Wz: None

8.68 X-INVALID-NUMER-68  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5s + C_3R_1R_4}{C_2C_3C_6R_1R_4R_5s^2 - C_6R_4 + C_6R_5 + s\left(C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5 - C_5C_6R_4R_5\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}+C_4\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$  Qz: None

Wz: None

**8.69** X-INVALID-NUMER-69  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_4R_6s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s\left(C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_4R_5\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{-R_4+R_5}}{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5}}$  K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$  K-HP: 0

K-BP:  $\frac{C_3R_1R_4R_6}{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5}$  Qz: None

Wz: None

8.70 X-INVALID-NUMER-70  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_3R_4 - C_3C_5C_6R_3R_4\right) + s\left(C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 - C_5C_6R_4\right)}$ 

Parameters:

 $\text{Q: } \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} }{C_2R_4+C_3R_3+C_3R_4-C_5R_4}$ 

Q:  $\frac{C_2R_4 + C_3R_3 + C_3R_4 - C_5R_4}{C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4}$ wo:  $\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4}}$ bandwidth:  $\frac{(C_2R_4 + C_3R_3 + C_3R_4 - C_5R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4}}}{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}}$ 

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}$  K-BP:  $\frac{C_3C_5R_1R_4}{C_2C_6R_4+C_3C_6R_3+C_3C_6R_4-C_5C_6R_4}$  Qz: None

8.71 X-INVALID-NUMER-71 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_3R_4R_5 - C_3C_5R_3R_4R_5\right) + s\left(C_2R_4R_5 - C_3R_3R_4 + C_3R_3R_5 + C_3R_4R_5 - C_5R_4R_5\right)}$$

$$\begin{array}{c} Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3-C_5R_3}} \\ wo: \sqrt{\frac{-R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}} \\ bandwidth: \frac{-\frac{R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}}{\sqrt{\frac{-R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}}} (C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5-C_5R_4R_5) \\ bandwidth: \frac{-\frac{R_4+R_5}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + C_2$$

# 8.72 X-INVALID-NUMER-72 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_4R_5s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_4R_5 - C_5C_6R_4R_5\right)}$$

#### Parameters:

$$\begin{array}{c} Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}} \\ wo: \sqrt{\frac{-R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}} \\ bandwidth: \frac{-\frac{R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}}{\sqrt{\frac{-C_2R_1+C_2R_3-C_5R_3}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + C_3R_3R_4+C_3R_3R_5+C_3R_4R_5-C_5R_4R_5} \\ bandwidth: \frac{-\frac{R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}}(C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5-C_5R_4R_5)} \\ bandwidth: \frac{-\frac{R_4+R_5}{C_2C_3R_1A_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}{\sqrt{C_2C_3R_1A_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}}(C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5-C_5R_4R_5)} \\ bandwidth: \frac{-\frac{R_4+R_5}{C_2C_3R_1A_4R_5-C_3C_5R_3R_4R_5-C_3C_5R_3R_4R_5}{\sqrt{C_2C_3R_1A_4R_5+C_2C_3R_3R_4R_5-C_3C_5R_3R_4R_5}}(C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5-C_5R_4R_5)} \\ bandwidth: \frac{-\frac{R_4+R_5}{C_2C_3R_1A_4R_5-C_3C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}-\frac{R_5}{C$$

## 8.73 X-INVALID-NUMER-73 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_6R_1R_6s + C_3R_1}{-C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_3C_4C_6R_3R_5\right) + s\left(C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 + C_4C_6R_5\right)}$$

#### Parameters:

Q: 
$$\frac{i\sqrt{C_3}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}}{C_2R_5-C_3R_3+C_3R_5+C_4R_5}$$
 wo: 
$$\frac{i}{\sqrt{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5}}$$
 bandwidth: 
$$\frac{C_2R_5-C_3R_3+C_3R_5+C_4R_5}{\sqrt{C_3}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}}\sqrt{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5}$$
 K-LP: 
$$-\frac{C_3R_1}{C_6}$$
 K-HP: 
$$0$$
 K-BP: 
$$\frac{C_3R_1R_6}{C_2R_5-C_3R_3+C_3R_5+C_4R_5}$$
 Qz: None Wz: None

8.74 X-INVALID-NUMER-74  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_6s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_5C_6R_1R_5 + C_2C_3C_5C_6R_3R_5 + C_3C_4C_5R_3R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_2C_5C_6R_5 + C_3C_4C_6R_3 - C_3C_5C_6R_3 + C_3C_5C_6R_5 + C_4C_5C_6R_5\right)}$$

Q:  $\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_5}\sqrt{C_2}R_1 + C_2R_3 + C_4R_3}{C_2C_3R_3 + C_2C_5R_5 + C_3C_4R_3 - C_3C_5R_3 + C_3C_5R_5 + C_4C_5R_5}$  wo:  $\frac{\sqrt{C_2 + C_3 + C_4 - C_5}}{\sqrt{C_2C_3C_5}R_1R_5 + C_2C_3C_5R_3R_5 + C_3C_4C_5R_3R_5}$  bandwidth:  $\frac{C_2C_3R_1 + C_2C_3R_3 + C_2C_5R_5 + C_3C_4R_3 - C_3C_5R_3 + C_3C_5R_5 + C_4C_5R_5}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_5}\sqrt{C_2}R_1 + C_2R_3 + C_4R_3}\sqrt{C_2C_3C_5R_1R_5 + C_2C_3C_5R_3R_5 + C_3C_4C_5R_3R_5}}$  K-LP:  $\frac{C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6}$  K-HP: 0 K-BP:  $\frac{C_3C_5R_1R_6}{C_2C_3R_1 + C_2C_3R_3 + C_2C_5R_5 + C_3C_4R_3 - C_3C_5R_3 + C_3C_5R_5 + C_4C_5R_5}$  Qz: None Wz: None

## 8.75 X-INVALID-NUMER-75 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $H(s) = \frac{C_3C_5R_1R_5R_6s^2 + C_3R_1R_6s}{s^2\left(C_2C_3R_1R_5 + C_2C_3R_3R_5 + C_3C_4R_3R_5 - C_3C_5R_3R_5\right) + s\left(C_2R_5 - C_3R_3 + C_3R_5 + C_4R_5 - C_5R_5\right) - 1}$ 

#### Parameters:

 $\begin{array}{c} Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ wo: \sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} \\ bandwidth: \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} \\ \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} (C_2R_5-C_3R_3+C_3R_5+C_4R_5-C_5R_5)} {C_2\sqrt{C_3}R_1\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ K-LP: 0 \\ K-HP: \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ K-BP: \frac{C_3R_1R_6}{C_2R_5-C_3R_3+C_3R_5+C_4R_5-C_5R_5}} {C_2R_5-C_3R_3+C_3R_5+C_4R_5-C_5R_5} \\ Qz: None \\ Wz: None \\ \end{array}$ 

## 8.76 X-INVALID-NUMER-76 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5R_1R_5s + C_3R_1}{-C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_3C_4C_6R_3R_5 - C_3C_5C_6R_3R_5\right) + s\left(C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5\right)}$ 

#### Parameters:

 $Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ \text{wo: } \sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} \\ \text{bandwidth: } \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} (C_2R_5-C_3R_3+C_3R_5+C_4R_5-C_5R_5)} \\ \text{bandwidth: } \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} (C_2R_5-C_3R_3+C_4R_5-C_5R_5)} \\ \text{bandwidth: } \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} (C_2R_5-C_3R_3+C_4R_5-C_5R_5)} \\ \text{bandwidth: } \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} (C_2R_5-C_3R_3+C_4R_5-C_5R_5)} \\ \text{bandwidth: } \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_5R_3R_5}} (C_2R_5-C_3R_3+C_4R_5-C_5R_5)} (C_2R_5-C_3R_3+C_4R_5-C_5R_5)} \\ \text{bandwidth: } \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_5R_3R_5}} (C_2R_5-C_3R_3+C_4R_5-C_5R_5)} (C_2R_5-C_3R_3+C_4R_5-C_5R_5)} \\ \text{bandwidth: } \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_5R_3R_5}} + C_2\sqrt{C_3R_3\sqrt{R_5}}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3C_4R_3\sqrt{R_5}}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3C_5R_3\sqrt{R_5}}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3R_3\sqrt{R_5}}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3C_5R_3\sqrt{R_5}}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3C_5R_3\sqrt{R_5}}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3R_3\sqrt{R_5}}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3R_3\sqrt{R_5}}\sqrt{-\frac{1$ 

## 8.77 X-INVALID-NUMER-77 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_4R_1R_4 + C_2C_3C_4R_3R_4 - C_3C_4C_5R_3R_4\right) + s\left(C_2C_3R_1 + C_2C_3R_3 + C_2C_4R_4 + C_3C_4R_3 + C_3C_4R_4 - C_3C_5R_3 - C_4C_5R_4\right)}$ 

#### Parameters:

 $Q: \frac{C_2\sqrt{C_3}\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{C_2}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_3}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_3}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_3}{C_2R_1+C_2R_3-C_5R_3}$ 

K-HP:  $\frac{C_5 R_1 R_6}{C_2 R_1 + C_2 R_3 - C_5 R_3}$ 

K-BP:  $\frac{C_3C_5R_1R_6}{C_2C_3R_1+C_2C_3R_3+C_2C_4R_4+C_3C_4R_3+C_3C_4R_4-C_3C_5R_3-C_4C_5R_4}{\text{Qz: None}}$ 

Wz: None

### 8.78 X-INVALID-NUMER-78 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $C_3C_4C_5R_1R_4s + C_3C_5R_1$  $H(s) = \frac{C_3C_4C_5R_1R_4s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_3R_4 - C_3C_4C_5C_6R_3R_4\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_2C_4C_6R_4 + C_3C_4C_6R_3 + C_3C_4C_6R_4 - C_3C_5C_6R_3 - C_4C_5C_6R_4\right)}$ 

#### Parameters:

 $Q: \frac{C_2\sqrt{C_3}\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{C_2}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_3}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_5}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_5}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_5}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_5}{C_2R_1+C_2R_3-C_5R_3}$ 

 $\sqrt{\frac{C_{2}+C_{3}+C_{4}-C_{5}}{C_{2}C_{3}C_{4}R_{1}R_{4}+C_{2}C_{3}C_{4}R_{3}R_{4}-C_{3}C_{4}C_{5}R_{3}R_{4}}}(C_{2}C_{3}R_{1}+C_{2}C_{3}R_{3}+C_{2}C_{4}R_{4}+C_{3}C_{4}R_{3}+C_{3}C_{4}R_{4}-C_{3}C_{5}R_{3}-C_{4}C_{5}R_{4})$  $\frac{\sqrt{C_2C_3C_4R_1R_4+C_2C_3C_4R_3R_4-C_3C_4C_5R_3R_4}}{C_2\sqrt{C_3}\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{C_2}{C_2R_1+C_2R_3-C_5R_3}} + \frac{C_3}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_4}{C_2R_1+C_2R_3-C_5R_3}} + \frac{C_5}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_3}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_5}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_5}{C_$ 

K-LP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_4C_5R_1R_4}{C_2C_3C_6R_1+C_2C_3C_6R_3+C_2C_4C_6R_4+C_3C_4C_6R_3+C_3C_4C_6R_4-C_3C_5C_6R_3-C_4C_5C_6R_4}$  Qz: None

Wz: None

## 8.79 X-INVALID-NUMER-79 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_6R_1R_4R_6s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 + C_3C_4C_6R_3R_4R_5\right) + s\left(C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5\right)}$ 

#### Parameters:

bandwidth:  $\frac{C_2R_4R_5 + C_3C_3R_3R_4 + C_3R_3R_5 + C_3R_5}{\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2}R_1 + C_2R_3 + C_4R_3\sqrt{C_2}C_3R_1R_4R_5}}{K-LP: -\frac{C_3R_1R_4}{C_6R_4 - C_6R_5}}$  K-HP: 0

K-BP:  $\frac{C_3R_1R_4R_6}{C_2R_4R_5 - C_3R_3R_4 + C_3R_3R_5 + C_3R_4R_5 + C_4R_4R_5}$ 

Qz: None Wz: None

# **8.80** X-INVALID-NUMER-80 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s$  $H(s) = \frac{1}{C_6 + s^2 \left( C_2 C_3 C_6 R_1 R_4 + C_2 C_3 C_6 R_3 R_4 + C_3 C_4 C_6 R_3 R_4 - C_3 C_5 C_6 R_3 R_4 \right) + s \left( C_2 C_6 R_4 + C_3 C_6 R_3 + C_3 C_6 R_4 + C_4 C_6 R_4 - C_5 C_6 R_4 \right)}$ 

#### Parameters:

 $\frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+\sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}-\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+C_2R_4+C_3R_3+C_4R_4-C_5R_4}$ 

Wo:  $\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}$ 

 $\text{bandwidth: } \frac{(C_2R_4 + C_3R_3 + C_3R_4 + C_4R_4 - C_5R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 + C_3C_5R_3R_4}}}{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} + C_3\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3}} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3}} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3}} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3}} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3}} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3}} - \sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3R_3$ 

K-LP: 0

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}$  K-BP:  $\frac{C_3C_5R_1R_4}{C_2C_6R_4+C_3C_6R_3+C_3C_6R_4+C_4C_6R_4-C_5C_6R_4}$  Qz: None

### 8.81 X-INVALID-NUMER-81 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_3R_4R_5 + C_3C_4R_3R_4R_5 - C_3C_5R_3R_4R_5\right) + s\left(C_2R_4R_5 - C_3R_3R_4 + C_3R_3R_5 + C_3R_4R_5 + C_4R_4R_5 - C_5R_4R_5\right)}$$

#### Parameters:

 $+ \underbrace{\frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}_{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5-C_5R_4R_5} + \underbrace{\frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \underbrace{\frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}$  $\frac{-R_4 + R_5}{\sqrt{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 + C_3 C_5 R_3 R_4 R_5}}}{\sqrt{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 + C_3 C_5 R_3 R_4 R_5}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_$ 

K-LP: 0

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} \\ \text{K-BP: } \frac{C_3R_1R_4R_6}{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_3R_4R_5+C_4R_4R_5-C_5R_4R_5} \\ \text{Qz: None}$ 

Wz: None

# **8.82** X-INVALID-NUMER-82 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_4R_5s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 + C_3C_4C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 - C_3C_6R_4R_5\right)}$$

#### Parameters:

 $Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_3+C$ wo:  $\sqrt{\frac{-R_4 + R_5}{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 + C_3 C_4 R_3 R_4 R_5 - C_3 C_5 R_3 R_4 R_5}$  $\frac{-R_4 + R_5}{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 + C_3 C_3 R_3 R_4 R_5 - C_3 C_5 R_3 R_4 R_5}{C_2 C_3 R_1 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_3 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_3 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_3 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_3 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_3 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_3 R_3 + C_4 R_3 - C_5$ K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_4R_5}{C_2C_6R_4R_5-C_3C_6R_3R_4+C_3C_6R_3R_5+C_3C_6R_4R_5+C_4C_6R_4R_5-C_5C_6R_4R_5}$  Qz: None

Wz: None

### **8.83** X-INVALID-NUMER-83 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_3R_1R_3R_4R_6s + R_1R_4R_6}{C_2C_3R_1R_3R_4R_5s^2 - R_3R_4 + R_3R_5 + R_4R_5 + s\left(C_2R_1R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{C_2R_1\sqrt{R_4}\sqrt{R_5}+C_2R_3\sqrt{R_4}\sqrt{R_5}+C_3R_3\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_1\sqrt{R_4}\sqrt{R_5}+C_2R_3\sqrt{R_4}\sqrt{R_5}+C_3R_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_3\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_3R_1R_3R_6}{C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5}$ 

Qz: None Wz: None

**8.84** X-INVALID-NUMER-84  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_3R_1R_3R_4s^2 + R_3 + R_4 + s\left(C_2R_1R_4 + C_2R_3R_4 + C_3R_3R_4 - C_5R_3R_4\right)}$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_3}+R_4}{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}$ wo:  $\frac{\sqrt{R_3}+R_4}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}}$ bandwidth:  $\frac{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}{C_2C_3R_1R_3\sqrt{R_4}}$ 

K-LP: 0K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2R_1+C_2R_3+C_3R_3-C_5R_3}$  Qz: None

Wz: None

**8.85** X-INVALID-NUMER-85  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_4s + C_5R_1R_4}{C_2C_3C_6R_1R_3R_4s^2 + C_6R_3 + C_6R_4 + s\left(C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_3+R_4}}{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}$ wo:  $\frac{\sqrt{R_3+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}}$ bandwidth:  $\frac{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}{C_2C_3R_1R_3\sqrt{R_4}}$ 

K-LP:  $\frac{C_5R_1R_4}{C_6R_3+C_6R_4}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_3}{C_2C_6R_1+C_2C_6R_3+C_3C_6R_3-C_5C_6R_3}$  Qz: None

Wz: None

**8.86** X-INVALID-NUMER-86  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_3 R_6 s + R_1 R_6}{C_2 C_3 R_1 R_3 R_5 s^2 - R_3 + R_5 + s \left( C_2 R_1 R_5 + C_2 R_3 R_5 + C_3 R_3 R_5 + C_4 R_3 R_5 \right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{-R_3+R_5}}{C_2R_1\sqrt{R_5}+C_2R_3\sqrt{R_5}+C_3R_3\sqrt{R_5}+C_4R_3\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_3+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_1\sqrt{R_5}+C_2R_3\sqrt{R_5}+C_3R_3\sqrt{R_5}+C_4R_3\sqrt{R_5}}{C_2C_3R_1R_3\sqrt{R_5}}$ 

K-LP:  $-\frac{R_1R_6}{R_3-R_5}$ K-HP: 0

K-BP:  $\frac{C_3R_1R_3R_6}{C_2R_1R_5+C_2R_3R_5+C_3R_3R_5+C_4R_3R_5}$  Qz: None

Wz: None

8.87 X-INVALID-NUMER-87  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_6s^2 + C_5R_1R_6s}{C_2C_3R_1R_3s^2 + s\left(C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3\right) + 1}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}{C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3}$ wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}$ bandwidth:  $\frac{C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3}{C_2C_3R_1R_3}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2R_1+C_2R_3+C_3R_3+C_4R_3-C_5R_3}$  Qz: None

### **8.88** X-INVALID-NUMER-88 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_3s + C_5R_1}{C_2C_3C_6R_1R_3s^2 + C_6 + s\left(C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}{C_2R_1+C_2R_3+C_3R_3+C_4R_3-C_5R_3}$  wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}$  bandwidth:  $\frac{C_2R_1+C_2R_3+C_3R_3+C_4R_3-C_5R_3}{C_2C_3R_1R_3}$ 

K-LP:  $\frac{C_5R_1}{C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_3}{C_2C_6R_1+C_2C_6R_3+C_3C_6R_3+C_4C_6R_3-C_5C_6R_3}$  Qz: None

Wz: None

## 8.89 X-INVALID-NUMER-89 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$

$$H(s) = \frac{C_3R_1R_3R_4R_6s + R_1R_4R_6}{C_2C_3R_1R_3R_4R_5s^2 - R_3R_4 + R_3R_5 + R_4R_5 + s\left(C_2R_1R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5 + C_4R_3R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{-R_3}R_4 + R_3}{C_2R_1\sqrt{R_4}\sqrt{R_5} + C_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_3\sqrt{R_4}\sqrt{R_5} + C_4R_3\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_3}R_4 + R_3R_5 + R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_1\sqrt{R_4}\sqrt{R_5} + C_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_3\sqrt{R_4}\sqrt{R_5} + C_4R_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_3\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_3R_1R_3R_6}{C_2R_1R_5+C_2R_3R_5+C_3R_3R_5+C_4R_3R_5}$  Qz: None Wz: None

### **8.90** X-INVALID-NUMER-90 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_3R_1R_3R_4s^2 + R_3 + R_4 + s\left(C_2R_1R_4 + C_2R_3R_4 + C_3R_3R_4 + C_4R_3R_4 - C_5R_3R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_3+R_4}}{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}+C_4R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_3+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}+C_4R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}{C_2C_3R_1R_3\sqrt{R_4}}$ 

K-LP: 0K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2R_1+C_2R_3+C_3R_3+C_4R_3-C_5R_3}$  Qz: None

Wz: None

## **8.91** X-INVALID-NUMER-91 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_3R_4s + C_5R_1R_4}{C_2C_3C_6R_1R_3R_4s^2 + C_6R_3 + C_6R_4 + s\left(C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_4C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_3+R_4}}{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}+C_4R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_3+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}+C_4R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}{C_2C_3R_1R_3\sqrt{R_4}}$ 

```
K-LP: \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}
K-HP: 0
K-BP: \frac{C_3C_5R_1R_3}{C_2C_6R_1+C_2C_6R_3+C_3C_6R_3+C_4C_6R_3-C_5C_6R_3} Qz: None
Wz: None
```

8.92 X-INVALID-NUMER-92  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2R_1R_2R_4R_6s + R_1R_4R_6}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_6R_1R_4R_5R_6 - C_2C_6R_2R_3R_4R_6 + C_2C_6R_2R_3R_5R_6 + C_2C_6R_2R_4R_5R_6\right) + s\left(C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_2R_2R_4R_5 + C_2R_3R_4R_5 - C_6R_3R_4R_6 + C_6R_3R_5R_6 + C_6R_4R_5R_6\right)}$ 

#### Parameters:

 $Q: \frac{\sqrt{C_2}\sqrt{C_6}R_1R_4R_5\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_5}}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_5}}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_5}}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}} - \sqrt{C_2}\sqrt{C_6}R_2R_3R_4\sqrt{R_6}$ 

 $\frac{1}{\sqrt{C_2\sqrt{C_6}R_1R_4R_5\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4\sqrt{R_6}\sqrt{-\frac{R_3R_4}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}$ K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_2R_1R_2R_4R_6}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5-C_6R_3R_4R_6+C_6R_3R_5R_6+C_6R_4R_5R_6} \\ \text{Qz: None}$ 

Wz: None

**8.93** X-INVALID-NUMER-93  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{-C_2C_5R_2R_3R_4s^2 + R_3 + R_4 + s\left(C_2R_1R_4 + C_2R_2R_3 + C_2R_2R_4 + C_2R_3R_4 - C_5R_3R_4\right)}$ 

#### Parameters:

Q:  $-\frac{i\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}}{C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4-C_5R_3R_4}$ wo:  $\frac{\sqrt{-R_3-R_4}}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ bandwidth:  $\frac{i\sqrt{-R_3-R_4}(C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4-C_5R_3R_4)}{C_2C_5R_2R_3R_4\sqrt{R_3+R_4}}$ K-LP: 0 K-HP:  $-\frac{R_1R_6}{R_2}$ K-BP:  $\frac{C_5R_1R_4R_6}{C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4-C_5R_3R_4}$  Qz: None

8.94 X-INVALID-NUMER-94  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_1R_2R_4}{-C_2C_5C_6R_2R_3R_4s^2 + C_6R_3 + C_6R_4 + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_4 + C_2C_6R_3R_4 - C_5C_6R_3R_4\right)}$ 

#### Parameters:

Wz: None

Wz: None

Q:  $-\frac{i\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}}{C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4-C_5R_3R_4}$ wo:  $\frac{\sqrt{-R_3-R_4}}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ bandwidth:  $\frac{i\sqrt{-R_3-R_4}(C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4-C_5R_3R_4)}{C_2C_5R_2R_3R_4\sqrt{R_3+R_4}}$ K-LP:  $\frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}$ K-HP: 0 K-BP:  $\frac{C_2C_5R_1R_2R_4}{C_2C_6R_1R_4+C_2C_6R_2R_3+C_2C_6R_2R_4+C_2C_6R_3R_4-C_5C_6R_3R_4}$  Qz: None

## **8.95** X-INVALID-NUMER-95 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{R_3 + R_4 + s^2\left(C_2C_5R_1R_4R_5 - C_2C_5R_2R_3R_4 + C_2C_5R_2R_3R_5 + C_2C_5R_2R_4R_5 + C_2C_5R_3R_4R_5\right) + s\left(C_2R_1R_4 + C_2R_2R_3 + C_2R_2R_4 + C_2R_3R_4 - C_5R_3R_4 + C_5R_3R_5 + C_5R_4R_5\right)}$$

### Parameters:

 $\frac{\sqrt{C_2}\sqrt{C_5}R_1R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\sqrt{C_2}\sqrt{C_5}R_2R_3R_4\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_5}R_2R_3R_4+\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}}}}+\sqrt{C_2}\sqrt{C_5}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_5}R_3R_4+R_2R_3R_5+R_2R_4R_5}+\sqrt{C_2}\sqrt{C_5}R_3R_4+R_2R_3R_5+R_2R_4R_5}+R_2R_4R_5+R_2R_4R_5+R_2R$ wo:  $\sqrt{R_3 + R_4} \sqrt{\frac{1}{C_2 C_5 R_1 R_4 R_5 - C_2 C_5 R_2 R_3 R_4 + C_2 C_5 R_2 R_3 R_5 + C_2 C_5 R_2 R_4 R_5 + C_2 C_5 R_3 R_4 R_5}$ 

 $\frac{\sqrt{R_3 + R_4}(C_2R_1R_4 + C_2R_3R_4 + C$ 

K-LP: 0

K-HP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP: } \frac{C_5R_1R_4R_6}{C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4-C_5R_3R_4+C_5R_3R_5+C_5R_4R_5} \\ \text{Qz: None}$ 

Wz: None

# **8.96** X-INVALID-NUMER-96 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_5R_1R_2R_4s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^2\left(C_2C_5C_6R_1R_4R_5 - C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_5 + C_5C_6R_3R_5 + C_5C_6R_3R_5 + C_5C_6R_3R_5 + C_5C_6R_5R_5 + C_5C_6R_5R_5 + C_5C_6R_5R_5 + C_5C_6R_5R_5 + C_5C_6R_5R_5 + C_5$$

### Parameters:

 $Q: \frac{\sqrt{C_2\sqrt{C_5}R_1R_4R_5\sqrt{R_3}+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5\sqrt{R_3}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5\sqrt{R_3}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5\sqrt{R_3}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5\sqrt{R_3}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5\sqrt{R_3}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5\sqrt{R_3}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_2\sqrt{C_5}R_2R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2\sqrt{C_5}R_3R_4+R_2R_3R_5+R_2R_4R_$ 

wo:  $\sqrt{R_3 + R_4} \sqrt{\frac{1}{C_2 C_5 R_1 R_4 R_5 - C_2 C_5 R_2 R_3 R_4 + C_2 C_5 R_2 R_3 R_5 + C_2 C_5 R_2 R_4 R_5 + C_2 C_5 R_3 R_4 R_5}$ 

 $\sqrt{R_3 + R_4} (C_2 R_1 R_4 + C_2 R_2 R_3 + C_2 R_2 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4 + C_5 R_3 R_5 + C_5 R_4 R_5) \sqrt{\frac{1}{C_2 C_5 R_1 R_4 R_5 - C_2 C_5 R_2 R_3 R_4 + C_2 C_5 R_2 R_3 R_5 + C_2 C_5 R_2 R_4 R_5 + C_2 C_5 R_3 R_5 + C_2 C_5 R_3 R_5 + C_2 C_5 R_5 R_5$ 

 $\frac{\sqrt{R_3 + R_4(C_2R_1R_4 + C_2R_2R_3 + C_2R_3R_4 + C_5R_3R_4 + C_5R_3R_4 + C_5R_3R_4 + C_5R_3R_4 + C_5R_3R_4 + C_5R_3R_4 + C_5R_5R_2R_3R_4 + C_2C_5R_2R_3R_4 + C_2C_5R_2R_4R_5 + C_2C_5R_2R_4R_5 + C_2C_5R_2R_4R_5 + C_2C_5R_2R_4R_$ 

K-LP:  $\frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}$ K-HP: 0

K-BP:  $\frac{C_2C_5R_1R_2R_4}{C_2C_6R_1R_4+C_2C_6R_2R_3+C_2C_6R_2R_4+C_2C_6R_3R_4-C_5C_6R_3R_4+C_5C_6R_3R_5+C_5C_6R_4R_5}$  Qz: None

Wz: None

## **8.97** X-INVALID-NUMER-97 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_2 R_1 R_2 R_6 s + R_1 R_6}{C_2 C_4 R_2 R_3 R_5 s^2 - R_3 + R_5 + s \left( C_2 R_1 R_5 - C_2 R_2 R_3 + C_2 R_2 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5 \right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-R_3+R_5}}{C_2R_1R_5-C_2R_2R_3+C_2R_2R_5+C_2R_3R_5+C_4R_3R_5}$  wo:  $\frac{\sqrt{-R_3+R_5}}{\sqrt{C_2}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_1R_5-C_2R_2R_3+C_2R_2R_5+C_2R_3R_5+C_4R_3R_5}{C_2C_4R_2R_3R_5}$ 

K-LP:  $-\frac{R_1R_6}{R_3-R_5}$ K-HP: 0

K-BP:  $\frac{C_2R_1R_2R_6}{C_2R_1R_5 - C_2R_2R_3 + C_2R_2R_5 + C_2R_3R_5 + C_4R_3R_5}$ 

Qz: None Wz: None

## 8.98 X-INVALID-NUMER-98 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s}{s^2(C_2C_4R_2R_3 - C_2C_5R_2R_3) + s(C_2R_1 + C_2R_2 + C_2R_3 + C_4R_3 - C_5R_3) + 1}$$

$$\begin{array}{l} Q\colon \frac{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_2R_1+C_2R_2+C_2R_3+C_4R_3-C_5R_3}\\ \text{wo: } \sqrt{\frac{1}{C_2C_4R_2R_3-C_2C_5R_2R_3}}\\ \text{bandwidth: } \frac{(C_2R_1+C_2R_2+C_2R_3+C_4R_3-C_5R_3)\sqrt{\frac{1}{C_2C_4R_2R_3-C_2C_5R_2R_3}}}{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3}\\ \text{K-BP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_2+C_2R_3+C_4R_3-C_5R_3}}{C_2R_1+C_2R_2+C_2R_3+C_4R_3-C_5R_3}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

8.99 X-INVALID-NUMER-99  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_5R_1R_2s + C_5R_1}{C_6 + s^2\left(C_2C_4C_6R_2R_3 - C_2C_5C_6R_2R_3\right) + s\left(C_2C_6R_1 + C_2C_6R_2 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$$

### Parameters:

$$\begin{array}{l} \text{Q:} \ \frac{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_2R_1+C_2R_2+C_2R_3+C_4R_3-C_5R_3}\\ \text{wo:} \ \sqrt{\frac{1}{C_2C_4R_2R_3-C_2C_5R_2R_3}}\\ \text{bandwidth:} \ \frac{(C_2R_1+C_2R_2+C_2R_3+C_4R_3-C_5R_3)\sqrt{\frac{1}{C_2C_4R_2R_3}-\frac{1}{C_2C_5R_2R_3}}}{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP:} \ \frac{C_5R_1}{C_6}\\ \text{K-HP:} \ 0\\ \text{K-BP:} \ \frac{C_2C_5R_1R_2}{C_2C_6R_1+C_2C_6R_2+C_2C_6R_3+C_4C_6R_3-C_5C_6R_3}}\\ \text{Qz:} \ \text{None}\\ \text{Wz:} \ \text{None} \end{array}$$

**8.100** X-INVALID-NUMER-100  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

$$H(s) = \frac{C_2R_1R_2R_4R_6s + R_1R_4R_6}{C_2C_4R_2R_3R_4R_5s^2 - R_3R_4 + R_3R_5 + R_4R_5 + s\left(C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_2R_2R_4R_5 + C_2R_3R_4R_5 + C_4R_3R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5}$  wo:  $\frac{\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{\sqrt{C_2}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5}{C_2C_4R_2R_3R_4R_5}$  K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$  K-HP: 0 K-BP:  $\frac{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_4R_6}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5}$  Qz: None Wz: None

8.101 X-INVALID-NUMER-101  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{R_3 + R_4 + s^2\left(C_2C_4R_2R_3R_4 - C_2C_5R_2R_3R_4\right) + s\left(C_2R_1R_4 + C_2R_2R_3 + C_2R_2R_4 + C_2R_3R_4 + C_4R_3R_4 - C_5R_3R_4\right)}$$

$$\begin{aligned} & \text{Q:} \ \frac{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_2R_1R_4+C_2R_3+C_2R_2R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4} \\ & \text{wo:} \ \sqrt{R_3+R_4}\sqrt{\frac{1}{C_2C_4R_2R_3R_4-C_2C_5R_2R_3R_4}} \\ & \text{bandwidth:} \ \frac{\sqrt{R_3+R_4}(C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4)\sqrt{\frac{1}{C_2C_4R_2R_3R_4-C_2C_5R_2R_3R_4}}}{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}} \\ & \text{K-LP:} \ 0 \\ & \text{K-HP:} \ \frac{C_5R_1R_6}{C_4R_3-C_5R_3} \end{aligned}$$

K-BP:  $\frac{C_5R_1R_4R_6}{C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4}$  Qz: None

Wz: None

# 8.102 X-INVALID-NUMER-102 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_2C_5R_1R_2R_4s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^2\left(C_2C_4C_6R_2R_3R_4 - C_2C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_4 + C_2C_6R_3R_4 + C_4C_6R_3R_4 - C_5C_6R_3R_4\right)}$ 

### Parameters:

 $\begin{aligned} & \text{Q: } \frac{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4} \\ & \text{wo: } \sqrt{R_3+R_4}\sqrt{\frac{1}{C_2C_4R_2R_3R_4-C_2C_5R_2R_3R_4}} \end{aligned}$ 

bandwidth:  $\frac{\sqrt{R_3 + R_4}(C_2R_1R_4 + C_2R_2R_3 + C_2R_2R_4 + C_2R_3R_4 + C_4R_3R_4 - C_5R_3R_4)\sqrt{\frac{1}{C_2C_4R_2R_3R_4 - C_2C_5R_2R_3R_4}}}{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3 + R_4}}\sqrt{\frac{1}{C_4 - C_5}} - \sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3 + R_4}\sqrt{\frac{1}{C_4 - C_5}}$ 

K-LP:  $\frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}$ K-HP: 0

K-BP:  $\frac{C_2C_5R_1R_2R_4}{C_2C_6R_1R_4+C_2C_6R_2R_3+C_2C_6R_2R_4+C_2C_6R_3R_4+C_4C_6R_3R_4-C_5C_6R_3R_4}$  Qz: None

Wz: None

## **8.103** X-INVALID-NUMER-103 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 + C_3R_4R_5\right)}$$

### Parameters:

Q:  $-\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{-R_4+R_5}}{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5}}$  bandwidth:  $-\frac{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5}}$ 

K-HP:  $\frac{R_1 R_2 R_6}{R_1 R_5 + R_2 R_5}$ 

Wz: None

# **8.104** X-INVALID-NUMER-104 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3R_1R_2R_4s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

### Parameters:

Q:  $-\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{-R_4+R_5}}{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5}}$  bandwidth:  $-\frac{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5}}$  K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$  K-HP: 0

K-BP:  $-\frac{C_2C_3R_1R_2R_4}{C_2C_6R_2R_4-C_2C_6R_2R_5-C_2C_6R_4R_5-C_3C_6R_4R_5}$ 

Qz: None

Wz: None

**8.105** X-INVALID-NUMER-105 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s}{C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 - C_2C_5C_6R_2R_4\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4\right)}$$

$$Q\colon \frac{\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}+\sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}}{C_2R_2+C_2R_4+C_3R_4-C_5R_4}\\ \text{wo: } \sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_2R_4-C_2C_5R_2R_4}}\\ \text{bandwidth: } \frac{(C_2R_2+C_2R_4+C_3R_4-C_5R_4)\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_2R_4-C_2C_5R_2R_4}}}{\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}}+\sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}}\\ \text{K-BP: } \frac{C_3C_5R_1R_4}{C_2C_6R_2+C_2C_6R_4+C_3C_6R_4-C_5C_6R_4}}\\ \text{Qz: None}\\ \text{Wz: None}$$

# **8.106** X-INVALID-NUMER-106 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_2C_3R_1R_2R_6s^2 + C_3R_1R_6s}{s^2\left(C_2C_3R_1R_5 + C_2C_3R_2R_5 + C_2C_4R_2R_5\right) + s\left(-C_2R_2 + C_2R_5 + C_3R_5 + C_4R_5\right) - 1}$$

### Parameters:

```
Q: -\frac{i\sqrt{C_2}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_2R_2-C_2R_5-C_3R_5-C_4R_5} wo: \frac{i}{\sqrt{C_2C_3R_1R_5+C_2C_3R_2R_5+C_2C_4R_2R_5}} bandwidth: -\frac{C_2R_2-C_2R_5-C_3R_5-C_4R_5}{\sqrt{C_2}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_2C_3R_1R_5+C_2C_3R_2R_5+C_2C_4R_2R_2}} K-LP: 0 K-HP: \frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5} K-BP: -\frac{C_3R_1R_6}{C_2R_2-C_2R_5-C_3R_5-C_4R_5} Qz: None Wz: None
```

## 8.107 X-INVALID-NUMER-107 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3R_1R_2s + C_3R_1}{-C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5\right)}$$

## Parameters:

$$\begin{array}{l} \mathrm{Q:} -\frac{i\sqrt{C_2}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_2R_2-C_2R_5-C_3R_5-C_4R_5} \\ \mathrm{wo:} \ \ \frac{i}{\sqrt{C_2C_3R_1R_5+C_2C_3R_2R_5+C_2C_4R_2R_5}} \\ \mathrm{bandwidth:} -\frac{C_2R_2-C_2R_5-C_3R_5-C_4R_5}{\sqrt{C_2}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_2C_3R_1R_5+C_2C_3R_2R_5+C_2C_4R_2R_5}} \\ \mathrm{K-LP:} -\frac{C_3R_1}{C_6} \\ \mathrm{K-HP:} \ 0 \\ \mathrm{K-BP:} -\frac{C_2C_3R_1R_2}{C_2C_6R_2-C_2C_6R_5-C_3C_6R_5-C_4C_6R_5} \\ \mathrm{Qz:} \ \mathrm{None} \\ \mathrm{Wz:} \ \mathrm{None} \end{array}$$

8.108 X-INVALID-NUMER-108  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_6R_1R_6 + C_2C_3C_6R_2R_6 + C_2C_5C_6R_2R_6\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_4R_2 - C_2C_5R_2 + C_2C_6R_6 + C_3C_6R_6 + C_4C_6R_6 - C_5C_6R_6\right)}$$

### Parameters:

 $Q: \frac{\sqrt{C_2C_3\sqrt{C_6}R_1\sqrt{R_6}}\sqrt{\frac{C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_3}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \sqrt{C_2}C_3\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \sqrt{C_2}C_4\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_3\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_3\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_4\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_4\sqrt{C_6}R_2\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_4\sqrt{C_6}R_2\sqrt{$ 

```
wo: \sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2 C_3 C_6 R_1 R_6 + C_2 C_3 C_6 R_2 R_6 + C_2 C_4 C_6 R_2 R_6 - C_2 C_5 C_6 R_2 R_6}}
```

 $\frac{1}{\sqrt{C_2}C_3\sqrt{C_6}R_1\sqrt{R_6}\sqrt{\frac{C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_3}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}$ 

bandwidth:

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_3C_5R_1R_6}{C_2C_3R_1+C_2C_3R_2+C_2C_4R_2-C_2C_5R_2+C_2C_6R_6+C_3C_6R_6+C_4C_6R_6-C_5C_6R_6}$  Qz: None

Wz: None

# **8.109** X-INVALID-NUMER-109 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_5R_1R_5 + C_2C_3C_5R_2R_5 + C_2C_4C_5R_2R_5\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_4R_2 - C_2C_5R_2 + C_2C_5R_5 + C_3C_5R_5 + C_4C_5R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_5}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_2+C_3+C_4-C_5}}{C_2C_3R_1+C_2C_3R_2+C_2C_4R_2-C_2C_5R_2+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}$ 

 $\begin{array}{l} \text{K-HP:} \ \frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5} \\ \text{K-BP:} \ \frac{C_3C_5R_1R_6}{C_2C_3R_1+C_2C_3R_2+C_2C_4R_2-C_2C_5R_2+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5} \\ \text{Qz: None} \end{array}$ 

Wz: None

# 8.110 X-INVALID-NUMER-110 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3C_5R_1R_2s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_5C_6R_1R_5 + C_2C_3C_5C_6R_2R_5 + C_2C_4C_5C_6R_2R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_5C_6R_2 + C_2C_5C_6R_5 + C_3C_5C_6R_5 + C_4C_5C_6R_5\right)}$$

### Parameters:

wo:  $\frac{\sqrt{C_2+C_3+C_4-C_5}}{\sqrt{C_2C_3C_5R_1R_5+C_2C_3C_5R_2R_5+C_2C_4C_5R_2R_5}}$  bandwidth:  $\frac{C_2C_3R_1+C_2C_3R_2+C_2C_4R_2-C_2C_5R_2+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_2C_3C_5R_1R_5+C_2C_3C_5R_2R_5+C_2C_4C_5R_2R_5}}$  K-LP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$  K-HP: 0

K-BP:  $\frac{C_2C_3C_5R_1R_2}{C_2C_3C_6R_1+C_2C_3C_6R_2+C_2C_4C_6R_2-C_2C_5C_6R_2+C_2C_5C_6R_5+C_3C_5C_6R_5+C_4C_5C_6R_5}$  Qz: None

Wz: None

## **8.111** X-INVALID-NUMER-111 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$

$$H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_4R_2R_4R_5\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 + C_3R_4R_5 + C_4R_4R_5\right)}$$

## Parameters:

 $\begin{array}{l} Q \colon -\frac{\sqrt{C_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_4+R_5}\sqrt{C_3}R_1+C_3R_2+C_4R_2}{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5} \\ \text{wo: } \frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5+C_2C_4R_2R_4R_5}} \\ \text{bandwidth: } -\frac{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5}{\sqrt{C_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3}R_1+C_3R_2+C_4R_2}\sqrt{C_2C_3R_1R_4R_5+C_2C_4R_2R_4R_5}} \\ V.I.D. 0 \end{array}$ 

K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  K-BP:  $-\frac{C_3R_1R_4R_6}{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5}$  Qz: None

Wz: None

113

## **8.112** X-INVALID-NUMER-112 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3R_1R_2R_4s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_4C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5\right)}$$

## Parameters:

Q:  $-\frac{\sqrt{C_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_4+R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5}$ 

wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5+C_2C_4R_2R_4R_5}}$ bandwidth:  $-\frac{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5}{\sqrt{C_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5+C_2C_4R_2R_4R_5}}$  K-LP:  $-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$  K-HP: 0

K-BP:  $-\frac{C_2C_3R_1R_2R_4}{C_2C_6R_2R_4 - C_2C_6R_2R_5 - C_2C_6R_4R_5 - C_3C_6R_4R_5 - C_4C_6R_4R_5}$ 

Wz: None

## **8.113** X-INVALID-NUMER-113 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s}{C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_2C_4C_6R_2R_4 - C_2C_5C_6R_2R_4\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$$

### Parameters:

 $\text{Q:} \ \frac{\sqrt{C_2C_3R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} + \sqrt{C_2C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} + \sqrt{C_2C_4R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} - \sqrt{C_2C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} \\ - \sqrt{C_2C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} + \sqrt{C_2C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} \\ - \sqrt{C_2C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}} \\ - \sqrt{C_2C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_2+C_4R_2-C_5R_2}}}} \\ - \sqrt{C_2C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3$ 

Wo:  $\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_2R_4+C_2C_4R_2R_4-C_2C_5R_2R_4}}$ 

 $\frac{(C_2R_2 + C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_2R_4 + C_2C_5R_2R_4}}}{\sqrt{C_2C_3R_1\sqrt{R_4}}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_2C_3R_2\sqrt{R_4}}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_2C_4R_2\sqrt{R_4}}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_2C_5R_2\sqrt{R_4}}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}}} - \sqrt{C_2C_5R_2\sqrt{R_4}}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_2C_3R_2\sqrt{R_4}}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_3C_5R_1R_4}{C_2C_6R_2+C_2C_6R_4+C_3C_6R_4+C_4C_6R_4-C_5C_6R_4}$  Qz: None

Wz: None

## **8.114** X-INVALID-NUMER-114 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 - C_2C_3R_2R_3R_4 + C_2C_3R_2R_3R_5 + C_2C_3R_2R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 - C_3R_3R_4 + C_3R_3R_5 + C_3R_4R_5\right)}$$

#### Parameters:

 $O: \frac{-\sqrt{C_2}\sqrt{C_3}R_1R_4R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_4R_5}} -\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_5+R_4R_5}} -\sqrt{C_2}$ Wo:  $\sqrt{\frac{-R_4+R_5}{C_2C_3R_1R_4R_5-C_2C_3R_2R_3R_4+C_2C_3R_2R_3R_5+C_2C_3R_2R_4R_5+C_2C_3R_3R_4R_5}}$ 

 $\frac{1}{-\sqrt{C_2}\sqrt{C_3}R_1R_4R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R$ 

 $\begin{array}{l} \text{K-HP: } \frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5} \\ \text{K-BP: } -\frac{C_3R_1R_4R_6}{C_2R_2R_4 - C_2R_2R_5 - C_2R_4R_5 + C_3R_3R_4 - C_3R_3R_5 - C_3R_4R_5} \end{array}$ 

Qz: None Wz: None

## **8.115** X-INVALID-NUMER-115 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3R_1R_2R_4s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 - C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4 + C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_2R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_4R_5\right)}$$

```
O: \frac{-\sqrt{C_2}\sqrt{C_3}R_1R_4R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5 + \frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5 - \frac{R_3}{R_3}R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5 - \frac{R_3}{R_3}R_5} - \sqrt{C_2}\sqrt{C_3}R_2R_3R_5} - \sqrt{C_2}\sqrt{C_3}R_3R_5} - \sqrt{C_2}\sqrt{C_3}R_5} -
                Wo: \sqrt{\frac{-R_4 + R_5}{C_2 C_3 R_1 R_4 R_5 - C_2 C_3 R_2 R_3 R_4 + C_2 C_3 R_2 R_3 R_5 + C_2 C_3 R_2 R_4 R_5 + C_2 C_3 R_3 R_4 R_5}
               \frac{-\sqrt{C_2}\sqrt{C_3}R_1R_4R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_2}\sqrt{C_3}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_4+R_5}+\frac{R_5}{R_1R_4R_5-R_2R_3R_5}+\frac{R
               K-HP: 0
              K-BP: -\frac{C_2C_3R_1R_2R_4}{C_2C_6R_2R_4-C_2C_6R_2R_5-C_2C_6R_4R_5+C_3C_6R_3R_4-C_3C_6R_3R_5-C_3C_6R_4R_5} Qz: None
                Wz: None
8.116 X-INVALID-NUMER-116 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                           H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_4R_2R_3 - C_2C_3C_5R_2R_3\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_3R_3 + C_2C_4R_2 - C_2C_5R_2 + C_3C_4R_3 - C_3C_5R_3\right)}
      Parameters:
                \text{bandwidth: } \frac{\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2 C_3 C_4 R_2 R_3 - C_2 C_3 C_5 R_2 R_3}} \left(C_2 C_3 R_1 + C_2 C_3 R_2 + C_2 C_3 R_3 + C_2 C_4 R_2 - C_2 C_5 R_2 + C_3 C_4 R_3 - C_3 C_5 R_3\right)}{\sqrt{C_2} \sqrt{C_3} \sqrt{C_4} \sqrt{R_3} \sqrt{\frac{C_2}{C_4 - C_5}} + \frac{C_4}{C_4 - C_5} + \frac{C_5}{C_4 - C_5} - \sqrt{C_2} \sqrt{C_3} \sqrt{C_3} \sqrt{R_3} \sqrt{\frac{C_2}{C_4 - C_5}} + \frac{C_3}{C_4 - C_5} + \frac{C_4}{C_4 - C_5} - \frac{C_5}{C_4 - C_5}}{\sqrt{C_4 - C_5}} \right) } 
               K-LP: 0
              K-HP: \frac{C_5 R_1 R_6}{C_4 R_3 - C_5 R_3}
              K-BP: \frac{C_4 R_3 - C_5 R_3}{C_2 C_3 R_1 + C_2 C_3 R_2 + C_2 C_3 R_3 + C_2 C_4 R_2 - C_2 C_5 R_2 + C_3 C_4 R_3 - C_3 C_5 R_3}{C_2 C_3 R_1 + C_2 C_3 R_2 + C_2 C_3 R_3 + C_2 C_4 R_2 - C_2 C_5 R_2 + C_3 C_4 R_3 - C_3 C_5 R_3}
                  Qz: None
                Wz: None
8.117 X-INVALID-NUMER-117 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                        H(s) = \frac{C_2C_3C_5R_1R_2s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_2R_3 - C_2C_3C_5C_6R_2R_3\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_3C_6R_3 + C_2C_4C_6R_2 - C_2C_5C_6R_2 + C_3C_4C_6R_3 - C_3C_5C_6R_3\right)}
        Parameters:
               \text{bandwidth: } \frac{\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2 C_3 C_4 R_2 R_3 - C_2 C_3 C_5 R_2 R_3}} (C_2 C_3 R_1 + C_2 C_3 R_2 + C_2 C_3 R_3 + C_2 C_4 R_2 - C_2 C_5 R_2 + C_3 C_4 R_3 - C_3 C_5 R_3)}{\sqrt{C_2} \sqrt{C_3} \sqrt{C_4} \sqrt{R_3} \sqrt{\frac{C_2}{C_4 - C_5}} + \frac{C_3}{C_4 - C_5} + \frac{C_4}{C_4 - C_5} - \frac{C_5}{C_4 - C_5}} - \sqrt{C_2} \sqrt{C_3} \sqrt{C_3} \sqrt{R_3} \sqrt{\frac{C_2}{C_4 - C_5}} + \frac{C_3}{C_4 - C_5} + \frac{C_4}{C_4 - C_5} - \frac{C_5}{C_4 - C_5}}
             K-LP: \frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}
K-HP: 0
              K-BP: \frac{C_2C_3C_5R_1R_2}{C_2C_3C_6R_1+C_2C_3C_6R_2+C_2C_3C_6R_3+C_2C_4C_6R_2-C_2C_5C_6R_2+C_3C_4C_6R_3-C_3C_5C_6R_3} Qz: None
                Wz: None
8.118 X-INVALID-NUMER-118 Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4
                                                                                                H(s) = \frac{1}{C_{6}R_{1}R_{4} + C_{6}R_{2}R_{3} + C_{6}R_{2}R_{4} + C_{6}R_{3}R_{4} + s^{2}\left(C_{2}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{5}C_{6}R_{2}R_{3}R_{4} + C_{5}C_{6}R_{1}R_{2}R_{4} + C_{5}C_{6}R_{2}R_{3}R_{4} + C_{5}C_{6}R_{2}R_{3}R_{5} + C_{5}C
      Parameters:
```

Q:  $\frac{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_2R_1R_2R_4+C_2R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_2C_5}R_1R_2R_4R_5+C_2C_5R_2R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_1R_2R_4+C_2R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_5}\sqrt{R_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3C_5R_1R_3R_5+C_5R_2R_4R_5+C_5R_2R_4R_5}}$ 

```
K-HP: 0
```

 $\text{K-BP: } \frac{C_5 R_1 R_2 R_4 R_6}{C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5}$ 

Qz: None

Wz: None

## **8.119** X-INVALID-NUMER-119 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$

 $C_5R_1R_2R_4R_5R_6s + R_1R_2R_4R_6$ 

 $\frac{c_{3}r_{1}r_{2}r_{4}r_{5}r_{6}s + r_{1}r_{2}r_{4}r_{6}}{R_{1}R_{4}R_{5} - R_{2}R_{3}R_{4} + R_{2}R_{3}R_{5} + R_{2}R_{4}R_{5} + R_{3}R_{4}R_{5} + s^{2}\left(C_{2}C_{6}R_{1}R_{2}R_{4}R_{5}R_{6} + C_{6}R_{2}R_{3}R_{4}R_{5} + C_{$ 

#### Parameters:

 $Q: \frac{C_2\sqrt{C_6}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{\frac{R_1R_4R_5}{C_2R_1+C_2R_3-C_5R_3}} - \frac{R_2R_3R_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{R_2R_3R_5}{C_2R_1+C_2R_3-C_5R_3} + \frac{$ 

 $\frac{c_1R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}{c_1+C_2C_2R_3R_3R_3+R_5R_6-C_5C_2R_3R_4R_5+C_6R_1R_4R_5+C_6R_2R_3R_4R_5+C_6R_2R_3R_5+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5R_6+C_6R_2R_4R_5+C_6R_4R_4R_5+C_6R_4R_5+C_6R_5+$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_5R_1R_2R_4R_5R_6}{C_2R_1R_2R_4R_5+C_2R_2R_3R_4R_5-C_5R_2R_3R_4R_5+C_6R_1R_4R_5R_6-C_6R_2R_3R_4R_6+C_6R_2R_3R_5R_6+C_6R_2R_4R_5R_6+C_6R_3R_4R_5R_6} \\ \text{Qz: None} \end{array}$ 

Wz: None

# **8.120** X-INVALID-NUMER-120 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

 $H(s) = \frac{C_5C_6R_1R_2R_6s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_2C_5C_6R_1R_2R_5 + C_2C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_3R_5\right) + s\left(C_2C_6R_1R_2 + C_2C_6R_2R_3 + C_5C_6R_1R_5 - C_5C_6R_2R_3 + C_5C_6R_2R_5 + C_5C_6R_2R_5\right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{R_1+R_2+R_3}\sqrt{C_2R_1+C_2R_3+C_4R_3}}{C_2R_1R_2+C_2R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$  wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_2C_5R_1R_2R_5+C_2C_5R_2R_3R_5+C_4C_5R_2R_3R_5}}$  bandwidth:  $\frac{C_2R_1R_2+C_2R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}{\sqrt{C_5}\sqrt{R_2}\sqrt{R_2}\sqrt{C_2}R_1+C_2R_3+C_4R_3}\sqrt{C_2C_5R_1R_2R_5+C_2C_5R_2R_3R_5+C_4C_5R_2R_3R_5}}$  K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$  K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_6}{C_2R_1R_2+C_2R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}$  Qz: None

Wz: None

# 8.121 X-INVALID-NUMER-121 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$

 $C_5R_1R_2R_5R_6s + R_1R_2R_6$  $H(s) = \frac{1}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_2C_6R_1R_2R_5R_6 + C_2C_6R_2R_3R_5R_6 + C_4C_6R_2R_3R_5R_6 - C_5C_6R_2R_3R_5R_6\right) + s\left(C_2R_1R_2R_5 + C_2R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_2R_1R_2R_5 + C_2R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_2R_1R_2R_5 + C_4R_2R_3R_5\right) + s\left(C_2R_1R_3R_5 + C_4R_3R_5\right) + s\left(C_2R_1R_3R_5\right) + s\left(C_2R_1R_3$ 

### Parameters:

 $C_{2}\sqrt{C_{6}}R_{1}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{\frac{R_{1}R_{5}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\frac{R_{2}R_{3}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}+\frac{R_{2}R_{5}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}$ 

wo:  $\sqrt{\frac{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5}{C_2C_6R_1R_2R_5R_6 + C_2C_6R_2R_3R_5R_6 + C_4C_6R_2R_3R_5R_6 - C_5C_6R_2R_3R_5R_6}}$ 

 $\frac{\sqrt{\sqrt{2} + (R_1 R_2 + R_3 + C_4 R_3 - C_5 R_3} + (R_2 R_3 + R_4 R_3 - C_5 R_3)} + (R_2 R_3 + R_3 R_5 + R_4 R_3 - C_5 R_3)}{C_2 \sqrt{C_6} R_1 \sqrt{R_2} \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_2 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_2 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{R_6} \sqrt{\frac{R_1 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3} + \frac{R_3 R_5}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_4 \sqrt{C_6} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{$ 

K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_5R_6}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_4R_2R_3R_5-C_5R_2R_3R_5+C_6R_1R_5R_6-C_6R_2R_3R_6+C_6R_2R_5R_6+C_6R_3R_5R_6}$  Qz: None

Wz: None

## **8.122** X-INVALID-NUMER-122 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5, R_6\right)$

$$H(s) = \frac{C_4 R_1 R_2 R_4 R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^2 \left(C_2 C_4 R_1 R_2 R_4 R_5 + C_2 C_4 R_2 R_3 R_4 R_5\right) + s \left(C_2 R_1 R_2 R_5 + C_2 R_2 R_3 R_5 + C_4 R_1 R_4 R_5 - C_4 R_2 R_3 R_4 + C_4 R_2 R_3 R_5 + C_4 R_2 R_4 R_5 + C_4 R_3 R_4 R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_4R_1R_4R_5-C_4R_2R_3R_4+C_4R_2R_3R_5+C_4R_2R_4R_5+C_4R_3R_4R_5}}$  wo:  $\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_2C_4R_1R_2R_4R_5+C_2C_4R_2R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_1R_2R_5+C_2C_4R_2R_3R_5+C_4R_2R_3R_4R_5}{\sqrt{C_2}\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_4R_1R_2R_4R_5+C_4R_2R_3R_4R_5}}}{\sqrt{C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_4R_1R_2R_4R_5+C_2C_4R_2R_3R_4R_5}}}}$  K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{K-HP: 0}$ 

K-BP:  $\frac{C_4R_1R_2R_4R_6}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_4R_1R_4R_5-C_4R_2R_3R_4+C_4R_2R_3R_5+C_4R_2R_4R_5+C_4R_3R_4R_5}$  Qz: None

Wz: None

## **8.123** X-INVALID-NUMER-123 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$

$$H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^2\left(C_2C_4R_1R_2R_4 + C_2C_4R_2R_3R_4 - C_4C_5R_2R_3R_4\right) + s\left(C_2R_1R_2 + C_2R_2R_3 + C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3\right)}$$

### **Parameters:**

 $Q: \frac{C_2\sqrt{C_4}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_4}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_4}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - C_2R_1R_2+C_2R_2R_3+C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4-C_5R_2R_3}$ 

 $\text{wo: } \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 C_4 R_1 R_2 R_4 + C_2 C_4 R_2 R_3 R_4 - C_4 C_5 R_2 R_3 R_4}} \\ \text{bandwidth: } \frac{\sqrt{R_1 + R_2 + R_3} (C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_1 R_4 + C_4 R_2 R_3 + C_4 R_2 R_4 + C_4 R_3 R_4 - C_5 R_2 R_3) \sqrt{\frac{1}{C_2 C_4 R_1 R_2 R_4 + C_2 C_4 R_2 R_3 R_4 - C_4 C_5 R_2 R_3 R_4}}}{C_2 \sqrt{C_4} \sqrt{R_1} \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} R_3 \sqrt{$ 

K-LP: 0

K-HP:  $\frac{C_5 R_1 R_6}{C_2 R_1 + C_2 R_3 - C_5 R_3}$ 

K-BP:  $\frac{C_5R_1R_2R_6}{C_2R_1R_2+C_2R_2R_3+C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4-C_5R_2R_3}{\text{Qz: None}}$ 

Wz: None

## **8.124** X-INVALID-NUMER-124 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_4C_5R_1R_2R_4s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_2C_4C_6R_1R_2R_4 + C_2C_4C_6R_2R_3R_4 - C_4C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_1R_2 + C_2C_6R_2R_3 + C_4C_6R_2R_3 + C_4C_6R_2R_3 + C_4C_6R_2R_4 + C_4C_6R_2R_4 + C_4C_6R_2R_4 + C_4C_6R_2R_4\right)}$$

## Parameters:

$$Q \colon \frac{C_2\sqrt{C_4}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_4}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_4}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - C_2R_1R_2 + C_2R_2R_3 + C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3}{C_2R_1R_2 + C_4R_2R_3 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3}$$

 $\text{wo: } \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 C_4 R_1 R_2 R_4 + C_2 C_4 R_2 R_3 R_4 - C_4 C_5 R_2 R_3 R_4}} \\ \text{bandwidth: } \frac{\sqrt{R_1 + R_2 + R_3} (C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_1 R_4 + C_4 R_2 R_3 + C_4 R_2 R_4 + C_4 R_3 R_4 - C_5 R_2 R_3) \sqrt{\frac{1}{C_2 C_4 R_1 R_2 R_4 + C_2 C_4 R_2 R_3 R_4 - C_4 C_5 R_2 R_3 R_4}}}{C_2 \sqrt{C_4} \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_4} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - \sqrt{C_4} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} - C_4 \sqrt{R_2} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_1 + R_2 + R_3}} + C_4 \sqrt{R_2} C_5 \sqrt{R_2} R_3 \sqrt{R_4} + C_4 \sqrt{R_2} C_5 \sqrt{R_2} R_3$ 

K-LP:  $\frac{C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3}$ K-HP: 0

K-BP:  $\frac{C_4C_5R_1R_2R_4}{C_2C_6R_1R_2+C_2C_6R_2R_3+C_4C_6R_1R_4+C_4C_6R_2R_3+C_4C_6R_2R_4+C_4C_6R_3R_4-C_5C_6R_2R_3}$  Qz: None

Wz: None

## **8.125** X-INVALID-NUMER-125 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

 $C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4$  $\overline{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + S^2\left(C_2C_5C_6R_1R_2R_4R_5 + C_2C_5C_6R_2R_3R_4R_5 + C_4C_5C_6R_2R_3R_4R_5\right) + s\left(C_2C_6R_1R_2R_4 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R$ 

```
Q: \frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_2R_1R_2R_4+C_2R_2R_3R_4+C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5} wo: \frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_2C_5R_1R_2R_4R_5+C_2C_5R_2R_3R_4R_5+C_4C_5R_2R_3R_4R_5}} bandwidth: \frac{C_2R_1R_2R_4+C_2R_2R_3R_4+C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_5R_1R_2R_4R_5+C_2C_5R_2R_3R_4R_5+C_4C_5R_2R_3R_4R_5}} K-LP: \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4} K-HP: 0
               K-BP: \frac{C_5R_1R_2R_4R_6}{C_2R_1R_2R_4+C_2R_2R_3R_4+C_4R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}{\text{Qz: None}} Qz: None
                Wz: None
8.126 X-INVALID-NUMER-126 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C_5R_1R_2R_4R_5R_6s + R_1R_2R_4R_6
H(s) = \frac{1}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s^2 \left(C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_6 R_2 R_3 R_4 R_5 R_6 + C_4 C_6 R_2 R_3 R_4 R_5 R_6 + C_4 C_6 R_2 R_3 R_4 R_5 + C_4 R_2 R_3 R_4 R_5 + C_4 R_2 R_3 R_4 R_5 + C_5 R_2 R_3 R_4 R_5 + C_6 R_1 R_4 R_5 R_6 + C_6 R_2 R_3 R_4 R_5 + C_6 R_2 R_3 R_
       Parameters:
                 O\colon \frac{C_2\sqrt{C_6}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{\frac{R_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \frac{R_2R_3R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_3R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_3R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_4R_5}{C_2R_1+
                                                                              \frac{\sqrt{C_2\sqrt{C_6}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{\frac{R_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \frac{R_2R_3R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_3R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_3R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_3R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_3R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_3R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_4R_5}{C_2R_1+C
              K-LP: \frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}K-HP: 0
                \begin{array}{l} \text{K-BP:} \ \frac{C_5R_1R_2R_4R_5R_6}{C_2R_1R_2R_4R_5+C_2R_2R_3R_4R_5+C_4R_2R_3R_4R_5-C_5R_2R_3R_4R_5+C_6R_1R_4R_5R_6-C_6R_2R_3R_4R_6+C_6R_2R_3R_5R_6+C_6R_2R_4R_5R_6+C_6R_3R_4R_5R_6} \\ \text{Qz: None} \end{array} 
                 Wz: None
8.127 X-INVALID-NUMER-127 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                       H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{C_2C_3C_6R_1R_2R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5\right)}
       Parameters:
                 Q: \frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2}R_4 + R_2R_5 + R_4R_5}{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5}}
        \begin{array}{l} \text{C}_{2}R_{2}\sqrt{R_{4}\sqrt{R_{5}}} + C_{3}R_{1}\sqrt{R_{4}\sqrt{R_{5}}} + C_{3}R_{2}\sqrt{R_{4}\sqrt{R_{5}}} \\ \text{Wo:} \quad \frac{\sqrt{-R_{2}R_{4}} + R_{2}R_{5} + R_{4}R_{5}}{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}} \\ \text{bandwidth:} \quad \frac{C_{2}R_{2}\sqrt{R_{4}}\sqrt{R_{5}} + C_{3}R_{1}\sqrt{R_{4}}\sqrt{R_{5}} + C_{3}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}}{C_{2}C_{3}R_{1}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}} \\ \text{K-LP:} \quad -\frac{C_{3}R_{1}R_{2}R_{4}}{C_{6}R_{2}R_{4} - C_{6}R_{2}R_{5} - C_{6}R_{4}R_{5}} \\ \text{K-HP:} \quad 0 \\ \end{array} 
              K-BP: \frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5+C_3R_2R_5} Qz: None
                Wz: None
8.128 X-INVALID-NUMER-128 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                           H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_2C_3C_6R_1R_2R_4s^2 + C_6R_2 + C_6R_4 + s\left(C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 - C_5C_6R_2R_4\right)}
        Parameters:
```

Qz: None

K-LP: 0K-HP:  $\frac{C_5R_6}{C_2}$ 

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2+R_4}}{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}$ wo:  $\frac{\sqrt{R_2+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}{C_2C_3R_1R_2\sqrt{R_4}}$ 

K-BP:  $\frac{C_3C_5R_1R_2}{C_2C_6R_2+C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}$ 

# **8.129** X-INVALID-NUMER-129 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{C_2C_3R_1R_2R_4R_5s^2 - R_2R_4 + R_2R_5 + R_4R_5 + s\left(C_2R_2R_4R_5 + C_3R_1R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2R_4+R_2}R_5+R_4R_5}{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}-C_5R_2\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}-C_5R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2R_2R_5+C_3R_1R_2R_6}$ Qz: None

Wz: None

## **8.130** X-INVALID-NUMER-130 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{C_2C_3C_6R_1R_2R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2}R_4 + R_2}{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5} - C_5R_2\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_2}R_4 + R_2}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2}{C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 - C_5C_6R_2}$  Qz: None

Wz: None

## 8.131 X-INVALID-NUMER-131 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_6R_1R_2R_6s + C_3R_1R_2}{C_2C_3C_6R_1R_2R_5s^2 - C_6R_2 + C_6R_5 + s\left(C_2C_6R_2R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2+R_5}}{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1R_2}{C_6R_2-C_6R_5}$ K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  Qz: None

Wz: None

## **8.132** X-INVALID-NUMER-132 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_2C_3C_6R_1R_2s^2 + C_6 + s\left(C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}{C_2R_2+C_3R_1+C_3R_2+C_4R_2-C_5R_2}$  wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}$  bandwidth:  $\frac{C_2R_2+C_3R_1+C_3R_2+C_4R_2-C_5R_2}{C_2C_3R_1R_2}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2C_5R_1R_2}{C_2C_6R_2+C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  Qz: None

Wz: None

# **8.133** X-INVALID-NUMER-133 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{C_2C_3R_1R_2R_5s^2 - R_2 + R_5 + s\left(C_2R_2R_5 + C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5 - C_5R_2R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2+R_5}}{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}-C_5R_2\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}-C_5R_2\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_5}}$ 

K-LP: 0 K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5+C_3R_2R_5+C_4R_2R_5-C_5R_2R_5}$  Qz: None Wz: None

# **8.134** X-INVALID-NUMER-134 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_5s + C_3R_1R_2}{C_2C_3C_6R_1R_2R_5s^2 - C_6R_2 + C_6R_5 + s\left(C_2C_6R_2R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5 - C_5C_6R_2R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2+R_5}}{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}-C_5R_2\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}-C_5R_2\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1R_2}{C_6R_2-C_6R_5}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2}{C_2C_6R_2+C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  Qz: None

Wz: None

# **8.135** X-INVALID-NUMER-135 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{C_2C_3C_6R_1R_2R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_2R_2\sqrt{R_4}\sqrt{R_5+C_3}R_1\sqrt{R_4}\sqrt{R_5+C_3}R_2\sqrt{R_4}\sqrt{R_5+C_4}R_2\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$ 

bandwidth:  $\frac{C_2 R_2 \sqrt{R_4} \sqrt{R_5} + C_3 R_1 \sqrt{R_4} \sqrt{R_5} + C_3 R_2 \sqrt{R_4} \sqrt{R_5} + C_4 R_2 \sqrt{R_4} \sqrt{R_5}}{C_2 C_3 R_1 R_2 \sqrt{R_4} \sqrt{R_5}}$ 

K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  Qz: None

Wz: None

**8.136** X-INVALID-NUMER-136  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_2C_3C_6R_1R_2R_4s^2 + C_6R_2 + C_6R_4 + s\left(C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2+R_4}}{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}+C_4R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}$ wo:  $\frac{\sqrt{R_2+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}+C_3R_1\sqrt{R_4}+C_3R_2\sqrt{R_4}+C_4R_2\sqrt{R_4}-C_5R_2\sqrt{R_4}}{C_2C_3R_1R_2\sqrt{R_4}}$ 

K-LP: 0

K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_3C_5R_1R_2}{C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2}$  Qz: None

Wz: None

**8.137** X-INVALID-NUMER-137  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5s^2 + C_3R_1R_2R_4R_6s}{C_2C_3R_1R_2R_4R_5s^2 - R_2R_4 + R_2R_5 + R_4R_5 + s\left(C_2R_2R_4R_5 + C_3R_1R_4R_5 + C_3R_2R_4R_5 + C_4R_2R_4R_5 - C_5R_2R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2}R_4 + R_2}{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5} + C_4R_2\sqrt{R_4}\sqrt{R_5} - C_5R_2\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2}R_4 + R_2R_5 + R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5} + C_4R_2\sqrt{R_4}\sqrt{R_5} - C_5R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

K-LP: 0 K-L1 .  $\circ$ K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5+C_3R_2R_5+C_4R_2R_5-C_5R_2R_5}$  Qz: None

Wz: None

8.138 X-INVALID-NUMER-138  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{C_2C_3C_6R_1R_2R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2}R_4 + R_2}{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5} + C_4R_2\sqrt{R_4}\sqrt{R_5} - C_5R_2\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_2}R_4 + R_2}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5} + C_4R_2\sqrt{R_4}\sqrt{R_5} - C_5R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

 $\begin{array}{l} \text{K-LP:} -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5} \\ \text{K-HP:} \ 0 \end{array}$ 

K-BP:  $\frac{C_3C_5R_1R_2}{C_2C_6R_2+C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  Qz: None

Wz: None

**8.139** X-INVALID-NUMER-139 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5, R_6 + \frac{1}{C_6s}\right)$$

$$H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_5R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_2R_2R_4R_5+C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5}$  wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5}}$  bandwidth:  $\frac{C_2R_2R_4R_5+C_3R_2R_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_3R_1R_2R_4R_5+C_3R_2R_4R_5}}$  K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$  K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_2R_2R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5}$ 

Qz: None Wz: None

# **8.140** X-INVALID-NUMER-140 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_2R_4 + C_2C_3C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_2R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_2R_4\right)}$$

## Parameters:

 $\text{Q:} \ \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - C_2R_2R_4+C_3R_1R_4+C_3R_2R_3+C_3R_2R_4+C_3R_3R_4-C_5R_2R_4}$ 

 $\text{bandwidth: } \frac{\sqrt{R_2 + R_4}(C_2 R_2 R_4 + C_3 R_1 R_4 + C_3 R_2 R_3 + C_3 R_2 R_4 + C_3 R_3 R_4 - C_5 R_2 R_4) \sqrt{\frac{1}{C_2 C_3 R_1 R_2 R_4 + C_2 C_3 R_2 R_3 R_4 - C_3 C_5 R_2 R_3 R_4}}{C_2 \sqrt{C_3} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_3} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_3} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_3} C_5 \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4} \sqrt{R_2 + R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_4}} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_4} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} \sqrt{$ 

K-LP: 0

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}$ 

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_2C_6R_2R_4+C_3C_6R_1R_4+C_3C_6R_2R_3+C_3C_6R_2R_4+C_3C_6R_3R_4-C_5C_6R_2R_4}$  Qz: None

Wz: None

## **8.141** X-INVALID-NUMER-141 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_2R_4R_5 + C_2C_3R_2R_3R_4R_5 - C_3C_5R_2R_3R_4R_5\right) + s\left(C_2R_2R_4R_5 + C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5\right)}$$

#### Parameters:

$$Q: \underbrace{\frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2$$

 $\frac{\sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5}}(C_2R_2R_4R_5+C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_$ 

K-HP:  $\frac{C_5 R_1 R_6}{C_2 R_1 + C_2 R_3 - C_5 R_3}$ 

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_2R_2R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 - C_5R_2R_4R_5}{\text{Qz: None}}$ 

Wz: None

## **8.142** X-INVALID-NUMER-142 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 - C_3C_5C_6R_2R_3R_4R_5\right) + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_$$

```
\frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3-C_5R_3}}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}}{+C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3-C_5R_3}}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}}-\sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3-C_5R_3}}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1
                                                                                                                                                                                                                                                                                                                                                                                \sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5-C_3C_5R_2R_3R_4R_5}}(C_2R_2R_4R_5+C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5-C_5R_2R_4R_5)
                 \frac{\sqrt{C_2C_3R_1R_2R_4R_5 + C_2C_3R_2R_3R_4R_5 - C_3C_5R_2R_3R_4R_5}}{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1 + C_2R_3 - C_5R_3}} + \frac{R_2R_5}{C_2R_1 + C_2R_3 - C_5R_3}} + \frac{R_4R_5}{C_2R_1 + C_2R_3 - C_5R_3} + \frac{R_2R_5}{C_2R_1 + C_2R_3 - C_5R_3} + \frac{R_4R_5}{C_2R_1 + C_2R_3 - C_5R_3} + \frac{R_
               K-LP: -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}
                 K-HP: 0
                 \begin{array}{l} \text{K-BP:} \ \frac{C_3C_5R_1R_2R_4R_5}{C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_3R_4R_5 - C_5C_6R_2R_4R_5} \\ \text{Qz: None} \end{array} 
                  Wz: None
8.143 X-INVALID-NUMER-143 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                    H(s) = \frac{C_3C_6R_1R_2R_6s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_2R_5 + C_2C_3C_6R_2R_3R_5 + C_3C_4C_6R_2R_3R_5\right) + s\left(C_2C_6R_2R_5 + C_3C_6R_1R_5 - C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_5 + C_3C_6R_
       Parameters:
                 K-HP: 0
                K-BP: \frac{C_3R_1R_2R_6}{C_2R_2R_5 + C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5}
                    Qz: None
                    Wz: None
8.144 X-INVALID-NUMER-144 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s
                                                                                                                                                                                                                                                                                             H(s) = \frac{C_3C_3C_3C_4C_1R_2}{C_6 + s^2\left(C_2C_3C_6R_1R_2 + C_2C_3C_6R_2R_3 + C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3\right) + s\left(C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_2 - C_5C_6R_2\right)}
         Parameters:
                                  \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}-\sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}-C_2R_2+C_3R_1+C_3R_2+C_3R_3+C_4R_2-C_5R_2}
                 Wo: \sqrt{\frac{1}{C_2C_3R_1R_2 + C_2C_3R_2R_3 + C_3C_4R_2R_3 - C_3C_5R_2R_3}}
                                                                                                                                                                                                                                                                      (C_2R_2 + C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 - C_5R_2)\sqrt{\frac{1}{C_2C_3R_1R_2 + C_2C_3R_2}\frac{1}{R_3 + C_3C_4R_2R_3 - C_3C_5R_2}R_3}
               \frac{(2^{2}+3^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6^{3}+6
                 K-LP: 0
             K-HP: \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} K-BP: \frac{C_3C_5R_1R_2}{C_2C_6R_2+C_3C_6R_1+C_3C_6R_2+C_3C_6R_3+C_4C_6R_2-C_5C_6R_2} Qz: None
                  Wz: None
8.145 X-INVALID-NUMER-145 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)
                                                                                                                                                                                                                                          H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^2\left(C_2C_3R_1R_2R_5 + C_2C_3R_2R_3R_5 + C_3C_4R_2R_3R_5 - C_3C_5R_2R_3R_5\right) + s\left(C_2R_2R_5 + C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5 - C_5R_2R_5\right)}
         Parameters:
                                                                                    \frac{-R_2 + R_5}{\sqrt{C_2 C_3 R_1 R_2 R_5 + C_2 C_3 R_2 R_3 R_5 + C_3 C_3 R_2 R_3 + C_3 C_3 R_2 R_3 + C_3 R_2 R_5 + C_3 R_2 R_3 R_5 + C_3 R_2 R_5 + C_3 R_2 R_3 R_5 + C_3 
                 K-LP: 0
```

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}$  K-BP:  $\frac{C_3R_1R_2R_6}{C_2R_2R_5+C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5-C_5R_2R_5}$  Qz: None

Wz: None

## **8.146** X-INVALID-NUMER-146 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$

 $C_3C_5R_1R_2R_5s + C_3R_1R_2$  $H(s) = \frac{C_3C_5R_1R_2R_5s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_2R_5 + C_2C_3C_6R_2R_3R_5 + C_3C_4C_6R_2R_3R_5 - C_3C_5C_6R_2R_3R_5\right) + s\left(C_2C_6R_2R_5 + C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_5 +$ 

### Parameters:

Wo:  $\sqrt{\frac{-R_2+R_5}{C_2C_3R_1R_2R_5+C_2C_3R_2R_3R_5+C_3C_4R_2R_3R_5-C_3C_5R_2R_3R_5}}$ 

 $\frac{-R_2 + R_5}{\sqrt{C_2 C_3 R_1 R_2 R_5 + C_2 C_3 R_2 R_3 + C_3 C_5 R_2 R_3 F_5}} (C_2 R_2 R_5 + C_3 R_1 R_5 - C_3 R_2 R_3 + C_3 R_2 R_5 + C_3 R_3 R_5 + C_4 R_2 R_5 - C_5 R_2 R_5)}{C_2 \sqrt{C_3} R_1 \sqrt{R_2} \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_$ 

K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_5}{C_2C_6R_2R_5+C_3C_6R_1R_5-C_3C_6R_2R_3+C_3C_6R_2R_5+C_3C_6R_3R_5+C_4C_6R_2R_5-C_5C_6R_2R_5}$  Qz: None

Wz: None

## **8.147** X-INVALID-NUMER-147 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$

 $C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4$  $H(s) = \frac{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_3R_4 + C_3C_6R$ 

## Parameters:

wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5+C_3C_4R_2R_3R_4R_5}}$ bandwidth:  $\frac{C_2R_2R_4R_5+C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3}{\sqrt{C_3\sqrt{R_2\sqrt{R_4\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_4}}}}$ K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$ K-HP: 0

 $\text{K-BP: } \frac{C_3R_1R_2R_4R_6}{C_2R_2R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 + C_4R_2R_4R_5}{C_2R_2R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 + C_4R_2R_4R_5}$ 

Qz: None Wz: None

## **8.148** X-INVALID-NUMER-148 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

 $C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s$  $H(s) = \frac{C_3C_5C_6R_1R_2C_4C_6C_7 + C_3C_5C_6R_2R_3R_4 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4) + s\left(C_2C_6R_2R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6$ 

#### Parameters:

 $\text{Q:} \begin{array}{c} \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ & - C_2R_2R_4+C_3R_1R_4+C_3R_2R_3+C_4R_3-C_5R_3 + C_4R_3-C_5R_3 + C_4R_3-C_$ 

wo:  $\sqrt{R_2 + R_4} \sqrt{\frac{1}{C_2 C_3 R_1} \frac{1}{R_2 R_4 + C_2 C_3 R_2 R_3 R_4 + C_3 C_4 R_2 R_3 R_4 - C_3 C_5 R_2 R_3 R_4}}$ 

 $\sqrt{R_2 + R_4} (C_2 R_2 R_4 + C_3 R_1 R_4 + C_3 R_2 R_3 + C_3 R_2 R_4 + C_3 R_3 R_4 + C_4 R_2 R_4 - C_5 R_2 R_4) \sqrt{\frac{1}{C_2 C_3 R_1 R_2 R_4 + C_2 C_3 R_2 R_3 R_4 + C_3 C_4 R_2 R_3 R_4 - C_3 C_5 R_2 R_3 R_4}}$ 

K-LP: 0

K-HP:  $\frac{C_5 R_1 R_6}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_3C_5R_1R_2R_4}{C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_3R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4} \\ \end{array}$ 

Qz: None Wz: None

```
8.149 X-INVALID-NUMER-149 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)
```

 $C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s$  $H(s) = \frac{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_2R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_3C_4R_2R_3R_4R_5 - C_3C_5R_2R_3R_4R_5 + C_3R_2R_4R_5 + C_3R_2R_3R_4 + C_3R_2R_3R_4$ 

### Parameters:

 $\frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+\frac{R_2R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}{+\frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+\frac{R_2R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}$  $\sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5+C_3C_4R_2R_3R_4R_5-C_3C_5R_2R_3R_4R_5}}(C_2R_2R_4R_5+C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5)$  $\frac{\sqrt{\sqrt{c_2 c_3 n_1 n_2 n_4 n_5 + c_2 c_3 n_2 n_3 n_4 n_5 + c_2 n_3 n_4 n_5 + c_2 n_3 n_4 n_5 + c_2 n_4 n_$ K-LP: 0

K-HP:  $\frac{C_5 R_1 R_6}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_3R_1R_2R_4R_6}{C_2R_2R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 + C_4R_2R_4R_5 - C_5R_2R_4R_5} \\ \end{array}$ 

Wz: None

# **8.150** X-INVALID-NUMER-150 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$

 $C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4$  $\overline{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_$ 

### Parameters:

 $O: \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_2R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R$ wo:  $\sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5+C_3C_4R_2R_3R_4R_5-C_3C_5R_2R_3R_4R_5}}$  $\frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{C_{2}C_{3}R_{1}R_{2}R_{4}+R_{5}+C_{3}C_{2}R_{2}R_{3}R_{4}+F_{5}+C_{3}C_{2}R_{3}R_{4}+F_{5}+C_{3}R_{2}R_{3}R_{4}+F_{5}+C_{3}R_{2}R_{3}R_{4}+F_{5}+C_{3}R_{2}R_{3}R_{4}+F_{5}+C_{3}R_{2}R_{3}R_{4}+F_{5}+C_{3}R_{2}R_{3}R_{4}+F_{5}+C_{3}R_{2}R_{4}R_{5}+C_{3}R_{4}R_{5}+C_{3}R_{4}R_{5}+C_{4}R_{4}R_{5}+C_{4}R_{4}R_{5}+C_{4}R_{4}R_{5}+C_{4}R_{4}R_{5}+C_{4}R_{4}R_{5}+C_{4}R_{4}$ 

 $\begin{array}{l} \text{K-LP:} -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5} \\ \text{K-HP:} \ 0 \end{array}$ 

 $\text{K-BP:} \ \frac{C_3C_5R_1R_2R_4R_5}{C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_3R_4R_5 + C_4C_6R_2R_4R_5 - C_5C_6R_2R_4R_5} \\ \text{Qz: None}$ 

Wz: None

## **8.151** X-INVALID-NUMER-151 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5, R_6\right)$

 $C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6$  $H(s) = \frac{1}{C_2C_3R_1R_2R_3R_4R_5s^2 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s\left(C_2R_1R_2R_4R_5 + C_2R_2R_3R_4R_5 + C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1R_4R_5} - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{C_2R_1R_2\sqrt{R_4}\sqrt{R_5} + C_2R_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_1R_3\sqrt{R_4}\sqrt{R_5} + C_3R_2R_3\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{R_1R_4R_5} - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_1R_2\sqrt{R_4}\sqrt{R_5} + C_2R_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_1R_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2R_3\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_3R_6}{C_2R_1R_2R_5 + C_2R_2R_3R_5 + C_3R_1R_3R_5 + C_3R_2R_3R_5}$ 

Qz: None Wz: None

# **8.152** X-INVALID-NUMER-152 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, R_6\right)$

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{C_2C_3R_1R_2R_3R_4s^2 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s\left(C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4\right)}$ 

```
Q: \frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}{C_2R_1R_2\sqrt{R_4} + C_2R_2R_3\sqrt{R_4} + C_3R_1R_3\sqrt{R_4} + C_3R_2R_3\sqrt{R_4} - C_5R_2R_3\sqrt{R_4}} wo: \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}} bandwidth: \frac{C_2R_1R_2\sqrt{R_4} + C_2R_2R_3\sqrt{R_4} + C_3R_1R_3\sqrt{R_4} + C_3R_2R_3\sqrt{R_4} - C_5R_2R_3\sqrt{R_4}}{C_2C_3R_1R_2R_3\sqrt{R_4}}
 K-LP: 0
 K-HP: \frac{C_5 R_6}{C_2}
 K-BP: \frac{C_2}{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3-C_5R_2R_3}Qz: None
 Wz: None
```

## **8.153** X-INVALID-NUMER-153 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$

 $C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4$  $H(s) = \frac{C_3C_5R_1R_2R_3R_4s^2 + C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_2C_6R_1R_2R_4 + C_2C_6R_2R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_3R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_5R_5 + C_5C_6R_5R_5$ 

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}{C_2R_1R_2\sqrt{R_4} + C_2R_2R_3\sqrt{R_4} + C_3R_1R_3\sqrt{R_4} + C_3R_2R_3\sqrt{R_4} - C_5R_2R_3\sqrt{R_4}}$ wo:  $\frac{\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ bandwidth:  $\frac{C_2R_1R_2\sqrt{R_4} + C_2R_2R_3\sqrt{R_4} + C_3R_1R_3\sqrt{R_4} + C_3R_2R_3\sqrt{R_4} - C_5R_2R_3\sqrt{R_4}}{C_2C_3R_1R_2R_3\sqrt{R_4}}$ K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ K-HP: 0 K-BP:  $\frac{C_3C_5R_1R_2R_3}{C_2C_6R_1R_2+C_2C_6R_2R_3+C_3C_6R_1R_3+C_3C_6R_2R_3-C_5C_6R_2R_3}$  Qz: None Wz: None

**8.154** X-INVALID-NUMER-154  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3R_1R_2R_3R_6s + R_1R_2R_6}{C_2C_3R_1R_2R_3R_5s^2 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s\left(C_2R_1R_2R_5 + C_2R_2R_3R_5 + C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_5\right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{C_2R_1R_2\sqrt{R_5}+C_2R_2R_3+R_3R_5}$  wo:  $\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_1R_2\sqrt{R_5}+C_2R_2R_3\sqrt{R_5}+C_3R_1R_3\sqrt{R_5}+C_3R_2R_3\sqrt{R_5}}{C_3C_3R_3R_3R_3\sqrt{R_5}+C_3R_2R_3\sqrt{R_5}}$ K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$ K-HP: 0 K-BP:  $\frac{C_3R_1R_2R_3R_6}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_2R_3R_5}$  Qz: None Wz: None

**8.155** X-INVALID-NUMER-155  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{C_2C_3R_1R_2R_3s^2 + R_1 + R_2 + R_3 + s\left(C_2R_1R_2 + C_2R_2R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 - C_5R_2R_3\right)}$ 

## Parameters:

Wz: None

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}}{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}$  wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}}$  bandwidth:  $\frac{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}{C_2C_3R_1R_2R_3}$ K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ K-BP:  $\frac{C_2}{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3} \\ \text{Qz: None}$ 

**8.156** X-INVALID-NUMER-156 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_3s + C_5R_1R_2}{C_2C_3C_6R_1R_2R_3s^2 + C_6R_1 + C_6R_2 + C_6R_3 + s\left(C_2C_6R_1R_2 + C_2C_6R_2R_3 + C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_4C_6R_2R_3 - C_5C_6R_2R_3\right)}$$

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}}{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}$  wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}}$  bandwidth:  $\frac{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}{C_2C_3R_1R_2R_3}$ 

K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_3}{C_2C_6R_1R_2+C_2C_6R_2R_3+C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3-C_5C_6R_2R_3}$  Qz: None

Wz: None

# **8.157** X-INVALID-NUMER-157 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, R_6\right)$

$$H(s) = \frac{C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6}{C_2C_3R_1R_2R_3R_4R_5s^2 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s\left(C_2R_1R_2R_4R_5 + C_2R_2R_3R_4R_5 + C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 + C_4R_2R_3R_4R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1}R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{C_2R_1R_2\sqrt{R_4}\sqrt{R_5} + C_2R_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_1R_3\sqrt{R_4}\sqrt{R_5} + C_3R_2R_3\sqrt{R_4}\sqrt{R_5} + C_4R_2R_3\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{R_1R_4R_5} - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_1R_2\sqrt{R_4}\sqrt{R_5} + C_2R_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_1R_3\sqrt{R_4}\sqrt{R_5} + C_3R_2R_3\sqrt{R_4}\sqrt{R_5} + C_4R_2R_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2R_3\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$  K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_3R_6}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_2R_3R_5}$  Qz: None

Wz: None

## **8.158** X-INVALID-NUMER-158 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{C_2C_3R_1R_2R_3R_4s^2 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s\left(C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}{C_2R_1R_2\sqrt{R_4} + C_2R_2R_3\sqrt{R_4} + C_3R_1R_3\sqrt{R_4} + C_3R_2R_3\sqrt{R_4} + C_4R_2R_3\sqrt{R_4} - C_5R_2R_3\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{C_2R_1R_2\sqrt{R_4} + C_2R_2R_3\sqrt{R_4} + C_3R_1R_3\sqrt{R_4} + C_3R_2R_3\sqrt{R_4} + C_4R_2R_3\sqrt{R_4} - C_5R_2R_3\sqrt{R_4}}{C_2C_3R_1R_2R_3\sqrt{R_4}}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_5R_1R_2R_6}{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}$  Qz: None

Wz: None

# **8.159** X-INVALID-NUMER-159 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4}{C_2C_3C_6R_1R_2R_3R_4s^2 + C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_2C_6R_1R_2R_4 + C_2C_6R_2R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1R_4}+R_2R_3+R_2R_4+R_3R_4}{C_2R_1R_2\sqrt{R_4}+C_2R_2R_3\sqrt{R_4}+C_3R_1R_3\sqrt{R_4}+C_3R_2R_3\sqrt{R_4}+C_4R_2R_3\sqrt{R_4}-C_5R_2R_3\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ 

```
bandwidth: \frac{C_2R_1R_2\sqrt{R_4}+C_2R_2R_3\sqrt{R_4}+C_3R_1R_3\sqrt{R_4}+C_3R_2R_3\sqrt{R_4}+C_4R_2R_3\sqrt{R_4}-C_5R_2R_3\sqrt{R_4}}{C_2C_3R_1R_2R_3\sqrt{R_4}}
K-LP: \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}
K-HP: 0
```

K-BP:  $\frac{C_3C_5R_1R_2R_3}{C_2C_6R_1R_2+C_2C_6R_2R_3+C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3-C_5C_6R_2R_3}$  Qz: None

Wz: None

## **8.160** X-INVALID-NUMER-160 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_5C_6R_2R_4R_6s + C_5R_2R_4}{-C_1C_5C_6R_2R_3R_4s^2 + C_6R_4 + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4\right)}$$

### Parameters:

Q:  $-\frac{i\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}R_4}{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}$ 

wo:  $\frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}$ bandwidth:  $-\frac{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}{\sqrt{C_1}C_5R_2R_3R_4}$ 

K-LP:  $\frac{C_5R_2}{C_6}$ K-HP: 0

K-BP:  $\frac{C_5 R_2 R_4 R_6}{C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4}$ 

Qz: None Wz: None

# **8.161** X-INVALID-NUMER-161 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_5C_6R_2R_4R_6s + C_5R_2R_4}{C_6R_4 + s^2\left(-C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_5 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_3R_4R_5\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_5C_6R_4R_5\right)}$$

### Parameters:

$$Q: \frac{-\sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}^{\frac{3}{2}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}\sqrt{R_{4}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_$$

 $\sqrt{R_4}\sqrt{-\tfrac{1}{C_1C_5R_2R_3R_4-C_1C_5R_2R_3R_5-C_1C_5R_2R_4R_5-C_1C_5R_3R_4R_5}}(C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_5R_4R_5)$  $-\sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}^{\frac{3}{2}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}\sqrt{R_{4}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4$ 

K-LP:  $\frac{C_5R_2}{C_6}$ K-HP: 0

K-BP:  $\frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_5R_4R_5}$  Qz: None

Wz: None

## **8.162** X-INVALID-NUMER-162 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_5 R_2 R_4 R_5 R_6 s + R_2 R_4 R_6}{-C_1 C_5 R_2 R_3 R_4 R_5 s^2 + R_4 R_5 + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5\right)}$$

### Parameters:

Q: 
$$\frac{i\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}R_4R_5}{\sqrt{C_1}R_2R_3R_4 - \sqrt{C_1}R_2R_3R_5 - \sqrt{C_1}R_2R_4R_5 - \sqrt{C_1}R_3R_4R_5}$$

wo:  $\frac{i}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}$ bandwidth:  $\frac{\sqrt{C_1}R_2R_3R_4 - \sqrt{C_1}R_2R_3R_5 - \sqrt{C_1}R_2R_4R_5 - \sqrt{C_1}R_3R_4R_5}{\sqrt{C_1}C_5R_2R_3R_4R_5}$ 

K-LP:  $\frac{R_2R_6}{R_5}$ K-HP: 0

K-BP:  $-\frac{C_5R_2R_4R_5R_6}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5}$ 

Qz: None Wz: None

**8.163** X-INVALID-NUMER-163 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 C_6 R_2 R_6 s + C_5 R_2}{C_6 + s^2 \left(C_1 C_4 C_6 R_2 R_3 - C_1 C_5 C_6 R_2 R_3\right) + s \left(C_1 C_6 R_2 + C_1 C_6 R_3\right)}$$

$$\begin{array}{l} Q\colon \frac{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_2+\sqrt{C_1}R_3} \\ \text{wo: } \sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{\left(\sqrt{C_1}R_2+\sqrt{C_1}R_3\right)\sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}} \\ \text{K-LP: } \frac{C_5R_2}{C_6} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_5R_2R_6}{C_1R_2+C_1R_3} \\ \text{Qz: None} \\ \text{Wz: None} \end{array}$$

# **8.164** X-INVALID-NUMER-164 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_5 R_2 R_5 R_6 s + R_2 R_6}{R_5 + s^2 \left( C_1 C_4 R_2 R_3 R_5 - C_1 C_5 R_2 R_3 R_5 \right) + s \left( -C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 \right)}$$

### Parameters:

## **8.165** X-INVALID-NUMER-165 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_4 R_2 R_4 R_6 s + R_2 R_6}{R_5 + s^2 \left(-C_1 C_4 R_2 R_3 R_4 + C_1 C_4 R_2 R_3 R_5 + C_1 C_4 R_2 R_4 R_5 + C_1 C_4 R_3 R_4 R_5\right) + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_4 R_4 R_5\right)}$$

$$Q \colon \frac{\sqrt{C_1}\sqrt{C_4}R_2R_3R_4\sqrt{R_5}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_2R_3R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_2R_3R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+C_1C_4R_2R_4R_5-C_1C_4R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_2R_3R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}$$

**8.166** X-INVALID-NUMER-166 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_2R_4R_6s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4\right)}$$

$$\begin{array}{l} Q\colon \frac{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}\\ \text{wo: } \sqrt{\frac{1}{C_1C_4R_2}R_3-C_1C_5R_2R_3}\\ \text{bandwidth: } \frac{\left(\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4\right)\sqrt{\frac{1}{C_1C_4R_2}\frac{1}{R_3}-C_1C_5R_2R_3}}{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: } \frac{C_5R_2}{C_6}\\ \text{K-HP: } 0\\ \text{K-BP: } \frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

# 8.167 X-INVALID-NUMER-167 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_5 R_2 R_4 R_5 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^2 \left(C_1 C_4 R_2 R_3 R_4 R_5 - C_1 C_5 R_2 R_3 R_4 R_5\right) + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5\right)}$$

### Parameters:

$$\begin{array}{l} Q\colon \frac{-C_4\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_4-C_5}} + C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_2R_3R_4-\sqrt{C_1}R_2R_3R_5-\sqrt{C_1}R_2R_4R_5-\sqrt{C_1}R_3R_4R_5} \\ \text{wo: } \sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{\left(\sqrt{C_1}R_2R_3R_4-\sqrt{C_1}R_2R_3R_5-\sqrt{C_1}R_2R_4R_5-\sqrt{C_1}R_3R_4R_5\right)\sqrt{\frac{1}{C_1C_4R_2R_3}-C_1C_5R_2R_3}}{-C_4\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_4-C_5}} + C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_4-C_5}}} \\ \text{K-LP: } \frac{R_2R_6}{R_5} \\ \text{K-HP: 0} \\ \text{K-BP: } -\frac{C_5R_2R_4R_5R_6}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5}} \\ \text{Qz: None} \\ \text{Wz: None} \end{array}$$

**8.168** X-INVALID-NUMER-168  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_3C_5C_6R_2R_4R_5s^2 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_4R_5 + C_3C_5C_6R_4R_5\right)}$$

## Parameters:

**8.169** X-INVALID-NUMER-169  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_3C_6R_2R_4R_5R_6 - C_1C_5C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_2R_4R_5 - C_1C_5R_2R_4R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_4R_5R_6\right)}$$

```
\frac{\sqrt{C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_3-C_5}+\frac{C_1R_2R_5}{C_3-C_5}+\frac{C_1R_4R_5}{C_3-C_5}+\frac{C_3R_4R_5}{C_3-C_5}-\sqrt{C_1}C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_3-C_5}+\frac{C_1R_2R_5}{C_3-C_5}+\frac{C_1R_4R_5}{C_3-C_5}+\frac{C_3R_4R_5}{C_3-C_5}+\frac{C_3R_4R_5}{C_3-C_5}+\frac{C_3R_4R_5}{C_3-C_5}+\frac{C_3R_4R_5}{C_3-C_5}+\frac{C_3R_4R_5}{C_3-C_5}}{C_1C_3R_2R_4R_5-C_1C_5R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_4R_5R_6}
                                                                         \sqrt{\frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_3C_6R_2R_4R_5R_6-C_1C_5C_6R_2R_4R_5R_6}}(C_1C_3R_2R_4R_5-C_1C_5R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_4R_5R_6)
                                                       \frac{\sqrt{C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_2-C_5}+\frac{C_1R_4R_5}{C_2-C_5}+\frac{C_3R_4R_5}{C_2-C_5}-\sqrt{C_1}C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_2-C_5}+\frac{C_1R_4R_5}{C_2-C_5}+\frac{C_3R_4R_5}{C_2-C_5}} + \frac{C_3R_4R_5}{C_2-C_5}}{\sqrt{C_1C_5\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_2-C_5}+\frac{C_1R_4R_5}{C_2-C_5}+\frac{C_3R_4R_5}{C_2-C_5}}} + \frac{C_3R_4R_5}{C_2-C_5}
          K-LP: -\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}
           K-HP: 0
          K-BP: \frac{C_3C_5R_2R_4R_5R_6}{C_1C_3R_2R_4R_5-C_1C_5R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_4R_5R_6} Qz: None
           Wz: None
8.170 X-INVALID-NUMER-170 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                             H(s) = \frac{C_3C_5C_6R_2R_6s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5\right) + s\left(C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_3C_5C_6R_5\right)}
    Parameters:
      wo: \frac{\sqrt{C_1 + C_2} - C_1 C_5 R_2 + C_1 C_5 R_5 + \overline{C_3 C_5 R_5}}{\sqrt{C_1 + C_3}}
wo: \frac{\sqrt{C_1 + C_3}}{\sqrt{C_1 C_3 C_5 R_2 R_5 + C_1 C_4 C_5 R_2 R_5}}
bandwidth: \frac{C_1 C_3 R_2 + C_1 C_4 R_2 - C_1 C_5 R_2 + C_1 C_5 R_5 + C_3 C_5 R_5}{\sqrt{C_1 \sqrt{C_5}} \sqrt{R_2} \sqrt{R_5} \sqrt{C_3 + C_4} \sqrt{C_1 C_3 C_5 R_2 R_5 + C_1 C_4 C_5 R_5}}
K-LP: \frac{C_3 C_5 R_2}{C_1 C_6 + C_3 C_6}
K-HP: 0
          K-BP: \frac{C_3C_5R_2R_6}{C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}
            Qz: None
            Wz: None
8.171 X-INVALID-NUMER-171 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                    C_3C_5R_2R_5R_6s + C_3R_2R_6
                                                                                                                                   H(s) = \frac{C_3C_5R_2R_5R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_6R_2R_5R_6 + C_1C_4C_6R_2R_5R_6 - C_1C_5C_6R_2R_5R_6\right) + s\left(C_1C_3R_2R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5 - C_1C_6R_2R_6 + C_1C_6R_5R_6 + C_3C_6R_5R_6\right)}
     Parameters:
           \text{bandwidth: } \frac{\frac{-C_1R_2+C_1R_5+C_3R_5}{\sqrt{C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2}{C_3+C_4-C_5}}+\frac{C_1R_5}{C_3R_5}+C_1C_5C_6R_2R_5R_6}}(C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_5R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_3C_6R_5R_6})}{\sqrt{C_1C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4-C_5}+\frac{C_1R_5}{C_3+C_4
         K-LP: -\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}
K-HP: 0
          K-BP: \frac{C_3C_5R_2R_5R_6}{C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_5R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_3C_6R_5R_6} Qz: None
           Wz: None
8.172 X-INVALID-NUMER-172 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
                                                                                                                                                                                                                                  H(s) = \frac{C_3C_4R_2R_4R_6s + C_3R_2R_6}{C_1C_3C_4R_2R_4R_5s^2 - C_1R_2 + C_1R_5 + C_3R_5 + s\left(C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 + C_3C_4R_4R_5\right)}
     Parameters:
          Q: \frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{C_1C_3R_2R_5-C_1C_4R_2R_4+C_1C_4R_2R_5+C_1C_4R_4R_5+C_3C_4R_4R_5} wo: \frac{\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}} bandwidth: \frac{C_1C_3R_2R_5-C_1C_4R_2R_4+C_1C_4R_2R_5+C_1C_4R_4R_5+C_3C_4R_4R_5}{C_1C_3C_4R_2R_4R_5}
```

K-LP:  $-\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}$ 

K-BP:  $\frac{C_3C_4R_2R_4R_6}{C_1C_3R_2R_5-C_1C_4R_2R_4+C_1C_4R_2R_5+C_1C_4R_4R_5+C_3C_4R_4R_5}$ 

Qz: None Wz: None

## **8.173** X-INVALID-NUMER-173 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_3C_4R_2R_4 - C_1C_4C_5R_2R_4\right) + s\left(C_1C_3R_2 + C_1C_4R_2 + C_1C_4R_4 - C_1C_5R_2 + C_3C_4R_4\right)}$$

#### Parameters:

 $Q \colon \frac{\sqrt{C_1}C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}} - \sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}}}{C_1C_3R_2+C_1C_4R_2+C_1C_4R_4-C_1C_5R_2+C_3C_4R_4} \\ \text{wo: } \sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_3C_4R_2R_4-C_1C_4C_5R_2R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1+C_3}(C_1C_3R_2+C_1C_4R_2+C_1C_4R_4-C_1C_5R_2+C_3C_4R_4)\sqrt{\frac{1}{C_1C_3C_4R_2R_4}-\frac{1}{C_1C_4C_5R_2R_4}}}{\sqrt{C_1}C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}} - \sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}}}} \\ \text{K-LP: 0} \\ \text{K-HP: } \frac{C_3C_5R_6}{C_1C_3-C_1C_5} \\ \text{K-BP: } \frac{C_3C_5R_6}{C_1C_3R_2+C_1C_4R_2+C_1C_4R_4-C_1C_5R_2+C_3C_4R_4}}{C_1C_4R_4-C_1C_5R_2+C_3C_4R_4}} \\ \text{Qz: None} \\ \text{Wz: None}$ 

# 8.174 X-INVALID-NUMER-174 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_4C_5R_2R_4s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_4 - C_1C_4C_5C_6R_2R_4\right) + s\left(C_1C_3C_6R_2 + C_1C_4C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_3C_4C_6R_4\right)}$$

#### Parameters:

$$Q \colon \frac{\sqrt{C_1}C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}} - \sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}}}{C_1C_3R_2+C_1C_4R_2+C_1C_4R_4-C_1C_5R_2+C_3C_4R_4} \\ \text{wo: } \sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_3C_4R_2R_4-C_1C_4C_5R_2R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1+C_3}(C_1C_3R_2+C_1C_4R_2+C_1C_4R_4-C_1C_5R_2+C_3C_4R_4)\sqrt{\frac{1}{C_1C_3C_4R_2R_4}-\frac{1}{C_1C_4C_5R_2R_4}}}{\sqrt{C_1}C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}} - \sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}}}} \\ \text{K-LP: } \frac{C_3C_5R_2}{C_1C_6+C_3C_6} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_3C_4C_5R_2R_4}{C_1C_3C_6R_2+C_1C_4C_6R_4-C_1C_5C_6R_2+C_3C_4C_6R_4}} \\ \text{Qz: None} \\ \text{Wz: None}$$

# **8.175** X-INVALID-NUMER-175 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4R_5\right) + s\left(C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_4R_5 + C_3C_5C_6R_4R_5\right)}$$

### Parameters:

```
8.176 X-INVALID-NUMER-176 Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}
```

 $C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6$ 

 $H(s) = \frac{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_4C_6R_2R_4R_5R_6 + C_1C_5C_6R_2R_4R_5 + C_1C_4R_2R_4R_5 + C_1C_5R_2R_4R_5 + C_1C_5R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_5R_5 + C_1C_6R_5$ 

## Parameters:

 $\frac{-C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}{\sqrt{C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{C_{3}+C_{4}-C_{5}}+\frac{C_{1}R_{4}R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{C_{1}R_{4}R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{C_{1}R_{4}R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{C_{1}R_{2}R_{4}}{C_{3}+C_{4}-C_{5}}+\frac{C_{1}R_{2}R_{4}}{C_{3}+C_{4}-C_{5}}+\frac{C_{1}R_{2}R_{4}}{C_{3}+C_{4}-C_{5}}+\frac{C_{1}R_{4}R_{5}}{C_$ 

 $\frac{C_3C_5R_2R_4R_5R_6}{C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_4R_5R_6 + C_3C_6R_4R_5R_6}$ 

Qz: None

Wz: None

## **8.177** X-INVALID-NUMER-177 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4$  $H(s) = \frac{C_3C_5C_6R_2R_3R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_2R_4\right)}{-C_1C_3C_5C_6R_2R_3R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_2R_4\right)}$ 

#### **Parameters:**

Q:  $-\frac{i\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1}R_2 + C_1R_4 + C_3R_4}{\sqrt{C_1}C_3R_2R_3 + \sqrt{C_1}C_3R_2R_4 + \sqrt{C_1}C_3R_3R_4 - \sqrt{C_1}C_5R_2R_4}$ 

bandwidth:  $\frac{i\sqrt{-C_1R_2-C_1R_4-C_3R_4}\Big(\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4-\sqrt{C_1}C_5R_2R_4\Big)}{\sqrt{C_1C_3R_2R_4}}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4}$ 

Qz: None

Wz: None

# **8.178** X-INVALID-NUMER-178 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4$ 

 $H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(-C_1C_3C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R$ 

#### **Parameters:**

 $-\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{2}R_{3}R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{2}R_{3}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{2}R_{3}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}{R_{3}}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{3}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{4}R_{5}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{4}R_{5}\sqrt{C_{1}R_{4}+C_{1}R_{4}+C_{3}R_{4}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{4}R_{5}\sqrt{C_{1}R_{4}+C_{1}R_{4}+C_{3}R_{4}}}+\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}R_{4}R_{5}\sqrt{C_{1}R_{4}+C_{1}R_{4}+C_{3}R_$ 

 $\frac{-C_1R_2 - C_1R_4 - C_3R_4}{C_1C_3C_5R_2R_3R_4 - C_1C_3C_5R_2R_3R_5 - C_1C_3C_5R_2R_4R_5 - C_1C_3C_5R_3R_4R_5}$ 

 $\sqrt{\frac{-C_1R_2-C_1R_4-C_3R_4}{C_1C_3C_5R_2R_3R_4-C_1C_3C_5R_2R_3R_5-C_1C_3C_5R_2R_4R_5-C_1C_3C_5R_3R_4R_5}}(C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5)$  $\frac{\sqrt{C_1C_3C_5R_2R_3R_4 - C_1C_3C_5R_2R_3R_4 - C_1C_3C_5R_2R_4R_5 - C_1C_3C_5R_4R_5 - C_1C_3C_5R_4$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}$  Qz: None

Wz: None

## **8.179** X-INVALID-NUMER-179 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1C_3C_5R_2R_3R_4R_5s^2 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(-C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_3R_4R_5 - C_1C_5R_2R_4R_5\right)}$ 

```
\begin{array}{l} Q\colon \frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1}R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}{\sqrt{C_1}C_3R_2R_3R_4-\sqrt{C_1}C_3R_2R_3R_5-\sqrt{C_1}C_3R_2R_4R_5-\sqrt{C_1}C_3R_3R_4R_5+\sqrt{C_1}C_5R_2R_4R_5}\\ \text{wo: } \frac{\sqrt{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}\\ \text{bandwidth: } \frac{\sqrt{C_1C_3R_2R_3R_4-\sqrt{C_1}C_3R_2R_3R_5-\sqrt{C_1}C_3R_2R_4R_5-\sqrt{C_1}C_3R_3R_4R_5+\sqrt{C_1}C_5R_2R_4R_5}}{\sqrt{C_1}C_3C_5R_2R_3R_4R_5}\\ \text{K-LP: } -\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}\\ \text{K-HP: } 0\\ \text{K-BP: } -\frac{C_3C_5R_2R_4R_6R_6}{C_1C_3R_2R_3R_4-C_1C_3R_2R_3R_5-C_1C_3R_2R_4R_5-C_1C_3R_3R_4R_5+C_1C_5R_2R_4R_5}\\ \text{Qz: None} \end{array}
```

**8.180** X-INVALID-NUMER-180  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_6s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3\right) + s\left(C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2\right)}$$

### Parameters:

Wz: None

$$Q \colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_2 + \sqrt{C_1}C_3R_3 + \sqrt{C_1}C_4R_2 - \sqrt{C_1}C_5R_2} \\ \text{wo: } \sqrt{C_1} + C_3\sqrt{\frac{1}{C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3}} \\ \text{bandwidth: } \frac{\sqrt{C_1+C_3}\left(\sqrt{C_1}C_3R_2 + \sqrt{C_1}C_3R_3 + \sqrt{C_1}C_4R_2 - \sqrt{C_1}C_5R_2\right)\sqrt{\frac{1}{C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}} \\ \text{K-LP: } \frac{C_3C_5R_2}{C_1C_6 + C_3C_6} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_3C_5R_2R_6}{C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2}} \\ \text{Qz: None} \\ \text{Wz: None}$$

8.181 X-INVALID-NUMER-181  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_5R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_2R_3R_5 - C_1C_3C_5R_2R_3R_5\right) + s\left(-C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5\right)}$$

### Parameters:

$$\begin{array}{l} Q\colon \frac{-\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_4-C_5}+\frac{C_1R_5}{C_4-C_5}+\frac{C_3R_5}{C_4-C_5}}+\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_4-C_5}+\frac{C_1R_5}{C_4-C_5}+\frac{C_3R_5}{C_4-C_5}}}{\sqrt{C_1}C_3R_2R_3-\sqrt{C_1}C_3R_2R_5-\sqrt{C_1}C_3R_3R_5-\sqrt{C_1}C_4R_2R_5+\sqrt{C_1}C_5R_2R_5}}\\ \text{wo: } \sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_3C_4R_2R_3R_5-C_1C_3C_5R_2R_3R_5}}\\ \text{bandwidth: } \frac{\sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_3C_4R_2R_3R_5-C_1C_3C_5R_2R_3R_5}}\left(\sqrt{C_1}C_3R_2R_3-\sqrt{C_1}C_3R_2R_5-\sqrt{C_1}C_3R_3R_5-\sqrt{C_1}C_4R_2R_5+\sqrt{C_1}C_5R_2R_5}\right)}{-\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_4-C_5}+\frac{C_1R_5}{C_4-C_5}+\frac{C_3R_5}{C_4-C_5}}}+\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_4-C_5}+\frac{C_1R_5}{C_4-C_5}+\frac{C_3R_5}{C_4-C_5}}}\\ \text{K-LP: } -\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}\\ \text{K-HP: 0} \\ \text{K-BP: } -\frac{C_3C_5R_2R_5R_6}{C_1C_3R_2R_3-C_1C_3R_2R_5-C_1C_3R_3R_5-C_1C_4R_2R_5+C_1C_5R_2R_5}}\\ \text{Qz: None} \\ \text{Wz: None} \end{array}$$

**8.182** X-INVALID-NUMER-182  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3C_4R_2R_4R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(-C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_5 + C_1C_3C_4R_2R_4R_5\right) + s\left(-C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 + C_3C_4R_4R_5\right)}$$

### Parameters:

 $Q: \frac{\sqrt{C_{1}\sqrt{C_{3}}\sqrt{C_{4}}R_{2}R_{3}R_{4}}\sqrt{-\frac{C_{1}R_{2}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}{C_{1}C_{3}C_{4}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} - \sqrt{C_{1}\sqrt{C_{3}}\sqrt{C_{4}}R_{2}R_{3}R_{5}} - \sqrt{C_{1}\sqrt{C_{3}}\sqrt{C_{4}}R_{2}R_{3}R_{5}}} - \sqrt{C_{1}\sqrt{C_{3}}\sqrt{C_{4}}R_{2}R_{3}R_{5}}} - \sqrt{C_{1}\sqrt{C_{3}}\sqrt{C_{4}}R_{2}R_{3}R_{5}}} - \sqrt{C_{1}\sqrt{C_{3}}\sqrt{C_{4}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} - \sqrt{C_{1}\sqrt{C_{3}}\sqrt{C_{4}}R_{2}R_{3}R_{5}}} - \sqrt{C_{1}\sqrt{C_{$ 

```
K-HP: 0
```

 $\text{K-BP:} - \frac{C_3C_4R_2R_4R_6}{C_1C_3R_2R_3 - C_1C_3R_2R_5 - C_1C_3R_3R_5 + C_1C_4R_2R_4 - C_1C_4R_2R_5 - C_1C_4R_4R_5 - C_3C_4R_4R_5}$ 

Qz: None

Wz: None

# **8.183** X-INVALID-NUMER-183 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_4C_6R_2R_3R_4 - C_1C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$ 

#### Parameters:

 $Q \colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4+\sqrt{C_1}C_4}R_2R_4-\sqrt{C_1}C_5R_2R_4} \\ \text{wo: } \sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4-C_1C_3C_5R_2R_3R_4}}$ 

 $\text{bandwidth: } \frac{\sqrt{C_1R_2 + C_1R_3 + C_1C_3C_4R_2R_3R_4} - C_1C_3C_5R_2R_3R_4}{\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \left(\sqrt{C_1C_3R_2R_3 + \sqrt{C_1C_3R_2R_4} + \sqrt{C_1C_3R_3R_4} + \sqrt{C_1C_4R_2R_4} - \sqrt{C_1C_5R_2R_4}\right) \sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}}{\sqrt{C_3C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_4 - C_5}} - \sqrt{C_3C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_4 - C_5}}}}}$ 

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4+C_1C_4R_2R_4-C_1C_5R_2R_4}$  Qz: None

Wz: None

# **8.184** X-INVALID-NUMER-184 $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_3C_4R_2R_3R_4R_5 - C_1C_3C_5R_2R_3R_4R_5\right) + s\left(-C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C$ 

### Parameters:

 $Q \colon \frac{-\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_4-C_5}+\frac{C_1R_2R_5}{C_4-C_5}+\frac{C_1R_4R_5}{C_4-C_5}+\frac{C_3R_4R_5}{C_4-C_5}+\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_4-C_5}+\frac{C_1R_2R_5}{C_4-C_5}+\frac{C_1R_4R_5}{C_4-C_5}+\frac{C_3R_4R_5}{C_4-C_5}}{\sqrt{C_1}C_3R_2R_3R_4-\sqrt{C_1}C_3R_2R_3R_5-\sqrt{C_1}C_3R_2R_4R_5-\sqrt{C_1}C_3R_3R_4R_5-\sqrt{C_1}C_4R_2R_4R_5+\sqrt{C_1}C_5R_2R_4R_5}$ 

wo:  $\sqrt{\frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_3C_4R_2R_3R_4R_5-C_1C_3C_5R_2R_3R_4R_5}}$ 

 $\frac{\sqrt{\frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_3C_4R_2R_3R_4R_5-C_1C_3C_5R_2R_3R_4R_5}}(\sqrt{C_1}C_3R_2R_3R_4-\sqrt{C_1}C_3R_2R_3R_5-\sqrt{C_1}C_3R_2R_4R_5-\sqrt{C_1}C_3R_3R_4R_5-\sqrt{C_1}C_4R_2R_4R_5+\sqrt{C_1}C_5R_2R_4R_5)}{-\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_5}{C_4-C_5}+\frac{C_1R_4R_5}{C_4-C_5}+\frac{C_3R_4R_5}{C_4-C_5}+\frac{C_3R_4R_5}{C_4-C_5}+\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_4-C_5}+\frac{C_1R_4R_5}{C_4-C_5}+\frac{C_3R_4R_5}{C_4-C_5}}$ 

K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ 

 $\text{K-BP:} - \frac{C_3C_5R_2R_4R_5R_6}{C_1C_3R_2R_3R_4 - C_1C_3R_2R_3R_5 - C_1C_3R_2R_4R_5 - C_1C_3R_3R_4R_5 - C_1C_4R_2R_4R_5 + C_1C_5R_2R_4R_5}$ 

Qz: None Wz: None

## **8.185** X-INVALID-NUMER-185 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5, R_6\right)$

 $H(s) = \frac{C_3R_2R_3R_4R_6s + R_2R_4R_6}{C_1C_3R_2R_3R_4R_5s^2 + R_4R_5 + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5\right)}$ 

### Parameters:

Q:  $-\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}R_4R_5}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}$ 

wo:  $\frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}}$  bandwidth:  $-\frac{C_1R_2R_3R_4 - C_1R_2R_3R_5 - C_1R_2R_4R_5 - C_1R_3R_4R_5 - C_3R_3R_4R_5}{C_1C_3R_2R_3R_4R_5}$ 

K-LP:  $\frac{R_2R_6}{R_5}$ K-HP: 0

K-BP:  $-\frac{C_3R_2R_3R_4R_6}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}$ 

Qz: None Wz: None

## **8.186** X-INVALID-NUMER-186 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_2R_3R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^2\left(C_1C_3R_2R_3R_4 - C_1C_5R_2R_3R_4\right) + s\left(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4\right)}$$

### Parameters:

$$\begin{array}{l} Q\colon \frac{\sqrt{C_{1}}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}-C_{5}}}}{C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{3}R_{3}R_{4}}\\ \text{wo: } \sqrt{\frac{1}{C_{1}C_{3}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}\\ \text{bandwidth: } \frac{(C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{3}R_{3}R_{4})\sqrt{\frac{1}{C_{1}C_{3}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}{\sqrt{C_{1}}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}-C_{5}}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}-C_{1}C_{5}}\\ \text{K-BP: } \frac{C_{5}R_{2}R_{4}R_{6}}{C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{3}R_{3}R_{4}}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

# **8.187** X-INVALID-NUMER-187 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_2R_3R_4s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_3C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_3C_6R_3R_4\right)}$$

### Parameters:

$$\begin{array}{l} Q\colon \frac{\sqrt{C_{1}}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}-C_{5}}}}{C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{3}R_{3}R_{4}}\\ \text{wo: } \sqrt{\frac{1}{C_{1}C_{3}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}\\ \text{bandwidth: } \frac{(C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{3}R_{3}R_{4})\sqrt{\frac{1}{C_{1}C_{3}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}{\sqrt{C_{1}}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}-C_{5}}}}\\ \text{K-LP: } \frac{C_{5}R_{2}}{C_{6}}\\ \text{K-HP: } 0\\ \text{K-BP: } \frac{C_{3}C_{5}R_{2}R_{3}R_{4}}{C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{4}+C_{1}C_{6}R_{3}R_{4}+C_{3}C_{6}R_{3}R_{4}}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

## 8.188 X-INVALID-NUMER-188 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_3R_2R_3R_6s + R_2R_6}{R_5 + s^2\left(C_1C_3R_2R_3R_5 + C_1C_4R_2R_3R_5\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_3R_3R_5\right)}$$

## Parameters:

$$\begin{array}{l} \text{Q:} -\frac{\sqrt{C_1}\sqrt{R_2}\sqrt{R_3}R_5\sqrt{C_3+C_4}}{C_1R_2R_3-C_1R_2R_5-C_1R_3R_5-C_3R_3R_5}\\ \text{wo:} \ \frac{1}{\sqrt{C_1C_3R_2R_3+C_1C_4R_2R_3}}\\ \text{bandwidth:} \ -\frac{C_1R_2R_3-C_1R_2R_5-C_1R_3R_5-C_3R_3R_5}{\sqrt{C_1}\sqrt{R_2}\sqrt{R_3}R_5\sqrt{C_3+C_4}\sqrt{C_1C_3}R_2R_3+C_1C_4R_2R_3}\\ \text{K-LP:} \ \frac{R_2R_6}{R_5}\\ \text{K-HP:} \ 0\\ \text{K-BP:} \ -\frac{C_3R_2R_3R_6}{C_1R_2R_3-C_1R_2R_5-C_1R_3R_5-C_3R_3R_5}\\ \text{Qz:} \ \text{None}\\ \text{Wz:} \ \text{None} \end{array}$$

# **8.189** X-INVALID-NUMER-189 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_2R_3R_6s^2 + C_5R_2R_6s}{s^2\left(C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3\right) + s\left(C_1R_2 + C_1R_3 + C_3R_3\right) + 1}$$

$$Q \colon \frac{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_2+C_1R_3+C_3R_3} \\ \text{wo: } \sqrt{\frac{1}{C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{(C_1R_2+C_1R_3+C_3R_3)\sqrt{\frac{1}{C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}}}{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}} \\ \text{K-LP: 0} \\ \text{K-HP: } \frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5} \\ \text{K-BP: } \frac{C_5R_2R_6}{C_1R_2+C_1R_3+C_3R_3} \\ \text{Qz: None} \\ \text{Wz: None}$$

# **8.190** X-INVALID-NUMER-190 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_2R_3s + C_5R_2}{C_6 + s^2\left(C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3\right)}$$

### Parameters:

$$Q \colon \frac{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_2+C_1R_3+C_3R_3}} \\ \text{wo: } \sqrt{\frac{1}{C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{(C_1R_2+C_1R_3+C_3R_3)\sqrt{\frac{1}{C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}}}{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}} \\ \text{K-LP: } \frac{C_5R_2}{C_6} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_3C_5R_2R_3}{C_1C_6R_2+C_1C_6R_3+C_3C_6R_3}}{C_1C_6R_3+C_3C_6R_3} \\ \text{Qz: None} \\ \text{Wz: None}$$

## **8.191** X-INVALID-NUMER-191 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5, R_6\right)$

$$H(s) = \frac{C_3R_2R_3R_4R_6s + R_2R_4R_6}{R_4R_5 + s^2\left(C_1C_3R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5\right)}$$

#### Parameters:

$$\begin{array}{l} \text{Q:} -\frac{\sqrt{C_1}\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{C_3+C_4}}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}\\ \text{wo:} \ \frac{1}{\sqrt{C_1C_3R_2R_3+C_1C_4R_2R_3}}\\ \text{bandwidth:} \ -\frac{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}{\sqrt{C_1}\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{C_3+C_4}\sqrt{C_1C_3R_2R_3+C_1C_4R_2R_3}}\\ \text{K-LP:} \ \frac{R_2R_6}{R_5}\\ \text{K-HP:} \ 0\\ \text{K-BP:} \ -\frac{C_3R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}\\ \text{Qz:} \ \text{None}\\ \text{Wz:} \ \text{None} \end{array}$$

# **8.192** X-INVALID-NUMER-192 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_2R_3R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^2\left(C_1C_3R_2R_3R_4 + C_1C_4R_2R_3R_4 - C_1C_5R_2R_3R_4\right) + s\left(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4\right)}$$

$$\begin{array}{l} Q\colon \frac{\sqrt{C_{1}}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}{C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{3}R_{3}R_{4}}\\ \text{wo: } \sqrt{\frac{1}{C_{1}C_{3}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}\\ \text{bandwidth: } \frac{(C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{3}R_{3}R_{4})\sqrt{\frac{1}{C_{1}C_{3}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}{\sqrt{C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}} \end{array}$$

K-BP:  $\frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_3R_3R_4}$  Qz: None

Wz: None

**8.193** X-INVALID-NUMER-193  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_3C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_3C_6R_3R_4\right)}$ 

#### Parameters:

 $\text{Q: } \frac{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_3R_3R_4}$ bandwidth:  $\frac{(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4)\sqrt{\frac{1}{C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}}{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3 + C_4 - C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3 + C_4 - C_5}}}$ 

K-LP:  $\frac{C_5R_2}{C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_3R_4}{C_1C_6R_2R_3+C_1C_6R_2R_4+C_1C_6R_3R_4+C_3C_6R_3R_4}$  Qz: None

Wz: None

**8.194** X-INVALID-NUMER-194  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_4R_6s + C_5R_6}{C_1 + C_2 + s^2\left(C_1C_2C_4R_3R_4 - C_1C_4C_5R_3R_4\right) + s\left(C_1C_2R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_2C_4R_4\right)}$ 

### Parameters:

 $Q \colon \frac{\sqrt{C_1}C_2\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2-C_5}} - \sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2-C_5}}}{C_1C_2R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_2C_4R_4}$  wo:  $\sqrt{C_1 + C_2}\sqrt{\frac{1}{C_1C_2C_4R_3R_4 - C_1C_4C_5R_3R_4}}$  bandwidth:  $\frac{\sqrt{C_1+C_2}(C_1C_2R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_2C_4R_4)\sqrt{\frac{1}{C_1C_2C_4R_3R_4 - C_1C_4C_5R_3R_4}}}{\sqrt{C_1C_2}\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2-C_5}} - \sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2-C_5}}}$ K-LP:  $\frac{C_5R_6}{C_1+C_2}$ K-HP: 0

K-BP:  $\frac{C_4C_5R_4R_6}{C_1C_2R_3+C_1C_4R_3+C_1C_4R_4-C_1C_5R_3+C_2C_4R_4}$ Qz: None

Wz: None

**8.195** X-INVALID-NUMER-195  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_4R_6s + C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_2C_3C_5C_6R_4R_5\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4\right)}$ 

### Parameters:

wo:  $\frac{C_1C_2R_4+C_1C_3R_4+C_1C_5R_5+C_2C_3R_4}{\sqrt{C_1}}$ wo:  $\frac{C_1C_2R_4+C_1C_3C_5R_4R_5+C_2C_3C_5R_4R_5}{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_5R_4+C_1C_5R_5+C_2C_3R_4}}$ bandwidth:  $\frac{C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_5R_4R_5+C_1C_3C_5R_4R_5+C_2C_3C_5R_4R_5}}$ K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}$ Oz: None

Wz: None

Qz: None

**8.196** X-INVALID-NUMER-196 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_4R_5R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_6R_4R_5R_6 + C_1C_3C_6R_4R_5R_6 - C_1C_5C_6R_4R_5R_6 + C_2C_3C_6R_4R_5R_6\right) + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_5R_4R_5 - C_1C_6R_4R_6 + C_1C_6R_5R_6 + C_2C_3R_4R_5\right)}$$

 $Q: \frac{C_1^{\frac{3}{2}}C_2\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}-C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_4}{C_$ K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_4R_5R_6}{C_1C_2R_4R_5+C_1C_3R_4R_5-C_1C_5R_4R_5-C_1C_6R_4R_6+C_1C_6R_5R_6+C_2C_3R_4R_5}$  Qz: None

Wz: None

## **8.197** X-INVALID-NUMER-197 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_3C_5R_5R_6s + C_3R_6}{-C_1 + s^2\left(C_1C_2C_6R_5R_6 + C_1C_3C_6R_5R_6 + C_1C_4C_6R_5R_6 - C_1C_5C_6R_5R_6 + C_2C_3C_6R_5R_6\right) + s\left(C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 - C_1C_5R_5 - C_1C_6R_6 + C_2C_3R_5\right)}$$

#### **Parameters:**

 $Q: \frac{C_1^{\frac{3}{2}}C_2\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_4\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}C_5\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + \sqrt{C_1C_2C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{1}{C_1C_$  $\frac{\sqrt{C_{1}}\sqrt{-\frac{1}{C_{1}C_{2}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{5}R_{6}+C_{1}C_{5}C_{5}R_{5}R_{6}+C_{1}C_{5}C_{6}R_{5}R_{6}+C_{1}C_{5}C_{6}R_{5}R_{6}+C_{1}C_{5}C_{5}R_{5}R_{6$ K-LP:  $-\frac{C_3 R_6}{C_1}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_5R_6}{C_1C_2R_5+C_1C_3R_5+C_1C_4R_5-C_1C_5R_5-C_1C_6R_6+C_2C_3R_5}$  Qz: None

Wz: None

## **8.198** X-INVALID-NUMER-198 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_3C_4R_4R_6s + C_3R_6}{-C_1 + s^2\left(C_1C_2C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_2C_3C_4R_4R_5\right) + s\left(C_1C_2R_5 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 + C_2C_3R_5\right)}$$

### Parameters:

K-HP: 0

Qz: None Wz: None

K-BP:  $\frac{C_3C_4R_4R_6}{C_1C_2R_5 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 + C_2C_3R_5}$ 

**8.199** X-INVALID-NUMER-199  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_4R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_4C_6R_4R_6 + C_1C_3C_4C_6R_4R_6 + C_2C_3C_4C_6R_4R_6 + C_1C_2C_4R_4 + C_1C_2C_6R_6 + C_1C_3C_4R_4 + C_1C_3C_6R_6 - C_1C_4C_5R_4 + C_1C_4C_6R_6 - C_1C_5C_6R_6 + C_2C_3C_4R_4 + C_2C_3C_6R_6\right)}$ 

 $C_{1}C_{2}\sqrt{C_{4}}\sqrt{C_{6}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{\frac{C_{1}C_{2}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{C_{1}C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{4}}{C_{1}C_{4}+C_{1}C_{4}-C_{1}C_{4}+C_$  $\frac{C_{1}C_{2}\sqrt{C_{4}}\sqrt{C_{6}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{\frac{C_{1}C_{2}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{C_{1}C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}C_{3}}{C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{3}+C_{1}C_{3}-C_{1}C_{3}+C_{1}C_{3}$ K-LP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$ K-HP: 0  $\begin{array}{l} \text{K-BP:} \ \frac{C_3C_4C_5R_4R_6}{C_1C_2C_4R_4+C_1C_2C_6R_6+C_1C_3C_4R_4+C_1C_3C_6R_6-C_1C_4C_5R_4+C_1C_4C_6R_6-C_1C_5C_6R_6+C_2C_3C_4R_4+C_2C_3C_6R_6} \\ \text{Qz: None} \end{array}$ Wz: None **8.200** X-INVALID-NUMER-200  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_3C_4C_5R_4R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_4C_5R_4R_5 + C_1C_3C_4C_5R_4R_5 + C_2C_3C_4C_5R_4R_5\right) + s\left(C_1C_2C_4R_4 + C_1C_2C_5R_5 + C_1C_3C_4R_4 + C_1C_3C_5R_5 - C_1C_4C_5R_4 + C_1C_4C_5R_5 + C_2C_3C_4R_4 + C_2C_3C_5R_5\right)}$ Parameters: wo:  $\frac{\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{\sqrt{C_1C_2C_4C_5R_4R_5+C_1C_3C_4C_5R_4R_5+C_2C_3C_4C_5R_4R_5}}$  bandwidth:  $\frac{C_1C_2C_4R_4+C_1C_2C_5R_5+C_1C_3C_4R_4+C_1C_3C_5R_5-C_1C_4C_5R_4+C_1C_4C_5R_5+C_2C_3C_4R_4+C_2C_3C_5R_5}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_4C_5R_4R_5+C_1C_3C_4C_5R_4R_5+C_2C_3C_4C_5R_4R_5}}$  K-LP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$  K-HP: 0  $\text{K-BP: } \frac{C_3C_4C_5R_4R_6}{C_1C_2C_4R_4 + C_1C_2C_5R_5 + C_1C_3C_4R_4 + C_1C_3C_5R_5 - C_1C_4C_5R_4 + C_1C_4C_5R_5 + C_2C_3C_4R_4 + C_2C_3C_5R_5}$ Qz: None Wz: None **8.201** X-INVALID-NUMER-201  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_4 R_4 s + 1}, & R_5 + \frac{1}{C_5 s}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$  $C_3C_5C_6R_4R_6s + C_3C_5R_4$  $H(s) = \frac{C_3 C_5 C_6 R_4 R_5 + C_3 C_5 C_6 R_4}{C_1 C_6 + s^2 \left(C_1 C_2 C_5 C_6 R_4 R_5 + C_1 C_3 C_5 C_6 R_4 R_5 + C_2 C_3 C_5 C_6 R_4 R_5\right) + s \left(C_1 C_2 C_6 R_4 + C_1 C_3 C_6 R_4 + C_1 C_5 C_6 R_4 + C_1 C_5 C_6 R_4 + C_1 C_5 C_6 R_5 + C_2 C_3 C_6 R_4\right)}$ **Parameters:** wo:  $\frac{\sqrt{C_1}}{\sqrt{C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_4C_5R_4R_5 + C_2C_3C_5R_4R_5}}$  bandwidth:  $\frac{C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_5R_5}{\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2 + C_1C_3 + C_1C_4 + C_2C_3}\sqrt{C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5}}$  K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-HP: 0 K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4+C_1C_3R_4+C_1C_4R_4-C_1C_5R_4+C_1C_5R_5+C_2C_3R_4}$  Qz: None Wz: None **8.202** X-INVALID-NUMER-202  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$  $C_3C_5R_4R_5R_6s + C_3R_4R_6$  $H(s) = \frac{1}{-C_{1}R_{4} + C_{1}R_{5} + s^{2}\left(C_{1}C_{2}C_{6}R_{4}R_{5}R_{6} + C_{1}C_{3}C_{6}R_{4}R_{5}R_{6} + C_{1}C_{5}C_{6}R_{4}R_{5}R_{6} + C_{2}C_{3}C_{6}R_{4}R_{5}R_{6} + C_{2}C_{3}C_{6}R_{4}R_{5}R_{6} + C_{1}C_{3}R_{4}R_{5} + C_{1}C_{3}R_{4}R$ Parameters:

 $\frac{\sqrt{12-9-4-4-3-4-1}-1-2-4-4-4-3-4-4-1}{C_1^2C_2\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + \frac{\frac{3}{4}}{C_1^2C_2\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_4+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_4+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_4+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_4+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{R_4}{C_1C_4+C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_6}\sqrt{R_4}\sqrt{R_5$ 

K-LP:  $-\frac{1}{C_1R_4-C_1R_5}$ 

K-HP: 0

 $\text{K-BP: } \frac{C_3C_5R_4R_5R_6}{C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_5R_4R_5 - C_1C_6R_4R_6 + C_1C_6R_5R_6 + C_2C_3R_4R_5}$ 

Qz: None Wz: None

**8.203** X-INVALID-NUMER-203 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_4R_6s + C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_3R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

Parameters:

 $\text{Q: } \frac{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}}-C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}}}{C_1C_2R_4+C_1C_3R_3+C_1}C_3R_4-C_1C_5R_4+C_2C_3R_4}$ 

bandwidth:  $\frac{(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_3R_4 - C_3C_5R_3R_4}}}{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}} - C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{\frac{1}{C_2-C_5}}}$ 

K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_4R_6}{C_1C_2R_4+C_1C_3R_3+C_1C_3R_4-C_1C_5R_4+C_2C_3R_4}$  Qz: None

Wz: None

**8.204** X-INVALID-NUMER-204  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_4R_5R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_3R_4R_5 - C_1C_3C_5R_3R_4R_5\right) + s\left(C_1C_2R_4R_5 - C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

Parameters:

 $Q \colon \frac{C_1 C_2 \sqrt{C_3} \sqrt{R_3} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 - C_5} + \frac{R_5}{C_2 - C_5}} - C_1 \sqrt{C_3} C_5 \sqrt{R_3} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 - C_5} + \frac{R_5}{C_2 - C_5}} }{C_1 C_2 R_4 R_5 - C_1 C_3 R_3 R_4 + C_1 C_3 R_3 R_5 + C_1 C_3 R_4 R_5 - C_1 C_5 R_4 R_5 + C_2 C_3 R_4 R_5}$  wo:  $\sqrt{\frac{-R_4 + R_5}{C_2 C_3 R_3 R_4 R_5 - C_3 C_5 R_3 R_4 R_5}}$ bandwidth:  $\frac{\sqrt{\frac{-R_4 + R_5}{C_2 C_3 R_3 R_4 R_5 - C_3 C_5 R_3 R_4 R_5}}(C_1 C_2 R_4 R_5 - C_1 C_3 R_3 R_4 + C_1 C_3 R_3 R_5 + C_1 C_3 R_4 R_5 - C_1 C_5 R_4 R_5 + C_2 C_3 R_4 R_5)}{C_1 C_2 \sqrt{C_3} \sqrt{R_3} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 - C_5} + \frac{R_5}{C_2 - C_5}} - C_1 \sqrt{C_3} C_5 \sqrt{R_3} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 - C_5} + \frac{R_5}{C_2 - C_5}}}$ 

K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$ K-HP: 0

Qz: None

Wz: None

**8.205** X-INVALID-NUMER-205  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_5R_6s + C_3R_6}{-C_1 + s^2\left(C_1C_2C_3R_3R_5 + C_1C_3C_4R_3R_5 - C_1C_3C_5R_3R_5\right) + s\left(C_1C_2R_5 - C_1C_3R_3 + C_1C_3R_5 + C_1C_4R_5 - C_1C_5R_5 + C_2C_3R_5\right)}$$

Parameters:

Wz: None

$$\begin{array}{l} Q\colon \frac{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{1}{C_2+C_4-C_5}}+C_1\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{1}{C_2+C_4-C_5}}-C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{1}{C_2+C_4-C_5}}}{C_1C_2R_5-C_1C_3R_3+C_1C_3R_5+C_1C_4R_5-C_1C_5R_5+C_2C_3R_5}\\ \text{wo: } \sqrt{-\frac{1}{C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}}\\ \text{bandwidth: } \frac{\sqrt{-\frac{1}{C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}}}{C_1C_2C_3C_3\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{1}{C_2+C_4-C_5}}+C_1C_3R_3+C_1C_3R_5+C_1C_4R_5-C_1C_5R_5+C_2C_3R_5}}\\ \text{K-LP: } -\frac{C_3R_6}{C_1}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_3C_5R_3R_3+C_1C_3R_3+C_1C_3R_5+C_1C_4R_5-C_1C_5R_5+C_2C_3R_5}}{C_1C_2R_5-C_1C_3R_3+C_1C_3R_5+C_1C_3R_3+C_1C_3R_5+C_1C_3R_5+C_1C_3R_5+C_1C_3R_5+C_1C_3R_5}\\ \text{Qz: None} \end{array}$$

**8.206** X-INVALID-NUMER-206 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_4C_5R_4R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_3R_4 - C_1C_3C_4C_5R_3R_4\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_4 + C_1C_3C_4R_3 + C_1C_3C_4R_4 - C_1C_3C_5R_3 - C_1C_4C_5R_4 + C_2C_3C_4R_4\right)}$$

 $Q: \frac{\sqrt{C_{1}C_{2}}\sqrt{C_{3}}\sqrt{C_{4}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{\frac{C_{1}C_{2}}{C_{2}-C_{5}}} + \frac{C_{1}C_{3}}{C_{2}-C_{5}} + \frac{C_{1}C_{5}}{C_{2}-C_{5}} + \frac{C_{2}C_{3}}{C_{2}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{4}}C_{5}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{\frac{C_{1}C_{2}}{C_{2}-C_{5}}} + \frac{C_{1}C_{5}}{C_{2}-C_{5}}} + \frac{C_{2}C_{3}}{C_{2}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{4}}C_{5}\sqrt{R_{3}}\sqrt{R_{4}}}\sqrt{\frac{C_{1}C_{2}}{C_{2}-C_{5}}} + \frac{C_{1}C_{5}}{C_{2}-C_{5}}} + \frac{C_{2}C_{3}}{C_{2}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{4}}C_{5}\sqrt{R_{3}}\sqrt{R_{4}}}\sqrt{\frac{C_{1}C_{2}}{C_{2}-C_{5}}} + \frac{C_{1}C_{3}}{C_{2}-C_{5}}} + \frac{C_{2}C_{3}}{C_{2}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{4}}C_{5}R_{3}} - C_{1}C_{4}C_{5}R_{4} + C_{2}C_{3}C_{4}R_{4}}$   $\text{wo: } \sqrt{\frac{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}C_{3}C_{4}R_{3}}}} \times \sqrt{C_{1}C_{2}C_{3}R_{3}+C_{1}C_{2}C_{4}R_{4}-C_{1}C_{3}C_{5}R_{3}-C_{1}C_{4}C_{5}R_{4}+C_{2}C_{3}C_{4}R_{4}}$   $\text{bandwidth: } \frac{\sqrt{\frac{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{\sqrt{C_{1}C_{2}C_{3}C_{4}R_{3}R_{4}-C_{1}C_{3}C_{4}C_{5}R_{3}R_{4}}} (C_{1}C_{2}C_{3}R_{3}+C_{1}C_{2}C_{4}R_{4}+C_{1}C_{3}C_{4}R_{3}+C_{1}C_{3}C_{4}R_{4}-C_{1}C_{3}C_{5}R_{3}-C_{1}C_{4}C_{5}R_{4}+C_{2}C_{3}C_{4}R_{4}}} \times \sqrt{\frac{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{2}-C_{5}}} + \frac{C_{1}C_{3}}{C_{2}-C_{5}} + \frac{C_{1}C_{3}}{C_{2}-C_{5}} + \frac{C_{1}C_{3}}{C_{2}-C_{5}} + \frac{C_{1}C_{3}}{C_{2}-C_{5}} + \frac{C_{1}C_{3}}{C_{2}-C_{5}} + \frac{C_{2}C_{3}}{C_{2}-C_{5}} + \frac{C_{2}C_{3}$ 

## 8.207 X-INVALID-NUMER-207 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_4R_6s + C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

#### Parameters:

# 8.208 X-INVALID-NUMER-208 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_4R_5R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 - C_1C_3C_5R_3R_4R_5\right) + s\left(C_1C_2R_4R_5 - C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

$$Q \colon \frac{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2+C_4-C_5}} + C_1\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2+C_4-C_5}} + \frac{R_5}{C_2+C_4-C_5} - C_1\sqrt{C_3}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2+C_4-C_5}} + \frac{R_5}{C_2+C_4-C_5}}{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_1C_4R_4R_5-C_1C_5R_4R_5+C_2C_3R_4R_5} \\ \text{wo: } \sqrt{\frac{-R_4+R_5}{C_2C_3R_3R_4R_5+C_3C_4R_3R_4R_5-C_3C_5R_3R_4R_5}} \\ \text{bandwidth: } \frac{-R_4+R_5}{\sqrt{C_2C_3R_3R_4R_5+C_3C_4R_3R_4R_5-C_3C_5R_3R_4R_5}} (C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_1C_4R_4R_5-C_1C_5R_4R_5+C_2C_3R_4R_5} \\ \text{bandwidth: } \frac{-R_4+R_5}{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2+C_4-C_5}+\frac{R_5}{C_2+C_4-C_5}+C_1\sqrt{C_3}C_4\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2+C_4-C_5}+\frac{R_5}{C_2+C_4-C_5}}} \\ \text{bandwidth: } \frac{-R_4+R_5}{C_1C_2\sqrt{R_4}R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5}}{C_1C_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2+C_4-C_5}+\frac{R_5}{C_2+C_4-C_5}+\frac{R_5}{C_2+C_4-C_5}}} \\ \text{bandwidth: } \frac{-R_4+R_5}{C_1C_2\sqrt{R_4}R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R_4R_5}} \\ \text{bandwidth: } \frac{-R_4+R_5}{C_1C_2\sqrt{R_4}R_5+C_1C_3R_4R_5+C_1C_3R_4R_5+C_1C_3R$$

## **8.209** X-INVALID-NUMER-209 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$

 $H(s) = \frac{C_3C_5R_3R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 - C_1C_5C_6R_3R_4R_6 + C_2C_3C_6R_3R_4R_6\right) + s\left(C_1C_2R_3R_4 + C_1C_3R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6 + C_2C_3R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_3R_6 + C_1C_6R_3R_6 + C_2C_3R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_3R_6 + C_2C_3R_3R_4 + C_2C_6R_4R_6\right)}$ 

## Parameters:

 $\frac{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_$ 

 $bandwidth: \frac{\sqrt{C_1R_3 + C_1R_4 + C_2R_4}(C_1C_2R_3R_4 + C_1C_5R_3R_4 + C_1C_6R_4R_6 + C_2C_3R_3R_4 + C_2C_6R_4R_6)\sqrt{\frac{1}{C_1C_2C_6R_3R_4R_6 + C_1C_5C_6R_3R_4R_6 + C_2C_3C_6R_3R_4R_6}}{C_1C_2\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_1C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} - C_1C_5\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} - C_1C_5\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} - C_1C_5\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} - C_1C_5\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} - C_1C_5\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4$ 

K-BP:  $\frac{C_3C_5R_3R_4R_6}{C_1C_2R_3R_4+C_1C_3R_3R_4-C_1C_5R_3R_4+C_1C_6R_3R_6+C_1C_6R_4R_6+C_2C_3R_3R_4+C_2C_6R_4R_6}$  Qz: None

Wz: None

## **8.210** X-INVALID-NUMER-210 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$

 $C_3C_5R_3R_4R_6s + C_5R_4R_6$  $H(s) = \frac{C_3C_5R_3R_4R_5 + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_5R_3R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_2C_3C_5R_3R_4R_5\right) + s\left(C_1C_2R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_3R_3R_4 + C_2C_5R_4R_5\right)}$ 

#### **Parameters:**

wo:  $\frac{\sqrt{C_1R_3 + C_1R_4 + C_2R_4}}{\sqrt{C_1C_2C_5}R_3R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_2C_3C_5R_3R_4R_5}}{\sqrt{C_1C_2C_5}R_3R_4C_1C_3C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_3R_3R_4 + C_2C_5R_4R_5}}$ bandwidth:  $\frac{C_1C_2R_3R_4 + C_1C_3R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_3R_3R_4 + C_2C_5R_4R_5}{\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2 + C_1C_3 + C_2C_3}\sqrt{C_1C_2C_5R_3R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_2C_3C_5R_3R_4R_5}}$ K-LP:  $\frac{C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_3R_4R_6}{C_1C_2R_3R_4+C_1C_3R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_3R_3R_4+C_2C_5R_4R_5}$ 

Qz: None

Wz: None

## **8.211** X-INVALID-NUMER-211 $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$

 $H(s) = \frac{C_3C_5R_3R_6s + C_5R_6}{C_1 + C_2 + s^2\left(C_1C_2C_6R_3R_6 + C_1C_3C_6R_3R_6 + C_1C_4C_6R_3R_6 - C_1C_5C_6R_3R_6 + C_2C_3C_6R_3R_6\right) + s\left(C_1C_2R_3 + C_1C_3R_3 + C_1C_4R_3 - C_1C_5R_3 + C_1C_6R_6 + C_2C_3R_3 + C_2C_6R_6\right)}$ 

### Parameters:

 $Q: \frac{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}R_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}R_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{2}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{2}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{2}\sqrt{C_{1}C_{2}+$ wo:  $\sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 C_6 R_3 R_6 + C_1 C_3 C_6 R_3 R_6 + C_1 C_4 C_6 R_3 R_6 - C_1 C_5 C_6 R_3 R_6 + C_2 C_3 C_6 R_3 R_6}$ 

 $\sqrt{C_1 + C_2} \left( C_1 C_2 R_3 + C_1 C_3 R_3 + C_1 C_4 R_3 - C_1 C_5 R_3 + C_1 C_6 R_6 + C_2 C_3 R_3 + C_2 C_6 R_6 \right) \sqrt{\frac{C_1 C_2 C_6 R_3 R_6 + C_1 C_3 C_6 R_3 R_6 + C_1 C_5 C_6 R_3 R_6 + C_2 C_3 C_6 R_5 + C_2 C_5 C_6 R_5 + C_2$  $\frac{\sqrt{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}\sqrt{C_{1}+C_{2}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}\sqrt{C_{1}+C_{2}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}\sqrt{C_{1}+C_{2}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}\sqrt{C_{1}+C_{2}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}\sqrt{C_{1}+C_{2}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}\sqrt{C_{1}+C_{2}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}}+C_{2}C_{3}\sqrt{C_{6}\sqrt{R_{3}}\sqrt{R_{6}\sqrt{C_{1}+C_{2}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_$ 

K-LP:  $\frac{C_5R_6}{C_1+C_2}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_3R_6}{C_1C_2R_3+C_1C_3R_3+C_1C_4R_3-C_1C_5R_3+C_1C_6R_6+C_2C_3R_3+C_2C_6R_6}$  Qz: None

Wz: None

## **8.212** X-INVALID-NUMER-212 $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{1}{C_4 s}, & R_5 + \frac{1}{C_5 s}, & R_6 \end{pmatrix}$

 $H(s) = \frac{C_3C_5R_3R_6s + C_5R_6}{C_1 + C_2 + s^2\left(C_1C_2C_5R_3R_5 + C_1C_3C_5R_3R_5 + C_1C_4C_5R_3R_5 + C_2C_3C_5R_3R_5\right) + s\left(C_1C_2R_3 + C_1C_3R_3 + C_1C_4R_3 - C_1C_5R_3 + C_1C_5R_5 + C_2C_3R_3 + C_2C_5R_5\right)}$ 

```
K-LP: \frac{C_5 R_6}{C_1 + C_2}
K-HP: 0
               K-BP: \frac{C_3C_5R_3R_6}{C_1C_2R_3+C_1C_3R_3+C_1C_4R_3-C_1C_5R_3+C_1C_5R_5+C_2C_3R_3+C_2C_5R_5} Qz: None
                 Wz: None
8.213 X-INVALID-NUMER-213 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C_3C_5R_3R_4R_6s + C_5R_4R_6
                                      H(s) = \frac{C_3C_5R_3R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_5C_6R_3R_4R_6 + C_1C_5C_6R_3R_4 + C_1C_5R_3R_4 + C_1
       Parameters:
                  Q: \underbrace{\frac{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}\sqrt{\frac{1}{C_{1}C_{2} + C_{1}C_{3}} + C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{1}C_{2} + C_{1}C_{3}} + C_{1}C_{5}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}C_{
                 wo: \sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 - C_1C_5C_6R_3R_4R_6 + C_2C_3C_6R_3R_4R_6}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \frac{\sqrt{C_1C_2\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}}{C_1C_2\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1C_4+C_2C_3}} + C_1C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1C_4+C_2C_3}} + C_1C_3\sqrt{C_6}\sqrt{R_3}\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1C_4
                \text{K-BP: } \frac{C_3C_5R_3R_4R_6}{C_1C_2R_3R_4+C_1C_3R_3R_4+C_1C_4R_3R_4-C_1C_5R_3R_4+C_1C_6R_3R_6+C_1C_6R_4R_6+C_2C_3R_3R_4+C_2C_6R_4R_6}
                   Qz: None
                  Wz: None
8.214 X-INVALID-NUMER-214 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_3C_5R_3R_4R_6s + C_5R_4R_6
                                                                                      H(s) = \frac{C_3C_3R_4R_5}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_5R_3R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_1C_4C_5R_3R_4R_5 + C_2C_3C_5R_3R_4R_5\right) + s\left(C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_3R_3R_4 + C_2C_5R_4R_5\right)}{c_3C_3R_4R_5 + c_3C_3R_4R_5 + c_3C_3R_4
       Parameters:
         Q: \frac{\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1R_3}+C_1R_4+C_2R_4}{\sqrt{C_1C_2}+C_1C_3+C_1C_4+C_2C_3}}{\sqrt{C_1C_2R_3R_4}+C_1C_3R_3R_4+C_1C_5R_3R_4}+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_3R_3R_4+C_2C_5R_4R_5}
wo: \frac{\sqrt{C_1R_3}+C_1R_4+C_2R_4}{\sqrt{C_1C_2C_5}R_3R_4R_5+C_1C_3C_5R_3R_4R_5+C_2C_3C_5R_3R_4R_5}}
bandwidth: \frac{C_1C_2R_3R_4+C_1C_3R_3R_4+C_1C_4C_5R_3R_4+C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_3R_3R_4+C_2C_5R_4R_5}{\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2}+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_5R_3R_4R_5+C_1C_3C_5R_3R_4R_5+C_1C_4C_5R_3R_4R_5+C_2C_3C_5}}
K-LP: \frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4}
K-HP: 0
                K-BP: \frac{C_3C_5R_3R_4R_6}{C_1C_2R_3R_4+C_1C_3R_3R_4+C_1C_4R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_3R_3R_4+C_2C_5R_4R_5}{\text{Qz: None}} Qz: None
                 Wz: None
8.215 X-INVALID-NUMER-215 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                             H(s) = \frac{C_2C_5R_2R_4R_6s + C_5R_4R_6}{-C_1C_2C_5R_2R_3R_4s^2 + C_1R_3 + C_1R_4 + C_2R_4 + s\left(C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4\right)}
       Parameters:
```

Q:  $-\frac{i\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1}R_3 + C_1R_4 + C_2R_4}{\sqrt{C_1}C_2R_2R_3 + \sqrt{C_1}C_2R_2R_4 + \sqrt{C_1}C_2R_3R_4 - \sqrt{C_1}C_5R_3R_4}$  wo:  $\frac{\sqrt{-C_1}R_3 - C_1R_4 - C_2R_4}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ bandwidth:  $\frac{i\sqrt{-C_1R_3-C_1R_4-C_2R_4}\Big(\sqrt{C_1}C_2R_2R_3+\sqrt{C_1}C_2R_2R_4+\sqrt{C_1}C_2R_3R_4-\sqrt{C_1}C_5R_3R_4\Big)}{-(1-c_1R_3-c_1R_4-c_2R_4)}$  $\sqrt{C_1}C_2C_5R_2R_3R_4\sqrt{C_1R_3+C_1R_4+C_2R_4}$ K-LP:  $\frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4}$ K-HP: 0 K-BP:  $\frac{C_2C_5R_2R_4R_6}{C_1C_2R_2R_3+C_1C_2R_2R_4+C_1C_2R_3R_4-C_1C_5R_3R_4}$ 

## **8.216** X-INVALID-NUMER-216 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_2C_5R_2R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(-C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_2R_4R_5 + C_1C_2C_5R_3R_4R_5\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_5R_4R_5\right)}$ 

#### Parameters:

 $Q: \frac{-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{5}}R_{2}R_{3}R_{4}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{5}}R_{2}R_{3}R_{5}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{5}}R_{3}R_{4}+C_{1}C_{5}R_{3}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{5}}R_{3}R_{4}+C_{1}C_{5}R_{3}R_{4}+C$ Wo:  $\sqrt{\frac{-C_1R_3 - C_1R_4 - C_2R_4}{C_1C_2C_5R_2R_3R_4 - C_1C_2C_5R_2R_3R_5 - C_1C_2C_5R_2R_4R_5 - C_1C_2C_5R_3R_4R_5}}$  $\frac{-c_{1}R_{3}-c_{1}R_{4}-c_{2}R_{4}}{\sqrt{c_{1}c_{2}c_{5}R_{2}R_{3}R_{4}-c_{1}c_{2}c_{5}R_{3}R_{4}-c_{1}c_{2}c_{5}R_{3}R_{4}-c_{1}c_{2}c_{5}R_{3}R_{4}-c_{1}c_{2}c_{5}R_{3}R_{4}-c_{1}c_{2}c_{5}R_{3}R_{4}-c_{1}c_{2}R_{3}R_{4}+c_{1}c_{5}R_{3}R_$ 

K-LP:  $\frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4}$ K-HP: 0

K-BP:  $\frac{C_2C_5R_2R_4R_6}{C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_5R_4R_5}$ 

Qz: None Wz: None

## **8.217** X-INVALID-NUMER-217 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_2C_5R_2R_6s + C_5R_6}{C_1 + C_2 + s^2\left(C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3\right) + s\left(C_1C_2R_2 + C_1C_2R_3 + C_1C_4R_3 - C_1C_5R_3\right)}$ 

#### Parameters:

 $Q \colon \frac{\sqrt{C_{2}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{4}-C_{5}}}-\sqrt{C_{2}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{4}-C_{5}}}}{\sqrt{C_{1}}C_{2}R_{2}+\sqrt{C_{1}}C_{2}R_{3}+\sqrt{C_{1}}C_{4}R_{3}-\sqrt{C_{1}}C_{5}R_{3}}$   $\text{wo: } \sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{1}C_{2}C_{4}R_{2}R_{3}-C_{1}C_{2}C_{5}R_{2}R_{3}}}$   $\text{bandwidth: } \frac{\sqrt{C_{1}+C_{2}}\left(\sqrt{C_{1}}C_{2}R_{2}+\sqrt{C_{1}}C_{2}R_{3}+\sqrt{C_{1}}C_{4}R_{3}-\sqrt{C_{1}}C_{5}R_{3}\right)\sqrt{\frac{1}{C_{1}C_{2}C_{4}R_{2}R_{3}-C_{1}C_{2}C_{5}R_{2}R_{3}}}}{\sqrt{C_{2}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{4}-C_{5}}}-\sqrt{C_{2}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{4}-C_{5}}}}$ K-LP:  $\frac{C_5R_6}{C_1+C_2}$ K-HP: 0 K-BP:  $\frac{C_2C_5R_2R_6}{C_1C_2R_2+C_1C_2R_3+C_1C_4R_3-C_1C_5R_3}$  Qz: None Wz: None

# **8.218** X-INVALID-NUMER-218 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_2C_5R_2R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_4\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4\right)}$ 

### Parameters:

 $\frac{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3} + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_2C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3} + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1C_2R_2R_3} + \sqrt{C_1C_2R_2R_4} + \sqrt{C_1C_2R_3R_4} + \sqrt{C_1C_4R_3R_4} - \sqrt{C_1C_5R_3R_4}}$ wo:  $\sqrt{C_1R_3} + C_1R_4 + C_2R_4\sqrt{\frac{1}{C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_4}}$ bandwidth:  $\frac{\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\left(\sqrt{C_1}C_2R_2R_3 + \sqrt{C_1}C_2R_2R_4 + \sqrt{C_1}C_2R_3R_4 + \sqrt{C_1}C_4R_3R_4 - \sqrt{C_1}C_5R_3R_4\right)\sqrt{\frac{1}{C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_4}}}{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_4 - C_5}} - \sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_4 - C_5}}}$ K-LP:  $\frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4}$ K-HP: 0 K-BP:  $\frac{C_2C_5R_2R_4R_6}{C_1C_2R_2R_3+C_1C_2R_2R_4+C_1C_2R_3R_4+C_1C_4R_3R_4-C_1C_5R_3R_4}$  Qz: None Wz: None

## **8.219** X-INVALID-NUMER-219 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_2C_3R_2R_4R_6s + C_3R_4R_6}{C_1C_2C_3R_2R_4R_5s^2 - C_1R_4 + C_1R_5 + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_2C_3R_4R_5\right)}$$

## Parameters:

Q:  $-\frac{C_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_4+R_5}}{C_1C_2R_2R_4-C_1C_2R_2R_5-C_1C_2R_4R_5-C_1C_3R_4R_5-C_2C_3R_4R_5}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $-\frac{C_1C_2R_2R_4-C_1C_2R_2R_5-C_1C_2R_4R_5-C_1C_3R_4R_5-C_2C_3R_4R_5}{C_1C_2C_3R_2R_4R_5}$ 

K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$ K-HP: 0

K-BP:  $-\frac{C_2C_3R_2R_4R_6}{C_1C_2R_2R_4-C_1C_2R_2R_5-C_1C_2R_4R_5-C_1C_3R_4R_5-C_2C_3R_4R_5}$  Qz: None

Wz: None

# **8.220** X-INVALID-NUMER-220 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_3R_2R_4 - C_1C_2C_5R_2R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4\right)}$$

### Parameters:

Q:  $\frac{C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}}-C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}}}{C_1C_2R_2+C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_2C_3R_4}$ 

WO:  $\sqrt{\frac{1}{C_2C_3R_2R_4-C_2C_5R_2R_4}}$ 

wo.  $\sqrt{C_2C_3R_2R_4 - C_2C_5R_2R_4}$ bandwidth:  $\frac{(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_2R_4 - C_2C_5R_2R_4}}}{C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3 - C_5}} - C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3 - C_5}}}$ 

K-HP:  $\frac{C_3C_5R_6}{C_1C_3-C_1C_5}$ K-BP:  $\frac{C_3C_5R_6}{C_1C_2R_2+C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_2C_3R_4}$ Qz: None

Wz: None

# **8.221** X-INVALID-NUMER-221 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3C_5R_2R_4s + C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_4 - C_1C_2C_5C_6R_2R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

### Parameters:

Q: 
$$\frac{C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}}-C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}}}{C_1C_2R_2+C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_2C_3R_4}$$
WO:  $\sqrt{\frac{1}{C_1C_1C_2C_2C_3C_3C_3}}$ 

bandwidth:  $\frac{(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_2R_4 - C_2C_5R_2R_4}}}{C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}} - C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}}}$ 

K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-HP: 0

K-BP:  $\frac{C_2C_3C_5R_2R_4}{C_1C_2C_6R_2+C_1C_2C_6R_4+C_1C_3C_6R_4-C_1C_5C_6R_4+C_2C_3C_6R_4}$  Qz: None

Wz: None

# **8.222** X-INVALID-NUMER-222 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_2C_3R_2R_6s + C_3R_6}{-C_1 + s^2\left(C_1C_2C_3R_2R_5 + C_1C_2C_4R_2R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 + C_2C_3R_5\right)}$$

```
wo: \frac{\iota}{\sqrt{C_2C_3R_2R_5+C_2C_4R_2R_5}} bandwidth: -\frac{C_1C_2R_2-C_1C_2R_5-C_1C_3R_5-C_1C_4R_5-C_2C_3R_5}{C_1\sqrt{C_2}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_2C_3R_2R_5+C_2C_4R_2R_5}}
                 K-HP: 0
                K-BP: -\frac{C_2C_3R_2R_6}{C_1C_2R_2-C_1C_2R_5-C_1C_3R_5-C_1C_4R_5-C_2C_3R_5} Qz: None
                 Wz: None
8.223 X-INVALID-NUMER-223 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                      H(s) = \frac{C_2C_3C_5R_2R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_6R_2R_6 + C_1C_2C_4C_6R_2R_6 - C_1C_2C_5C_6R_2R_6\right) + s\left(C_1C_2C_3R_2 + C_1C_2C_5R_2 + C_1C_2C_6R_6 + C_1C_3C_6R_6 + C_1C_4C_6R_6 - C_1C_5C_6R_6 + C_2C_3C_6R_6\right)}
       Parameters:
                  Q: \frac{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}\sqrt{\frac{C_1C_2}{C_3+C_4-C_5}} + \frac{C_1C_3}{C_3+C_4-C_5} + \frac{C_1C_4}{C_3+C_4-C_5} + \frac{C_1C_3}{C_3+C_4-C_5} + \frac{C
                 Wo: \sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_6R_2R_6+C_1C_2C_4C_6R_2R_6-C_1C_2C_5C_6R_2R_6}}
                  \text{bandwidth: } \frac{\sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_6R_2R_6+C_1C_2C_5R_2+C_1C_2C_5R_2+C_1C_2C_6R_6+C_1C_3C_6R_6+C_1C_3C_6R_6+C_2C_3C_6R_6}}{\sqrt{C_1\sqrt{C_2}C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}\sqrt{\frac{C_1C_2}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3+C_4-C_5}+\frac{C_1C_3}{C_3
                K-LP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}
K-HP: 0
                 \text{K-BP: } \frac{C_2C_3C_5R_2R_6}{C_1C_2C_3R_2 + C_1C_2C_4R_2 - C_1C_2C_5R_2 + C_1C_2C_6R_6 + C_1C_3C_6R_6 + C_1C_4C_6R_6 - C_1C_5C_6R_6 + C_2C_3C_6R_6}
                    Qz: None
                 Wz: None
8.224 X-INVALID-NUMER-224 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_2C_3C_5R_2R_6s + C_3C_5R_6
                                                                                                                                                                                                H(s) = \frac{C_2C_3C_5R_2R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2(C_1C_2C_3C_5R_2R_5 + C_1C_2C_4C_5R_2R_5) + s(C_1C_2C_3R_2 + C_1C_2C_5R_2 + C_1C_2C_5R_5 + C_1C_3C_5R_5 + C_1C_4C_5R_5 + C_2C_3C_5R_5)}
         Parameters:
         Q: \frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{C_1C_2C_3R_2+C_1C_2C_4R_2-C_1C_2C_5R_2+C_1C_2C_5R_5+C_1C_3C_5R_5+C_1C_4C_5R_5+C_2C_3C_5R_5}} wo: \frac{\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{\sqrt{C_1C_2C_3C_5}R_2R_5+C_1C_2C_4C_5R_2R_5}} bandwidth: \frac{C_1C_2C_3R_2+C_1C_2C_4R_2-C_1C_2C_5R_2+C_1C_2C_5R_5+C_1C_3C_5R_5+C_1C_4C_5R_5+C_2C_3C_5R_5}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_1C_2C_3C_5R_2+C_1C_2C_4C_5R_2}}} K-LP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} K-HP: 0
                 K-BP: \frac{C_2C_3C_5R_2R_6}{C_1C_2C_3R_2 + C_1C_2C_4R_2 - C_1C_2C_5R_2 + C_1C_2C_5R_5 + C_1C_3C_5R_5 + C_1C_4C_5R_5 + C_2C_3C_5R_5}{C_1C_2C_3R_2 + C_1C_2C_4R_2 - C_1C_2C_5R_2 + C_1C_2C_5R_5 + C_1C_3C_5R_5 + C_1C_4C_5R_5 + C_2C_3C_5R_5}
                  Qz: None
                  Wz: None
8.225 X-INVALID-NUMER-225 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C_2C_3R_2R_4R_6s + C_3R_4R_6
                                                                                                                                                                                                                                                                                           H(s) = \frac{-\frac{1}{12} \left( -\frac{1}{12} \left( -\frac{1}{1
```

Wz: None

 $\begin{aligned} & \text{Q:} - \frac{C_1 \sqrt{C_2} \sqrt{R_2} \sqrt{R_4} \sqrt{R_5} \sqrt{C_3 + C_4} \sqrt{-R_4 + R_5}}{C_1 C_2 R_2 R_4 - C_1 C_2 R_2 R_5 - C_1 C_2 R_4 R_5 - C_1 C_3 R_4 R_5 - C_1 C_4 R_4 R_5 - C_2 C_3 R_4 R_5} \\ & \text{wo:} \ \, \frac{\sqrt{-R_4 + R_5}}{\sqrt{C_2 C_3 R_2 R_4 R_5 + C_2 C_4 R_2 R_4 R_5}} \\ & \text{bandwidth:} \ \, - \frac{C_1 C_2 R_2 R_4 - C_1 C_2 R_2 R_5 - C_1 C_2 R_4 R_5 - C_1 C_3 R_4 R_5 - C_1 C_4 R_4 R_5 - C_2 C_3 R_4 R_5}{C_1 \sqrt{C_2} \sqrt{R_2} \sqrt{R_4} \sqrt{R_5} \sqrt{C_3 + C_4} \sqrt{C_2 C_3 R_2 R_4 R_5 + C_2 C_4 R_2 R_4 R_5}} \end{aligned}$ K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$ K-HP: 0  $\text{K-BP:} - \frac{C_2C_3R_2R_4R_6}{C_1C_2R_2R_4 - C_1C_2R_2R_5 - C_1C_2R_4R_5 - C_1C_3R_4R_5 - C_1C_4R_4R_5 - C_2C_3R_4R_5}$ Qz: None

**8.226** X-INVALID-NUMER-226 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_3R_2R_4 + C_1C_2C_4R_2R_4 - C_1C_2C_5R_2R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_2C_3R_4\right)}$$

# 8.227 X-INVALID-NUMER-227 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3C_5R_2R_4s + C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_4 + C_1C_2C_4C_6R_2R_4 - C_1C_2C_5C_6R_2R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

#### Parameters:

$$Q \colon \frac{C_1 \sqrt{C_2} C_3 \sqrt{R_2} \sqrt{R_4} \sqrt{\frac{1}{C_3 + C_4 - C_5}} + C_1 \sqrt{C_2} C_4 \sqrt{R_2} \sqrt{R_4} \sqrt{\frac{1}{C_3 + C_4 - C_5}} - C_1 \sqrt{C_2} C_5 \sqrt{R_2} \sqrt{R_4} \sqrt{\frac{1}{C_3 + C_4 - C_5}}}{C_1 C_2 R_2 + C_1 C_2 R_4 + C_1 C_3 R_4 + C_1 C_4 R_4 - C_1 C_5 R_4 + C_2 C_3 R_4}} \\ \text{W0: } \sqrt{\frac{1}{C_2 C_3 R_2 R_4 + C_2 C_4 R_2 R_4 - C_2 C_5 R_2 R_4}}} \\ \text{bandwidth: } \frac{(C_1 C_2 R_2 + C_1 C_2 R_4 + C_1 C_3 R_4 + C_1 C_4 R_4 - C_1 C_5 R_4 + C_2 C_3 R_4) \sqrt{\frac{1}{C_2 C_3 R_2 R_4 + C_2 C_4 R_2 R_4 - C_2 C_5 R_2 R_4}}}{C_1 \sqrt{C_2} C_3 \sqrt{R_2} \sqrt{R_4} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + C_1 \sqrt{C_2} C_4 \sqrt{R_2} \sqrt{R_4} \sqrt{\frac{1}{C_3 + C_4 - C_5}} - C_1 \sqrt{C_2} C_5 \sqrt{R_2} \sqrt{R_4} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\ \text{K-LP: } \frac{C_3 C_5 R_4}{C_1 C_6} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_2 C_3 C_5 R_2 R_4}{C_1 C_2 C_6 R_2 + C_1 C_2 C_6 R_4 + C_1 C_3 C_6 R_4 - C_1 C_5 C_6 R_4 + C_2 C_3 C_6 R_4}}{C_1 C_2 C_6 R_4 + C_1 C_3 C_6 R_4 + C_1 C_4 C_6 R_4 - C_1 C_5 C_6 R_4 + C_2 C_3 C_6 R_4}} \\ \text{Vz: None} \\ \text{Wz: None}$$

# **8.228** X-INVALID-NUMER-228 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

 $H(s) = \frac{C_2C_3R_2R_4R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^2\left(-C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_3R_5 + C_1C_2C_3R_2R_4R_5 + C_1C_2R_3R_4R_5\right) + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 + C_2C_3R_4R_5\right)}$ 

#### Parameters:

$$Q: \frac{C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_3 R_4 \sqrt{-\frac{R_4}{-R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}{-R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}}{C_1 C_2 R_2 R_3 R_4 + R_2 R_3 R_5 - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_3 R_4 - C_1 C_2 R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_3 R_4 - C_1 C_2 R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 + R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - C_2 C_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - C_2 C_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - C_2 C_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - C_2 C_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - C_2 C_3 R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - C_2 C_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - C_2 C_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - C_2 C_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - R_3 R_4 R_5 - R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - R_3 R_4 R_5 R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - R_3 R_4 R_5 - R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - R_3 R_4 R_5 R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5 - R_3 R_4 R_5} - C_1 \sqrt{C_2} \sqrt{C_3} R_2 R_4 R_5} - C_1 \sqrt{C_$$

Qz: None Wz: None

# **8.229** X-INVALID-NUMER-229 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_2C_3C_5R_2R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_2R_3 - C_1C_2C_3C_5R_2R_3\right) + s\left(C_1C_2C_3R_2 + C_1C_2C_3R_3 + C_1C_2C_4R_2 - C_1C_2C_5R_2 + C_1C_3C_4R_3 - C_1C_3C_5R_3\right)}$$

### Parameters:

$$Q \colon \frac{\sqrt{C_2}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{C_1C_2}{C_4-C_5}} + \frac{C_1C_3}{C_4-C_5} + \frac{C_1C_4}{C_4-C_5} - \frac{C_1C_5}{C_4-C_5} + \frac{C_2C_3}{C_4-C_5}}{\sqrt{C_1}C_2C_3R_2 + \sqrt{C_1}C_2C_3R_3 + \sqrt{C_1}C_2C_4R_2} - \sqrt{C_1}C_2C_5R_2 + \sqrt{C_1}C_3C_4R_3 - \sqrt{C_1}C_3C_5R_3} } \\ wo: \sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_4R_2R_3-C_1C_2C_3C_5R_2R_3}}} \\ bandwidth: \frac{\sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_4R_2R_3-C_1C_2C_3C_5R_2R_3}} (\sqrt{C_1}C_2C_3R_2 + \sqrt{C_1}C_2C_3R_3 + \sqrt{C_1}C_2C_4R_2 - \sqrt{C_1}C_2C_5R_2 + \sqrt{C_1}C_3C_4R_3 - \sqrt{C_1}C_3C_5R_3})}{\sqrt{C_2}\sqrt{C_3C_3C_4R_2R_3-C_1C_2C_3C_5R_2R_3}} (\sqrt{C_1C_2C_3R_2} + \frac{C_1C_3}{C_4-C_5} + \frac{C_2C_3}{C_4-C_5} - \sqrt{C_2}C_4R_2 - \sqrt{C_1}C_2C_5R_2 + \sqrt{C_1}C_3C_4R_3 - \sqrt{C_1}C_3C_5R_3})} \\ bandwidth: \frac{\sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_4R_2R_3-C_1C_2C_3C_5R_2R_3}} (\sqrt{C_1C_2C_3R_2} + \sqrt{C_1C_2C_3R_3} + \sqrt{C_1C_2C_4R_2} - \sqrt{C_1C_2C_5R_2} + \sqrt{C_1C_3C_4R_3} - \sqrt{C_1C_3C_5R_3})}}{\sqrt{C_2}\sqrt{C_3C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{C_1C_2}{C_4-C_5}} + \frac{C_1C_3}{C_4-C_5}} + \frac{C_1C_3}{C_4-C_5}} - \sqrt{C_2}\sqrt{C_3C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{C_1C_2}{C_4-C_5}} + \frac{C_1C_3}{C_4-C_5}} + \frac{C_1C_3}{C_4-C_5}}} \\ K-LP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{C_1C_2C_3R_3+C_1C_2C_4R_2-C_1C_2C_5R_2+C_1C_3C_4R_3-C_1C_3C_5R_3}} \\ W_2: None \\ W_z: None \\$$

# **8.230** X-INVALID-NUMER-230 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_5C_6R_2R_4R_6s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_2C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_2C_6R_2R_4\right)}$$

#### Parameters:

$$\begin{array}{l} Q\colon \frac{\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2-C_5}}}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}\\ \text{wo: } \sqrt{\frac{1}{C_1C_2R_3}-\frac{1}{C_1C_5R_2R_3}}\\ \text{bandwidth: } \frac{(C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_2R_3-C_1C_5R_2R_3}}}{\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2-C_5}}}\\ \text{K-LP: } \frac{C_5R_2}{C_6}\\ \text{K-HP: } 0\\ \text{K-BP: } \frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

# 8.231 X-INVALID-NUMER-231 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_5 R_2 R_4 R_5 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^2 \left(C_1 C_2 R_2 R_3 R_4 R_5 - C_1 C_5 R_2 R_3 R_4 R_5\right) + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 + C_2 R_2 R_4 R_5\right)}$$

## Parameters:

$$\begin{array}{l} Q\colon \frac{-\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_2-C_5}}+\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_2-C_5}}}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5}\\ \text{wo: } \sqrt{\frac{1}{C_1C_2R_2R_3-C_1C_5R_2R_3}}\\ \text{bandwidth: } \frac{(C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5)\sqrt{\frac{1}{C_1C_2R_2R_3-C_1C_5R_2R_3}}}{-\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_2-C_5}}+\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_2-C_5}}}\\ \text{K-LP: } \frac{R_2R_6}{R_5}\\ \text{K-HP: } 0\\ \text{K-BP: } -\frac{C_5R_2R_4R_5R_6}{C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5}\\ \text{Qz: None} \end{array}$$

**8.232** X-INVALID-NUMER-232 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_2R_6s + C_5R_2}{C_6 + s^2\left(C_1C_2C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2\right)}$$

$$Q \colon \frac{\sqrt{C_{1}}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}} + \sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}} - \sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}{C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2}}$$

$$\text{wo: } \sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}$$

$$\text{bandwidth: } \frac{(C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}{\sqrt{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}} + \sqrt{C_{1}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}$$

$$\text{K-LP: } \frac{C_{5}R_{2}}{C_{6}}$$

$$\text{K-HP: 0}$$

$$\text{K-BP: } \frac{C_{5}R_{2}R_{6}}{C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2}}}{C_{2} : \text{None}}$$

$$\text{Wz: None}$$

## **8.233** X-INVALID-NUMER-233 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_5 R_2 R_5 R_6 s + R_2 R_6}{R_5 + s^2 \left(C_1 C_2 R_2 R_3 R_5 + C_1 C_4 R_2 R_3 R_5 - C_1 C_5 R_2 R_3 R_5\right) + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_2 R_2 R_5\right)}$$

#### Parameters:

$$\begin{array}{l} Q\colon \frac{-\sqrt{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}{C_{1}R_{2}R_{3}-C_{1}R_{2}R_{5}-C_{1}R_{3}R_{5}-C_{2}R_{2}R_{5}}}\\ \text{wo: } \sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}\\ \text{bandwidth: } \frac{(C_{1}R_{2}R_{3}-C_{1}R_{2}R_{5}-C_{1}R_{3}R_{5}-C_{2}R_{2}R_{5})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}{-\sqrt{C_{1}}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}-\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}\\ \text{K-LP: } \frac{R_{2}R_{6}}{R_{5}}\\ \text{K-HP: 0}\\ \text{K-BP: } -\frac{C_{5}R_{2}R_{5}R_{6}}{C_{1}R_{2}R_{3}-C_{1}R_{2}R_{5}-C_{1}R_{3}R_{5}-C_{2}R_{2}R_{5}}}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

# **8.234** X-INVALID-NUMER-234 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_5C_6R_2R_4R_6s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_2C_6R_2R_4\right)}$$

$$Q \colon \frac{\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4} \\ \text{Wo: } \sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{(C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}}}{\sqrt{C_1}C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}}} + \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_2+C_4-C_5}}} \\ \text{K-LP: } \frac{C_5R_2}{C_6} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}} \\ \text{Qz: None} \\ \text{Wz: None}$$

**8.235** X-INVALID-NUMER-235 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$$

$$H(s) = \frac{C_5R_2R_4R_5R_6s + R_2R_4R_6}{R_4R_5 + s^2\left(C_1C_2R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5\right)}$$

$$Q\colon \frac{-\sqrt{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}{C_{1}R_{2}R_{3}R_{4}-C_{1}R_{2}R_{3}R_{5}-C_{1}R_{2}R_{4}R_{5}-C_{1}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}}}$$

$$wo: \sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}$$

$$bandwidth: \frac{(C_{1}R_{2}R_{3}R_{4}-C_{1}R_{2}R_{3}R_{5}-C_{1}R_{2}R_{4}R_{5}-C_{1}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}}{-\sqrt{C_{1}}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}$$

$$K-LP: \frac{R_{2}R_{6}}{R_{5}}$$

$$K-HP: 0$$

$$K-BP: -\frac{C_{5}R_{2}R_{4}R_{5}R_{6}}{C_{1}R_{2}R_{3}R_{5}-C_{1}R_{2}R_{4}R_{5}-C_{1}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}}}{C_{2}R_{2}R_{3}R_{4}-C_{1}R_{2}R_{3}R_{5}-C_{1}R_{2}R_{4}R_{5}-C_{1}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}}}$$

$$Qz: None$$

$$Wz: None$$

**8.236** X-INVALID-NUMER-236  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + c_2C_3C_5C_6R_2R_4R_5\right) + s\left(C_1C_2C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_4R_5 + C_1C_5C_6$ 

#### Parameters:

8.237 X-INVALID-NUMER-237  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_2C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_5C_6R_2R_4R_5R_6 + C_1C_3R_2R_4R_5 + C_1C_3R_2R_4R_5 - C_1C_5R_2R_4R_5 - C_1C_5R_2R_4R_5 - C_1C_6R_2R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_5 + C_1C_6R_5 + C_1C_6R_5 + C_1C_6R_5 + C_1C_6R_5 + C_1C_6R_5 + C_1C_6R_5$ 

Parameters:

$$\begin{array}{c} C_1 C_2 \sqrt{C_6} \sqrt{R_2} \sqrt{R_4} \sqrt{R_5} \sqrt{R_6} \sqrt{-\frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + \frac{C_1 R_4 R_5}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_4 R_5}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_4 R_5}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_5}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 - C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 - C_1 C_3 - C_1 C_5 + C_2 C_3} + \frac{C_1 R_2 R_4}{C_1 C_2 - C_1 R_2 R_4 R_5 + C_1 C_3 R_2 R_4 R_5 - C_1 C_5 R_2 R_4 R_5 + C_1 C_5$$

8.238 X-INVALID-NUMER-238  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_6s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_2C_3C_5C_6R_2R_5\right) + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_5C_6R_2 + C_1C_5C_6$$

Parameters:

Q:  $\frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}\sqrt{C_1+C_3}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1C_2R_2+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_2C_3R_2+C_3C_5R_5}$  wo:  $\frac{\sqrt{C_1+C_3}}{\sqrt{C_1C_2C_5R_2R_5+C_1C_3C_5R_2R_5+C_1C_4C_5R_2R_5+C_2C_3C_5R_2R_5}}$  bandwidth:  $\frac{C_1C_2R_2+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_1C_4R_2-C_1C_5R_2+C_1C_3C_5R_2}$  K-LP:  $\frac{C_3C_5R_2}{C_1C_6+C_3C_6}$  K-HP: 0 K-BP:  $\frac{C_3C_5R_2R_6}{C_1C_2R_2+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_2C_3R_2+C_3C_5R_5}$  Qz: None Wz: None **8.239** X-INVALID-NUMER-239  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $C_3C_5R_2R_5R_6s + C_3R_2R_6$  $H(s) = \frac{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_6R_2R_5R_6 + C_1C_3C_6R_2R_5R_6 + C_1C_4C_6R_2R_5R_6 - C_1C_5C_6R_2R_5R_6 + C_2C_3C_6R_2R_5R_6 + C_1C_4R_2R_5 - C_1C_5R_2R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5 - C_1C_6R_2R_6 + C_1C_6R_5R_6 + C_2C_3R_2R_5 + C_3C_6R_2R_5R_6 + C_3C_6R_5R_6 + C_3C$ Parameters:  $O: \frac{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{C_{1}R_{2}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{5}+C_{2$ Wo:  $\sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_2C_6R_2R_5R_6+C_1C_3C_6R_2R_5R_6+C_1C_4C_6R_2R_5R_6-C_1C_5C_6R_2R_5R_6+C_2C_3C_6R_2R_5R_6}}$ K-LP:  $-\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}$ K-HP: 0  $\text{K-BP:} \frac{C_3C_5R_2R_5R_6}{C_1C_2R_2R_5+C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_5R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_2C_3R_2R_5+C_3C_6R_5R_6}$ Qz: None Wz: None **8.240** X-INVALID-NUMER-240  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$  $C_3C_4R_2R_4R_6s + C_3R_2R_6$  $H(s) = \frac{-C_1R_2 + C_1R_5 + C_3R_5 + s^2(C_1C_2C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5 + C_2C_3C_4R_2R_4R_5) + s(C_1C_2R_2R_5 + C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 + C_2C_3R_2R_5 + C_3C_4R_4R_5)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2(C_1C_2C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5) + s(C_1C_2R_2R_5 + C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 + C_2C_3R_4R_5)}$ Parameters: wo:  $\frac{\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{\sqrt{C_1C_2C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_2C_3C_4R_2R_4R_5}}$ bandwidth:  $\frac{C_1C_2R_2R_5+C_1C_3R_2R_5-C_1C_4R_2R_4+C_1C_4R_2R_5+C_1C_4R_4R_5+C_2C_3R_2R_5+C_3C_4R_4R_5}{\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_2C_3C_4R_2R_4R_5}}$ K-LP:  $-\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}$ K-HP: 0 K-BP:  $\frac{C_3C_4R_2R_4R_6}{C_1C_2R_2R_5+C_1C_3R_2R_5-C_1C_4R_2R_4+C_1C_4R_2R_5+C_1C_4R_4R_5+C_2C_3R_2R_5+C_3C_4R_4R_5}$  Qz: None Wz: None **8.241** X-INVALID-NUMER-241  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_2C_4R_2R_4 + C_1C_3C_4R_2R_4 - C_1C_4C_5R_2R_4 + C_2C_3C_4R_2R_4\right) + s\left(C_1C_2R_2 + C_1C_3R_2 + C_1C_4R_4 - C_1C_5R_2 + C_2C_3R_2 + C_3C_4R_4\right)}$ Parameters:  $Q: \frac{C_1C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} \\ - C_1C_2R_2+C_1C_3R_2+C_1C_4R_4-C_1C_5R_2+C_2C_3R_2+C_3C_4R_4$  $\sqrt{C_1 + C_3} (C_1 C_2 R_2 + C_1 C_3 R_2 + C_1 C_4 R_2 + C_1 C_4 R_4 - C_1 C_5 R_2 + C_2 C_3 R_2 + C_3 C_4 R_4) \sqrt{\frac{1}{C_1 C_2 C_4 R_2 R_4 + C_1 C_3 C_4 R_2 R_4 + C_1 C_4 C_5 R_2 R_4 + C_2 C_3 C_4 R_2 R_4}}$  $\frac{\sqrt{C_{1}C_{2}C_{4}N_{2}N_{4}+C_{1}C_{3}C_{4}N_{2}N_{4}+C_{1}C_{3}C_{4}N_{2}N_{4}+C_{1}C_{3}C_{4}N_{2}N_{4}+C_{1}C_{3}C_{4}N_{2}N_{4}+C_{1}C_{3}C_{4}N_{2}N_{4}}{C_{1}C_{2}\sqrt{C_{4}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}}} + C_{1}C_{3}\sqrt{C_{4}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}} + C_{1}C_{3}\sqrt{C_{4}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}} - C_{1}\sqrt{C_{4}C_{5}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}} + C_{2}C_{3}\sqrt{C_{4}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}} + C_{2}C_{3}\sqrt{C_{4}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}}} + C_{2}C_{3}\sqrt{C_{4}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}}}} + C_{2}C_{3}\sqrt{C_{4}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}}} + C_{2}C_{3}\sqrt{C_{4}\sqrt{R_{2}\sqrt{R_{4}\sqrt{C_{1}+C_{3}}}}} + C_{2}C_{3}\sqrt{C_{4}\sqrt{R_{2}\sqrt{C_{1}+C_{3}}}}} + C_$ K-LP: 0  $\begin{array}{l} \text{K-HP: } \frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} \\ \text{K-BP: } \frac{C_3C_5R_2R_6}{C_1C_2R_2+C_1C_3R_2+C_1C_4R_2+C_1C_4R_4-C_1C_5R_2+C_2C_3R_2+C_3C_4R_4} \end{array}$ 

Qz: None Wz: None

```
8.242 X-INVALID-NUMER-242 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $C_3C_4C_5R_2R_4s + C_3C_5R_2$  $H(s) = \frac{C_3C_4C_5R_2R_4S + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_4C_6R_2R_4 + C_1C_3C_4C_6R_2R_4 + C_2C_3C_4C_6R_2R_4 + S(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_2C_3C_6R_2 + C_3C_4C_6R_4\right)}$ 

#### Parameters:

 $\frac{C_{1}C_{2}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{1}+C_{2}}\sqrt{C_{1}+C_{3}}\sqrt{C_$ 

 $\text{bandwidth: } \frac{\sqrt{C_1 + C_3}(C_1C_2R_2 + C_1C_3R_2 + C_1C_4R_4 - C_1C_5R_2 + C_2C_3R_2 + C_3C_4R_4)\sqrt{\frac{1}{C_1C_2C_4R_2R_4 + C_1C_3C_4R_2R_4 - C_1C_4C_5R_2R_4 + C_2C_3C_4R_2R_4}}{C_1C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_1\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_1\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{R_4}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_4}\sqrt{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2\sqrt{C_1C_2 + C_1C_3$ 

K-LP:  $\frac{C_3C_5R_2}{C_1C_6+C_3C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_4C_5R_2R_4}{C_1C_2C_6R_2+C_1C_3C_6R_2+C_1C_4C_6R_2+C_1C_4C_6R_4-C_1C_5C_6R_2+C_2C_3C_6R_2+C_3C_4C_6R_4}$  Qz: None

Wz: None

# **8.243** X-INVALID-NUMER-243 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4$ 

#### **Parameters:**

Q:  $\frac{\sqrt{C_5}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1R_2}+C_1R_4+C_3R_4}{\sqrt{C_1C_2}+C_1C_3}+C_1C_4+C_2C_3}{\sqrt{C_1R_2}+C_1R_4+C_1C_3R_2R_4+C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_2C_3R_2R_4+C_3C_5R_4R_5}}$  wo:  $\frac{\sqrt{C_1R_2}+C_1R_4+C_3R_4}{\sqrt{C_1C_2C_5R_2R_4R_5}+C_1C_3C_5R_2R_4+C_1C_4C_5R_2R_4+R_5+C_2C_3C_5R_2R_4R_5}}$  bandwidth:  $\frac{C_1C_2R_2R_4+C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_2C_3C_5R_2R_4+C_1C_5R_4+C_1C$ 

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4+C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_2C_3R_2R_4+C_3C_5R_4R_5}{\text{Qz: None}}$  Qz: None

Wz: None

## **8.244** X-INVALID-NUMER-244 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$

 $C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6$ 

 $\overline{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_2C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_5C_6R_2R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + C_1C_3R_2R_4R_5 + s^2\left(C_1C_2R_2R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_4R_5 +$ 

### Parameters:

 $O: \frac{C_1C_2\sqrt{C_6}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{C_1R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{C_1R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{C_1R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{C_1R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{C_1R_2R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_5+C_2C_3}+\frac{C_1R_2R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_5+C_2C_3$ 

 $\overline{C_{1}C_{2}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{1}R_{4}R_{5}}{C_{1}C_{4}+$ 

K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ K-HP: 0

 $\text{K-BP: } \frac{C_3C_5R_2R_4R_5R_6}{C_1C_2R_2R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_4R_5R_6 + C_2C_3R_2R_4R_5 + C_3C_6R_4R_5R_6}$ 

Qz: None Wz: None

**8.245** X-INVALID-NUMER-245 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_2R_3R_4 - C_1C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_4$$

 $Q\colon \frac{\sqrt{C_{1}}C_{2}\sqrt{C_{3}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}-C_{5}}}-\sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}-C_{5}}}}{C_{1}C_{2}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{5}R_{2}R_{4}+C_{2}C_{3}R_{2}R_{4}}\\ \text{wo: } \sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}C_{3}R_{2}R_{3}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}}}\\ \text{bandwidth: } \frac{\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}(C_{1}C_{2}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{3}R_{4}-C_{1}C_{5}R_{2}R_{4}+C_{2}C_{3}R_{2}R_{4})\sqrt{\frac{1}{C_{1}C_{2}C_{3}R_{2}R_{3}R_{4}-C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}}}\\ \text{bandwidth: } \frac{\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}(C_{1}C_{2}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{3}R_{4}-C_{1}C_{5}R_{2}R_{4}+C_{2}C_{3}R_{2}R_{4}+C_{2}C_{3}R_{2}R_{4})\sqrt{\frac{1}{C_{1}C_{2}C_{3}R_{2}R_{3}R_{3}R_{4}-C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}}}}\\ \text{bandwidth: } \frac{\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}(C_{1}C_{2}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}}}{\sqrt{C_{1}C_{2}-C_{5}}}-\sqrt{C_{1}}\sqrt{C_{3}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}}\sqrt{\frac{1}{C_{2}-C_{5}}}}\\ \text{K-LP: } \frac{C_{3}C_{5}R_{2}R_{4}}{C_{1}C_{6}R_{4}+C_{3}C_{6}R_{4}}}{C_{1}C_{6}R_{4}+C_{3}C_{6}R_{4}}\\ \text{K-BP: } \frac{C_{3}C_{5}R_{2}R_{4}R_{6}}{C_{1}C_{2}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{5}R_{2}R_{4}+C_{2}C_{3}R_{2}R_{4}}}\\ \text{Qz: None}\\ \text{Wz: None}$ 

## **8.246** X-INVALID-NUMER-246 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_2C_3R_2R_3R_4R_5 - C_1C_3C_5R_2R_3R_4R_5\right) + s\left(C_1C_2R_2R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_$ 

### Parameters:

 $Q\colon \frac{\sqrt{C_{1}}C_{2}\sqrt{C_{3}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{C_{2}-C_{5}} + \frac{C_{1}R_{4}R_{5}}{C_{2}-C_{5}} + \frac{C_{3}R_{4}R_{5}}{C_{2}-C_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{C_{2}-C_{5}} + \frac{C_{1}R_{4}R_{5}}{C_{2}-C_{5}} + \frac{C_{3}R_{4}R_{5}}{C_{2}-C_{5}}}}}{C_{1}C_{2}R_{2}R_{4}R_{5}-C_{1}C_{3}R_{2}R_{3}R_{4}+C_{1}C_{3}R_{2}R_{3}R_{5}+C_{1}C_{3}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{2}R_{4}R_{5}}}} \\ \text{Wo:} \frac{\sqrt{-\frac{C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}{C_{1}C_{2}C_{3}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}}}}}{\sqrt{-\frac{C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}{C_{2}-C_{5}}}}} \\ \text{bandwidth:} \frac{\sqrt{-\frac{C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}{C_{1}C_{3}C_{3}R_{2}R_{3}R_{4}R_{5}}}}}{\sqrt{-\frac{C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}{C_{2}-C_{5}}}}} \\ \frac{\sqrt{-\frac{C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}{C_{3}C_{3}R_{2}R_{3}R_{4}R_{5}}}}}} \\ \text{bandwidth:} \frac{\sqrt{-\frac{C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}{C_{1}C_{3}C_{3}R_{2}R_{3}R_{4}}}}}{\sqrt{C_{1}C_{2}\sqrt{C_{3}\sqrt{R_{3}\sqrt{R_{4}\sqrt{R_{5}\sqrt{-C_{1}C_{2}R_{2}R_{4}}R_{5}}}}} \\ (C_{1}C_{2}R_{2}R_{4}R_{5}-C_{1}C_{3}R_{2}R_{3}R_{4}+C_{1}C_{3}R_{2}R_{3}R_{5}+C_{1}C_{3}R_{2}R_{3}R_{5}+C_{1}C_{3}R_{2}R_{4}R_{5}}}{C_{1}C_{2}C_{3}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{3}R_{2}R_{4}R_{5}} \\ -C_{1}C_{2}C_{3}R_{2}R_{4}R_{5}-C_{1}C_{3}R_{2}R_{4}R_{5}-C_{1}C_{3}R_{2}R_{4}R_{5}-C_{1}C_{3}R_{2}R_{4}R_{5}}{C_{2}-C_{5}} \\ -\sqrt{C_{1}\sqrt{C_{3}\sqrt{C_$ 

# 8.247 X-INVALID-NUMER-247 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5C_6R_2R_6s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3\right) + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2\right)}$ 

### Parameters:

Wz: None

 $Q\colon \frac{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}}\sqrt{\frac{1}{C_2+C_4-C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1C_2R_2+C_1C_3R_2+C_1C_3R_3+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}\\ \text{wo: } \sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_2C_3R_2R_3+C_1C_3C_4R_2R_3-C_1C_3C_5R_2R_3}}\\ \text{bandwidth: } \frac{\sqrt{C_1+C_3}(C_1C_2R_2+C_1C_3R_2+C_1C_3R_3+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2)\sqrt{\frac{1}{C_1C_2C_3R_2R_3+C_1C_3C_5R_2R_3}}}{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}\\ \text{K-LP: } \frac{C_3C_5R_2}{C_1C_6+C_3C_6}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_3C_5R_2R_6}{C_1C_2R_2+C_1C_3R_3+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}\\ \text{Qz: None}$ 

```
8.248 X-INVALID-NUMER-248 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
```

 $H(s) = \frac{C_3C_5R_2R_5R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_3R_2R_3R_5 + C_1C_3C_4R_2R_3R_5 - C_1C_3C_5R_2R_3R_5\right) + s\left(C_1C_2R_2R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5 + C_2C_3R_2R_5\right)}{s^2}$ 

### Parameters:

 $Q: \frac{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_2+C_4-C_5}} + \frac{C_1R_5}{C_2+C_4-C_5} + \frac{C_3R_5}{C_2+C_4-C_5}}{C_1C_2R_2R_5-C_1C_3R_2R_3+C_1C_3R_2R_5+C_1C_3R_3R_5+C_1C_3R_2R_5-C_1C_5R_2R_5} - \frac{C_1R_5}{C_2+C_4-C_5} + \frac{C_1R_5}{C_2+C_4-C_5} + \frac{C_1R_5}{C_2+C_4-C_5} + \frac{C_1R_5}{C_2+C_4-C_5}}{C_1C_2R_2R_5-C_1C_3R_2R_3+C_1C_3R_2R_5+C_1C_3R_3R_5+C_1C_3R_2R_5-C_1C_5R_2R_5+C_2C_3R_2R_5} \\ wo: \sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_2C_3R_2R_3R_5+C_1C_3C_4R_2R_3R_5-C_1C_3C_5R_2R_3R_5}}{\sqrt{C_1C_2C_3R_2R_3R_5+C_1C_3C_4R_2R_3R_5-C_1C_3C_5R_2R_3R_5}}} (C_1C_2R_2R_5-C_1C_3R_2R_3+C_1C_3R_2R_5+C_1C_3R_3R_5+C_1C_4R_2R_5-C_1C_5R_2R_5+C_2C_3R_2R_5} \\ bandwidth: \frac{\sqrt{\frac{C_1C_2C_3R_2R_3R_5+C_1C_3C_5R_2R_3R_5}{C_1C_2C_3R_2R_3R_5+C_1C_3C_5R_2R_3R_5}}}{\sqrt{C_1C_2R_2R_5-C_1C_3R_2R_3R_5+C_1C_3R_2R_$ 

# **8.249** X-INVALID-NUMER-249 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 - C_1C_3C_5C_6R_2R_3R_4) + s\left(C_1C_2C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 +$ 

### Parameters:

 $Q: \frac{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1}R_2 + C_1}{C_2R_2R_4 + C_1S_R}\sqrt{\frac{1}{C_2 + C_4 - C_5}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1}R_2 + C_1}R_4 + C_3R_4\sqrt{\frac{1}{C_2 + C_4 - C_5}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1}R_2 + C_1}R_4 + C_3R_4\sqrt{\frac{1}{C_2 + C_4 - C_5}}} \\ wo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}R_2R_3 + C_1}C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4} \\ bandwidth: \frac{\sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_1}C_2C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}}}{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_1}C_2C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}} \\ bandwidth: \frac{\sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_3R_4 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4}}{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_3R_4 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_3R_4 + C_1C_3R_2R_3R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_3R_4\sqrt{\frac{1}{C_2}C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_1R_4 + C_2R_4\sqrt{\frac{1}{C_2}C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4}} \\ vo: \sqrt{C_1}R_2 + C_1R_4 + C_2R_4 + C_1R_4 + C_1R_4 + C_1R_4 + C_1R_4 + C$ 

# 8.250 X-INVALID-NUMER-250 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_2C_3R_2R_3R_4R_5 + C_1C_3C_5R_2R_3R_4R_5\right) + s\left(C_1C_2R_2R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_4 + C_1C_3R_2R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_4R_5 + C_1C_$ 

### Parameters:

 $Q: \frac{\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_2+C_4-C_5} + \frac{C_1R_2R_5}{C_2+C_4-C_5} + \frac{C_1R_4R_5}{C_2+C_4-C_5} + \frac{C_3R_4R_5}{C_2+C_4-C_5} + \frac{C_1R_2R_5}{C_2+C_4-C_5} + \frac{C_1R_2R$ 

**8.251** X-INVALID-NUMER-251 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3R_2R_3R_4R_6s + R_2R_4R_6}{R_4R_5 + s^2\left(C_1C_2R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_2C_3R_2R_3R_4R_5\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5 + C_3R_3R_4R_5\right)}$$

 $\begin{array}{l} \text{Q:} - \frac{\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{C_1C_2 + C_1C_3 + C_2C_3}}{C_1R_2R_3R_4 - C_1R_2R_3R_5 - C_1R_2R_4R_5 - C_1R_3R_4R_5 - C_2R_2R_4R_5 - C_3R_3R_4R_5} \\ \text{wo:} \ \frac{1}{\sqrt{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_2C_3R_2R_3}} \\ \text{bandwidth:} \ - \frac{C_1R_2R_3R_4 - C_1R_2R_3R_5 - C_1R_2R_4R_5 - C_1R_3R_4R_5 - C_2R_2R_4R_5 - C_3R_3R_4R_5}{\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{C_1C_2 + C_1C_3 + C_2C_3}\sqrt{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_2C_3R_2R_3}} \\ \text{K-LP:} \ \frac{R_2R_6}{R_5} \\ \text{K-HP:} \ 0 \\ \text{K-BP:} \ - \frac{C_3R_2R_3R_4 - C_1R_2R_3R_5 - C_1R_2R_4R_5 - C_1R_3R_4R_5 - C_2R_2R_4R_5 - C_3R_3R_4R_5}{C_1R_2R_3R_4 - C_1R_2R_3R_5 - C_1R_2R_4R_5 - C_1R_3R_4R_5 - C_2R_2R_4R_5 - C_3R_3R_4R_5} \end{array}$ 

Qz: None Wz: None

# 8.252 X-INVALID-NUMER-252 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_2R_3R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^2\left(C_1C_2R_2R_3R_4 + C_1C_3R_2R_3R_4 - C_1C_5R_2R_3R_4 + C_2C_3R_2R_3R_4\right) + s\left(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4\right)}$$

## Parameters:

 $\begin{array}{c} Q: \frac{C_{1}C_{2}\sqrt{R_{3}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} - C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} \\ wo: \sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}}}{(C_{1}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}}}} \\ bandwidth: \frac{(C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}}}}{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} - C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} \\ K-P: 0 \\ K-HP: \frac{C_{3}C_{5}R_{6}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{5}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4}}} \\ Qz: None \\ Wz: None \\ \end{array}$ 

# 8.253 X-INVALID-NUMER-253 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_2R_3R_4s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_2C_6R_2R_4 + C_3C_6R_3R_4\right)}$$

### Parameters:

$$Q: \frac{C_{1}C_{2}\sqrt{R_{3}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{3}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{3}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}$$

## 8.254 X-INVALID-NUMER-254 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_3R_2R_3R_6s + R_2R_6}{R_5 + s^2\left(C_1C_2R_2R_3R_5 + C_1C_3R_2R_3R_5 + C_1C_4R_2R_3R_5 + C_2C_3R_2R_3R_5\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5 + C_3R_3R_5\right)}$$

```
 \text{Wo: } \frac{1}{\sqrt{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_4R_2R_3 + C_2C_3R_2R_3}} \\ \text{bandwidth: } -\frac{C_1R_2R_3 + C_1R_2R_5 - C_1R_3R_5 - C_2R_2R_5 - C_3R_3R_5}{\sqrt{R_2}\sqrt{R_3}R_5\sqrt{C_1C_2 + C_1C_3 + C_1C_4 + C_2C_3}\sqrt{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_3R_3R_3 + C_1C_3
                K-HP: 0
               K-BP: -\frac{C_3R_2R_3R_6}{C_1R_2R_3 - C_1R_2R_5 - C_1R_3R_5 - C_2R_2R_5 - C_3R_3R_5}
                  Qz: None
                 Wz: None
8.255 X-INVALID-NUMER-255 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                        H(s) = \frac{C_3C_5R_2R_3R_6s^2 + C_5R_2R_6s}{s^2\left(C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_2C_3R_2R_3\right) + s\left(C_1R_2 + C_1R_3 + C_2R_2 + C_3R_3\right) + 1}
      Parameters:
                 Q: \underbrace{\frac{C_1C_2\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{C_1R_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}_{C_1R_2+C_1R_3+C_1C_4-C_1C_5+C_2C_3} + C_1C_3\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_1C_3\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_2C_3\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_2C_3\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_1C_3+C_1C_5+C_1C_5+C_2C_3}}} + C_2C_3\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1
                 Wo: \sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3+C_2C_3R_2R_3}}
                \text{bandwidth: } \frac{(C_1R_2 + C_1R_3 + C_2R_2 + C_3R_3)\sqrt{\frac{1}{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_5R_2R_3 + C_2C_3R_2R_3}}{C_1C_2\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_5 + C_2C_3}} + C_1C_3\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}} + C_1C_3\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}}} + C_2C_3\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_4 + C_1C_5 + C_2C_3}}}}}}}}}}
                 K-LP: 0
              \begin{array}{l} \text{K-HP: } \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP: } \frac{C_5R_2R_6}{C_1R_2+C_1R_3+C_2R_2+C_3R_3} \\ \text{Qz: None} \end{array} 
                 Wz: None
8.256 X-INVALID-NUMER-256 Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}
                                                                                                                                                                                                                                                                                        H(s) = \frac{C_3C_5R_2R_3s + C_5R_2}{C_6 + s^2\left(C_1C_2C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3 + C_2C_3C_6R_2R_3\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2 + C_3C_6R_3\right)}
        Parameters:
                              \underbrace{\frac{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+C_{1}C_{3}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}
                wo: \sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3+C_2C_3R_2R_3}}
                                                                                                                                                                                                                                                                                                                                                                                                                  (C_1R_2 + C_1R_3 + C_2R_2 + C_3R_3)\sqrt{\frac{1}{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_2C_3R_2R_3}}
               K-LP: \frac{C_5 R_2}{C_6}
                K-HP: 0
              K-BP: \frac{C_3C_5R_2R_3}{C_1C_6R_2+C_1C_6R_3+C_2C_6R_2+C_3C_6R_3} Qz: None
                 Wz: None
8.257 X-INVALID-NUMER-257 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)
                                                                                                                                                                                      H(s) = \frac{C_3R_2R_3R_4R_6s + R_2R_4R_6}{R_4R_5 + s^2\left(C_1C_2R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 + C_2C_3R_2R_3R_4R_5\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5 + C_3R_3R_4R_5\right)}
      Parameters:
                K-LP: \frac{R_2R_6}{R_5}
                K-HP: 0
               K-BP: -\frac{C_3R_2R_3R_4R_6}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5-C_3R_3R_4R_5}
```

Qz: None Wz: None

**8.258** X-INVALID-NUMER-258 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & R_6 \end{pmatrix}$$

$$H(s) = \frac{C_3C_5R_2R_3R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^2\left(C_1C_2R_2R_3R_4 + C_1C_3R_2R_3R_4 + C_1C_4R_2R_3R_4 - C_1C_5R_2R_3R_4 + C_2C_3R_2R_3R_4\right) + s\left(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4\right)}$$

#### Parameters:

 $+ \frac{C_1C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_2}\sqrt$ 

 $/\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}}$ 

 $(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4)\sqrt{\frac{1}{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_2C_3R_2R_3}{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_3R_3R_3 + C_1C_3R_3 + C_1C_3R_3 + C_1C_3R_3 + C_1C_3R_3 + C_1C_3R_3 +$ 

 $\frac{1}{C_{1}C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{5}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C$ 

K-LP: 0

 $\begin{array}{l} \text{K-HP: } \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP: } \frac{C_5R_2R_4R_6}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4+C_3R_3R_4} \\ \text{Qz: None} \end{array}$ 

Wz: None

# **8.259** X-INVALID-NUMER-259 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5R_2R_3R_4s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_2C_6R_2R_4 + C_3C_6R_3R_4\right)}$ 

### Parameters:

 $Q: \underbrace{\frac{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4}}} - C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4}}} + C_{2}C_{3}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4}}} + C_{2}C_{3}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1$ 

Wo:  $\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3+C_2C_3R_2R_3}}$ 

 $\frac{(C_1R_2R_3 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4)\sqrt{\frac{1}{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_2C_3R_2R_3}}{C_1C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_3$ 

K-LP:  $\frac{C_5 R_2}{C_6}$ 

K-HP: 0

K-BP:  $\frac{C_3C_5R_2R_3R_4}{C_1C_6R_2R_3+C_1C_6R_2R_4+C_1C_6R_3R_4+C_2C_6R_2R_4+C_3C_6R_3R_4}$  Qz: None

Wz: None

## **8.260** X-INVALID-NUMER-260 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$

 $H(s) = \frac{C_1 R_1 R_2 R_4 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^2 \left(C_1 C_6 R_1 R_4 R_5 R_6 - C_1 C_6 R_2 R_3 R_4 R_6 + C_1 C_6 R_2 R_3 R_5 R_6 + C_1 C_6 R_2 R_4 R_5 R_6 + C_1 C_6 R_3 R_4 R_5 R_6\right) + s \left(C_1 R_1 R_4 R_5 - C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 + C_6 R_4 R_5 R_6\right)}$ 

#### **Parameters:**

 $Q: \frac{\sqrt{C_{1}}\sqrt{C_{6}}R_{1}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} - \sqrt{C_{1}}\sqrt{C_{6}}R_{2}R_{3}R_{4}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{2}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{\frac{3}{2}}R_{5}^{\frac{3}{2}}\sqrt{R_{6}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{6}}R_{3}R_{4}^{$ 

wo:  $\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{1}{C_1C_6R_1R_4R_5R_6-C_1C_6R_2R_3R_4R_6+C_1C_6R_2R_3R_5R_6+C_1C_6R_2R_4R_5R_6+C_1C_6R_3R_4R_5R_6}}$ 

 $\sqrt{R_4}\sqrt{R_5}(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_6R_4R_5R_6)\sqrt{\frac{1}{C_1C_6R_1R_4R_5R_6 - C_1C_6R_2R_3R_4R_6 + C_1C_6R_2R_3R_5R_6 + C_1C_6R_2R_4R_5R_6 + C_1C_6R_3R_4R_5R_6}}$  $\frac{1}{\sqrt{C_1}\sqrt{C_6}R_1R_4^{\frac{3}{2}}R_5^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_6}R_2R_3R_4^{\frac{3}{2}}\sqrt{R_5}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_6}R_2R_3\sqrt{R_4}R_5^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_6}R_2R_3R_4^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_6}R_2R_3R_4^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_6}R_2R_3R_4^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_6}R_2R_3R_4^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_6}R_2R_3R_4^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_6}R_3R_3R_4^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_6}R_3R_3R_4^{\frac{3}{2}}\sqrt{R_6}\sqrt{\frac{1}{R_1R_4R_5$ 

K-LP:  $\frac{R_2R_6}{R_5}$ K-HP: 0

K-BP:  $\frac{C_1R_1R_2R_4R_6}{C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_6R_4R_5R_6}$ 

Qz: None Wz: None

## **8.261** X-INVALID-NUMER-261 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{-C_1C_5R_2R_3R_4s^2 + R_4 + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4\right)}$$

### Parameters:

Q:  $-\frac{i\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}R_4}{\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}$ 

wo:  $\frac{\sqrt{C_1\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}}{\sqrt{C_1\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}}$ bandwidth:  $-\frac{\sqrt{C_1R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}}{\sqrt{C_1C_5R_2R_3R_4}}$ 

K-LP: 0

K-HP:  $-\frac{R_1R_6}{R_2}$ 

K-BP:  $\frac{C_5R_2R_4R_6}{C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4}$  Qz: None Wz: None

**8.262** X-INVALID-NUMER-262  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1 C_5 R_1 R_2 R_4 s + C_5 R_2 R_4}{-C_1 C_5 C_6 R_2 R_3 R_4 s^2 + C_6 R_4 + s \left(C_1 C_6 R_1 R_4 + C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_3 R_4\right)}$$

#### Parameters:

Q:  $-\frac{i\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}R_4}{\sqrt{C_1}R_1R_4 + \sqrt{C_1}R_2R_3 + \sqrt{C_1}R_2R_4 + \sqrt{C_1}R_3R_4}$ 

wo:  $\frac{i}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}$ bandwidth:  $-\frac{\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}{\sqrt{C_1}C_5R_2R_3R_4}$ 

K-LP:  $\frac{C_5R_2}{C_6}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ 

Qz: None

Wz: None

**8.263** X-INVALID-NUMER-263  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^2\left(C_1C_5R_1R_4R_5 - C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_5 + C_1C_5R_2R_4R_5 + C_1C_5R_3R_4R_5\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_5R_4R_5\right)}$ 

#### **Parameters:**

 $Q: \frac{\sqrt{C_1}\sqrt{C_5}R_1R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_5}R_2R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_2R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_5}R_2R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5}}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}}}} + \sqrt{C_1}\sqrt{C_5}R_3R_4^$ 

wo:  $\sqrt{R_4}\sqrt{\frac{1}{C_1C_5R_1R_4R_5-C_1C_5R_2R_3R_4+C_1C_5R_2R_3R_5+C_1C_5R_2R_4R_5+C_1C_5R_3R_4R_5}}$ 

 $\begin{array}{l} \text{K-HP:} \ \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP:} \ \frac{C_5R_2R_4R_6}{C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_5R_4R_5} \\ \text{Qz:} \ \text{None} \end{array}$ 

Wz: None

**8.264** X-INVALID-NUMER-264  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_5R_1R_2R_4s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_5C_6R_1R_4R_5 - C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_5 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_3R_4R_5\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_5C_6R_4R_5\right)}$ 

### Parameters:

 $Q: \frac{\sqrt{C_{1}}\sqrt{C_{5}}R_{1}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} - \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}^{\frac{3}{2}}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{2}R_{3}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{5}R_{3}R_{4}R_{5}}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{5}R_{3}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}\sqrt{\frac{1}{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{5}R_{4}R_{5}}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{3}R_{4}^{\frac{3}{2}}R_{5}} + \sqrt{C_{1}}\sqrt{C_{5}}R_{3}^{\frac{3}{2}}R_{5}} + \sqrt{C_{1}}\sqrt$ 

wo: 
$$\sqrt{R_4}\sqrt{\frac{1}{C_1C_5R_1R_4R_5-C_1C_5R_2R_3R_4+C_1C_5R_2R_3R_5+C_1C_5R_2R_4R_5+C_1C_5R_3R_4R_5}}$$

 $\sqrt{R_4}(C_1R_1R_4 + C_1R_2R_3 + C_1R_2\underbrace{R_4 + C_1R_3R_4 + C_5R_4R_5})\sqrt{\underbrace{C_1C_5R_1R_4R_5 - C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_5 + C_1C_5R_2R_4R_5 + C_1C_5R_3R_4R_5}_{2}$  $\frac{1}{\sqrt{C_1}\sqrt{C_5}R_1R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_2R_3R_4^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_2R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_2R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5}}}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5}}}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}}}}}+\sqrt{C_1}\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5}}}}}$ 

K-LP:  $\frac{C_5R_2}{C_6}$ K-HP: 0

K-BP:  $\frac{C_1C_5R_1R_2R_4}{C_1C_6R_1R_4+C_1C_6R_2R_3+C_1C_6R_2R_4+C_1C_6R_3R_4+C_5C_6R_4R_5}$  Qz: None

Wz: None

## **8.265** X-INVALID-NUMER-265 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_1 R_1 R_2 R_6 s + R_2 R_6}{C_1 C_4 R_2 R_3 R_5 s^2 + R_5 + s \left( C_1 R_1 R_5 - C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 \right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}R_5}{\sqrt{C_1}R_1R_5 - \sqrt{C_1}R_2R_3 + \sqrt{C_1}R_2R_5 + \sqrt{C_1}R_3R_5}$ 

wo:  $\frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}}$ bandwidth:  $\frac{\sqrt{C_1}R_1R_5 - \sqrt{C_1}R_2R_3 + \sqrt{C_1}R_2R_5 + \sqrt{C_1}R_3R_5}{\sqrt{C_1}C_4R_2R_3R_5}$ 

K-LP:  $\frac{R_2R_6}{R_5}$ K-HP: 0

K-BP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$ Qz: None

Wz: None

# **8.266** X-INVALID-NUMER-266 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1 C_5 R_1 R_2 R_6 s^2 + C_5 R_2 R_6 s}{s^2 (C_1 C_4 R_2 R_3 - C_1 C_5 R_2 R_3) + s (C_1 R_1 + C_1 R_2 + C_1 R_3) + 1}$$

#### Parameters:

Q:  $\frac{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_1+\sqrt{C_1}R_2+\sqrt{C_1}R_3}$ 

wo:  $\sqrt{\frac{1}{C_1C_4R_2R_3 - C_1C_5R_2R_3}}$ bandwidth:  $\frac{\left(\sqrt{C_1}R_1 + \sqrt{C_1}R_2 + \sqrt{C_1}R_3\right)\sqrt{\frac{1}{C_1C_4R_2R_3 - C_1C_5R_2R_3}}}{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4 - C_5}} - C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4 - C_5}}}$ 

K-LP: 0 K-HP:  $\frac{C_5R_1R_6}{C_4R_3-C_5R_3}$ K-BP:  $\frac{C_5R_2R_6}{C_1R_1+C_1R_2+C_1R_3}$ Qz: None

Wz: None

# **8.267** X-INVALID-NUMER-267 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_5R_1R_2s + C_5R_2}{C_6 + s^2\left(C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3\right)}$$

### Parameters:

Q:  $\frac{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_1+\sqrt{C_1}R_2+\sqrt{C_1}R_3}$ wo:  $\sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}$ bandwidth:  $\frac{\left(\sqrt{C_1}R_1+\sqrt{C_1}R_2+\sqrt{C_1}R_3\right)\sqrt{\frac{1}{C_1C_4R_2R_3}-C_1C_5R_2R_3}}{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}$ K-LP:  $\frac{C_5R_2}{C_6}$ K-HP: 0 K-BP:  $\frac{C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3}$ 

Qz: None Wz: None

8.268 X-INVALID-NUMER-268  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

$$H(s) = \frac{C_1R_1R_2R_4R_6s + R_2R_4R_6}{C_1C_4R_2R_3R_4R_5s^2 + R_4R_5 + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5\right)}$$

#### Parameters:

**8.269** X-INVALID-NUMER-269  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^2\left(C_1C_4R_2R_3R_4 - C_1C_5R_2R_3R_4\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4\right)}$$

### Parameters:

Wz: None

 $\begin{array}{l} Q\colon \frac{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}\\ \text{wo: } \sqrt{\frac{1}{C_1C_4R_2}R_3-C_1C_5R_2R_3}\\ \text{bandwidth: } \frac{\left(\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4\right)\sqrt{\frac{1}{C_1C_4R_2}R_3-C_1C_5R_2R_3}}{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3}\\ \text{K-BP: } \frac{C_5R_2R_4R_6}{C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$ 

8.270 X-INVALID-NUMER-270  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_4s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4\right)}$$

## Parameters:

 $\begin{array}{l} Q\colon \frac{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}\\ \text{wo: } \sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}\\ \text{bandwidth: } \frac{\left(\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4\right)\sqrt{\frac{1}{C_1C_4R_2R_3}-C_1C_5R_2R_3}}{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: } \frac{C_5R_2}{C_6}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$ 

## **8.271** X-INVALID-NUMER-271 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_3C_6R_1R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_4R_5R_6 + C_3C_6R_4R_5R_6\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_2}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_3R_1R_4R_5+C_1C_3R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_4R_5R_6}$  wo:  $\frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1C_3C_6R_1R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6}}$  bandwidth:  $\frac{C_1C_3R_1R_4R_5R_6+C_1C_3C_6R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_4R_5R_6}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_2}\sqrt{C_1C_3C_6R_1R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6}}$  bandwidth:  $\frac{C_3R_2R_4R_6}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{R_1+R_2}\sqrt{C_1C_3C_6R_1R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6}}{\sqrt{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}}$  K-HP: 0

 $\text{K-BP: } \frac{C_1C_3R_1R_2R_4R_6}{C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_4R_5R_6 + C_3C_6R_4R_5R_6}$ 

Qz: None Wz: None

## **8.272** X-INVALID-NUMER-272 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_6R_1R_4R_6 + C_1C_3C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_3C_6R_4R_6\right)}$$

## **Parameters:**

 $\frac{\sqrt{C_{1}}C_{3}\sqrt{C_{6}}R_{1}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}}+\sqrt{C_{1}}C_{3}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}}-\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}}-\frac{1}{C_{1}C_{3}R_{1}+C_{3}R_{2}+C_{1}C_{5}R_{2}+C_{1}$ 

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_3C_6R_1R_4R_6 + C_1C_3C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6}}$ 

 $\text{bandwidth: } \frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}(C_1C_3R_1R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_6R_4R_6 + C_3C_6R_4R_6)\sqrt{\frac{1}{C_1C_3C_6R_1R_4R_6 + C_1C_5C_6R_2R_4R_6}}}{\sqrt{C_1C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} + \sqrt{C_1C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} + \sqrt{C_1C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} + \sqrt{C_1C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}} + \sqrt{C_1C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}}} - \sqrt{C_1C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_4}\sqrt{C_3R_1 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_4}\sqrt{C_3R_4 + C_3R_4}\sqrt{C_3R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_4 + C_3R_4}\sqrt{C_3R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_4 + C_3R_4}\sqrt{C_3R_4 + C_3R_4}\sqrt{C_3R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_4 + C_3R_4}\sqrt{C_3R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_4 + C_3R_4}\sqrt$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}$ 

K-BP:  $\frac{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}{C_1C_3R_1R_4+C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_6R_2R_6+C_1C_6R_4R_6+C_3C_6R_4R_6}{Qz. \text{ None}}$ 

Wz: None

**8.273** X-INVALID-NUMER-273  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_5R_1R_4R_5 + C_1C_3C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_3C_5R_4R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{1}+R_{2}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}}{C_{1}C_{3}R_{1}R_{4}+C_{1}C_{3}R_{2}R_{4}-C_{1}C_{5}R_{2}R_{4}+C_{1}C_{5}R_{2}R_{5}+C_{1}C_{5}R_{4}R_{5}+C_{3}C_{5}R_{4}R_{5}}$ wo:  $\frac{\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}}{\sqrt{C_{1}C_{3}C_{5}R_{1}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{4}R_{5}}}$ bandwidth:  $\frac{C_{1}C_{3}R_{1}R_{4}+C_{1}C_{3}R_{2}R_{4}-C_{1}C_{5}R_{2}R_{4}+C_{1}C_{5}R_{2}R_{5}+C_{1}C_{5}R_{4}R_{5}+C_{3}C_{5}R_{4}R_{5}}{\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{C_{5}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{1}+R_{2}}\sqrt{C_{1}C_{3}C_{5}R_{1}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{4}R_{5}}}$ 

K-LP: 0

K-HP:  $\frac{R_1R_2R_6}{R_1R_5+R_2R_5}$ 

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_1R_4+C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}{\text{Qz: None}}$ 

Wz: None

## **8.274** X-INVALID-NUMER-274 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_2R_4R_5\right) + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_4R_5 + C_3C_5C_6R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{C_1C_3R_1R_4+C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}$ 

wo:  $\frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}{\sqrt{C_1C_3C_5R_1R_4R_5 + C_1C_3C_5R_2R_4R_5}}$  bandwidth:  $\frac{C_1C_3R_1R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_3C_5R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1 + R_2}\sqrt{C_1C_3C_5R_1R_4R_5 + C_1C_3C_5R_2R_4R_5}}$  K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4}$  K-PP: 0

K-BP:  $\frac{C_1C_3C_5R_1R_2R_4}{C_1C_3C_6R_1R_4+C_1C_3C_6R_2R_4-C_1C_5C_6R_2R_4+C_1C_5C_6R_2R_5+C_1C_5C_6R_4R_5+C_3C_5C_6R_4R_5}$  Qz: None

Wz: None

# **8.275** X-INVALID-NUMER-275 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$

 $C_1C_3R_1R_2R_6s + C_3R_2R_6$  $H(s) = \frac{-1.53R_1R_2R_0s + 5.3R_2R_0}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_6R_1R_5R_6 + C_1C_3C_6R_2R_5R_6 + C_1C_4C_6R_2R_5R_6\right) + s\left(C_1C_3R_1R_5 + C_1C_3R_2R_5 + C_1C_4R_2R_5 - C_1C_6R_2R_6 + C_1C_6R_5R_6 + C_3C_6R_5R_6\right)}$ 

### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{-C_1R_2+C_1R_5+C_3R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_1C_3R_1R_5+C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_3C_6R_5R_6}}$  wo:  $\frac{\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{\sqrt{C_1C_3C_6R_1R_5R_6+C_1C_3C_6R_2R_5R_6}+C_1C_4C_6R_2R_5R_6}}$  bandwidth:  $\frac{C_1C_3R_1R_5+C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_3C_6R_5R_6}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_1C_3C_6R_1R_5R_6+C_1C_3C_6R_2R_5R_6}+C_1C_4C_6R_2R_5R_6}}$  K-LP:  $-\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}$  K-HP: 0

K-BP:  $\frac{C_1C_3R_1R_2R_6}{C_1C_3R_1R_5+C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_3C_6R_5R_6}$  Qz: None

Wz: None

# 8.276 X-INVALID-NUMER-276 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

 $H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_3C_6R_1R_6 + C_1C_3C_6R_2R_6 + C_1C_4C_6R_2R_6 - C_1C_5C_6R_2R_6\right) + s\left(C_1C_3R_1 + C_1C_3R_2 + C_1C_4R_2 - C_1C_5R_2 + C_1C_6R_6 + C_3C_6R_6\right)}$ 

### Parameters:

 $Q: \frac{\sqrt{C_{1}}C_{3}\sqrt{C_{6}}R_{1}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}+\sqrt{C_{1}}C_{3}\sqrt{C_{6}}R_{2}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}+\sqrt{C_{1}}C_{4}\sqrt{C_{6}}R_{2}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{2}\sqrt{R_{6}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{2}R_{2}+C_{$ 

wo:  $\sqrt{C_1 + C_3} \sqrt{\frac{1}{C_1 C_3 C_6 R_1 R_6 + C_1 C_3 C_6 R_2 R_6 + C_1 C_4 C_6 R_2 R_6 - C_1 C_5 C_6 R_2 R_6}}$ 

 $\text{bandwidth: } \frac{\sqrt{C_1 + C_3} (C_1 C_3 R_1 + C_1 C_3 R_2 + C_1 C_4 R_2 - C_1 C_5 R_2 + C_1 C_6 R_6 + C_3 C_6 R_6) \sqrt{\frac{1}{C_1 C_3 C_6 R_1 R_6 + C_1 C_3 C_6 R_2 R_6 + C_1 C_4 C_6 R_2 R_6 - C_1 C_5 C_6 R_2 R_6}}{\sqrt{C_1 C_3} \sqrt{C_6 R_1 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + \sqrt{C_1 C_3} \sqrt{C_6 R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + \sqrt{C_1 C_4 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_4 + C_3 R_4 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 R_4 + C_3 R_4 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_2 \sqrt{R_6} \sqrt{C_1 + C_3} \sqrt{C_1 C_3 R_4 + C_3 R_4 + C_4 R_2 - C_5 R_2}} - \sqrt{C_1 C_5 \sqrt{C_6} R_4 + C_3 C_6 R_4 + C_3 C_6 R_4 + C_4 C_6 R_4 + C_4$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_3C_5R_2R_6}{C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_6R_6+C_3C_6R_6}$  Qz: None Wz: None

# 8.277 X-INVALID-NUMER-277 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_3C_5R_1R_5 + C_1C_3C_5R_2R_5 + C_1C_4C_5R_2R_5\right) + s\left(C_1C_3R_1 + C_1C_3R_2 + C_1C_4R_2 - C_1C_5R_2 + C_1C_5R_5 + C_3C_5R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_5}\sqrt{C_1+C_3}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_1C_3R_1+C_1C_3R_2+C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}$ wo:  $\frac{\sqrt{C_1+C_3}}{\sqrt{C_1C_3C_5R_1R_5+C_1C_3C_5R_2R_5+C_1C_4C_5R_2R_5}}$ bandwidth:  $\frac{C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_1C_3C_5R_1R_5+C_1C_4C_5R_2R_5}}$ KID: 0

K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$  K-BP:  $\frac{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}{C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}$  Qz: None

## 8.278 X-INVALID-NUMER-278 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_5C_6R_1R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5\right) + s\left(C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_3C_5C_6R_5\right)}$$

### Parameters:

wo:  $\frac{\sqrt{C_1+C_3}}{\sqrt{C_1C_3C_5}R_1R_5+C_1C_3C_5R_2R_5} + C_1C_5R_5 + C_3C_5\overline{R_5}$ bandwidth:  $\frac{C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_1C_5R_5+C_3C_5R_5}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_1C_3C_5R_1R_5+C_1C_3C_5R_2}+C_1C_4C_5R_2R_5}$ K-LP:  $\frac{C_3C_5R_2}{C_1C_6+C_3C_6}$ K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1R_2}{C_1C_3C_6R_1+C_1C_3C_6R_2+C_1C_4C_6R_2-C_1C_5C_6R_2+C_1C_5C_6R_5+C_3C_5C_6R_5}$  Qz: None

Wz: None

# 8.279 X-INVALID-NUMER-279 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$

 $C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6$  $H(s) = \frac{-1.53 - 1.22 - 1.33 - 1.23$ 

### Parameters:

 $\begin{array}{l} \text{Q:} \ \, \frac{\sqrt{C_1}\sqrt{C_6}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_3R_1R_4R_5+C_1C_3R_2R_4R_5+C_1C_4R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_4R_5R_6} \\ \text{wo:} \ \, \frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1C_3C_6R_1R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6+C_1C_4R_2R_4R_5R_6}} \\ \text{bandwidth:} \ \, \frac{C_1C_3R_1R_4R_5+C_1C_3R_2R_4R_5+C_1C_4R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_2R_4R_5+C_1C_4R_2R_4R_5-C_1C_6R_2R_4R_6+C_1C_6R_2R_5R_6+C_1C_6R_4R_5R_6+C_3C_6R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6+C_1C_4C_6R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_3C_6R_2R_4R_5R_6+C_1C_4C_6R_2R_4R_5+C_1C_4R_4R_5+C_1C_4$ 

 $\text{K-BP: } \frac{C_1C_3R_1R_2R_4R_6}{C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_4R_5R_6 + C_3C_6R_4R_5R_6}$ Qz: None

Wz: None

# **8.280** X-INVALID-NUMER-280 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_6R_1R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_3C_6R_4R_6\right)}$ 

### Parameters:

 $\frac{\sqrt{C_{1}}C_{3}\sqrt{C_{6}}R_{1}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}+\sqrt{C_{1}}C_{3}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}+\sqrt{C_{1}}C_{4}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{3}R_{4}+C_{1}C_{5}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}-C_{1}C_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}-C_{1}C_{1}C_{2}\sqrt{C_{6}}R_{2}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{$ 

 $\frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_2}(C_1C_3R_1R_4 + C_1C_3R_2R_4 + C_1C_6R_2R_6 + C_1C_6R_4R_6 + C_3C_6R_4R_6)\sqrt{\frac{1}{C_1C_3C_6R_1R_4R_6 + C_1C_5C_6R_2R_4R_6}}}{\sqrt{C_1C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_5\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_4 + C_1C_3R_4 + C_1C_3R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_4 + C_1C_3R_4 + C_1C$ 

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_1R_4+C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_6R_2R_6+C_1C_6R_4R_6+C_3C_6R_4R_6}$  Qz: None

Wz: None

# **8.281** X-INVALID-NUMER-281 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_5R_1R_4R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_3C_5R_4R_5\right)}$ 

### Parameters:

```
K-BP: \frac{C_3 C_1 R_2 R_5 + C_4 R_2 R_5}{C_1 C_3 R_1 R_4 + C_1 C_3 R_2 R_4 + C_1 C_4 R_2 R_4 - C_1 C_5 R_2 R_4 + C_1 C_5 R_2 R_5 + C_1 C_5 R_4 R_5 + C_3 C_5 R_4 R_5}Qz: None
                  Wz: None
8.282 X-INVALID-NUMER-282 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4
                                                                                    H(s) = \frac{1}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_5C_6R_5R_5 + C_1C_5C_5C_
       Parameters:
         Q: \frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_1C_3R_1R_4+C_1C_3R_2R_4+C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5} wo: \frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1C_3C_5R_1R_4R_5+C_1C_3C_5R_2R_4R_5+C_1C_4C_5R_2R_4R_5}} bandwidth: \frac{C_1C_3R_1R_4+C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}{C_1C_5\sqrt{C_1}\sqrt{C_5}\sqrt{C_4}\sqrt{C_5}\sqrt{C_3}R_4+C_3C_3R_4+C_4R_2\sqrt{C_1}C_3C_5R_1R_4R_5+C_1C_3C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5+C_1C_3C_5R_2R_4R_5} K-LP: \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4} K-HP: 0
                K-BP: \frac{C_1C_3C_5R_1R_2R_4}{C_1C_3C_6R_1R_4+C_1C_3C_6R_2R_4+C_1C_4C_6R_2R_4-C_1C_5C_6R_2R_4+C_1C_5C_6R_2R_5+C_1C_5C_6R_4R_5+C_3C_5C_6R_4R_5} Qz: None
                 Wz: None
8.283 X-INVALID-NUMER-283 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6
H(s) = \frac{1}{-C_{1}R_{2}R_{4} + C_{1}R_{2}R_{5} + C_{1}R_{4}R_{5} + C_{3}R_{4}R_{5} + s^{2}\left(C_{1}C_{3}C_{6}R_{1}R_{4}R_{5}R_{6} - C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}R_{6} + C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}R_{6} + C_{1}C_{3}C_{6}R_{3}R_{4}R_{5} + c_{1}C_{3}R_{2}R_{3}R_{4} + C_{1}C_{3}R_{2}R_{3}R_{5} + C_{1}C_{3}R_{2}R_{3}R_{4} + C_{1}C_{3}R_{2}R_{3}R_{5} + C_{1}C_{3}R_{2}R_{5} + C_{1}C_{3}R_{2}R_{3}R_{5} + C_{1}C_{3}R_{2}R_{3}R_{5} + C_{1}C_{3}R_{2}R_{5} + C_{1}C_{3}R_{2}R_{3}R_{5} + C_{1}C_{3}R_{2}R_{3}R_{5} + C_{1}C_{3}R_{2}R_{3}R_{5} + C_{1}C_{3}R_{2}R_{5} + C_{1}C_{3}R_{2}R_{5} + C_{1}C_{3}R_{2}R_{5} + C_{1}C_{3}
      Parameters:
                  O: \frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_6}R_1R_4R_5\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{C_1R_2R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{C_1R_2R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \frac{C_1R_2R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5} + \frac{C_1R_2R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5} + \frac{C_1R_4R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{C_1R
                 Wo: \sqrt{\frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_3C_6R_1R_4R_5R_6-C_1C_3C_6R_2R_3R_4R_6+C_1C_3C_6R_2R_3R_5R_6+C_1C_3C_6R_2R_4R_5R_6+C_1C_3C_6R_3R_4R_5R_6}}
                  \frac{1}{\sqrt{C_1\sqrt{C_3}\sqrt{C_6}R_1R_4R_5\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_6}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4+R_5}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5-R_2R_3R_4}}-\frac{C_1R_2R_5}{\sqrt{R_1R_4R_5
                K-LP: -\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}
                Qz: None
                 Wz: None
```

## **8.284** X-INVALID-NUMER-284 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{-C_1C_3C_5R_2R_3R_4s^2 + C_1R_2 + C_1R_4 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 - C_1C_5R_2R_4\right)}$$

### Parameters:

Wz: None

Q:  $-\frac{i\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1}C_3R_1R_4+\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4-\sqrt{C_1}C_5R_2R_4}}$  wo:  $\frac{\sqrt{-C_1R_2-C_1R_4-C_3R_4}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ bandwidth:  $i\sqrt{-C_1R_2-C_1R_4-C_3R_4}\left(\sqrt{C_1C_3R_1R_4}+\sqrt{C_1C_3R_2R_3}+\sqrt{C_1C_3R_2R_4}+\sqrt{C_1C_3R_3R_4}-\sqrt{C_1C_5R_2R_4}\right)$ K-LP: 0 K-HP:  $-\frac{R_1R_6}{R_3}$ K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_1R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4}$  Qz: None

**8.285** X-INVALID-NUMER-285 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{-C_1C_3C_5C_6R_2R_3R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_2R_4\right)}$$

Q:  $-\frac{i\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1C_3R_1R_4+\sqrt{C_1C_3R_2}R_3+\sqrt{C_1C_3}R_2R_4+\sqrt{C_1}C_3R_3R_4-\sqrt{C_1}C_5R_2R_4}}$  wo:  $\frac{\sqrt{-C_1R_2-C_1R_4-C_3R_4}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$ 

bandwidth:  $\frac{i\sqrt{-C_1R_2-C_1R_4-C_3R_4}\left(\sqrt{C_1}C_3R_1R_4+\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4-\sqrt{C_1}C_5R_2R_4\right)}{2}$ 

 $\sqrt{C_1}C_3C_5R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4+C_3C_6R_2R_3+C_3C_6R_2R_4+C_3C_6R_3R_4-C_5C_6R_2R_4}$  Qz: None

Wz: None

## **8.286** X-INVALID-NUMER-286 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_5R_1R_4R_5 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_3R_4R_5\right) + s\left(C_1C_3R_1R_4 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_3C_5R_4R_5\right)}$ 

### Parameters:

 $Q: \frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_1R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5}}}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5}}}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5}}}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5}}}}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5}}}} + \sqrt{C_1}\sqrt$ 

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_3C_5R_1R_4R_5 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_3R_4R_5}}$ 

 $\sqrt{C_1R_2 + C_1R_4 + C_3R_4} (C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_3C_5R_4R_5) \sqrt{\frac{1}{C_1C_3C_5R_1R_4R_5 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_5R_4R_5}{\frac{1}{C_1C_3C_5R_1R_4R_5 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_5R_4R_5}}$  $\frac{\sqrt{C_1 \sqrt{C_3} \sqrt{C_5} R_1 R_4 R_5 - C_1 R_3 + C_1 R_4 + C_3 R_4} \sqrt{\frac{1}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} - \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 \sqrt{C_1 R_2 + C_1 R_4 + C_3 R_4}} \sqrt{\frac{1}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 \sqrt{C_1 R_2 + C_1 R_4 + C_3 R_4}} \sqrt{\frac{1}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{C_1} \sqrt{C_2} \sqrt{C_3} \sqrt{C_5} R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}} + \sqrt{$ 

K-LP: 0

Qz: None Wz: None

# 8.287 X-INVALID-NUMER-287 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4$ 

 $H(s) = \frac{c_1 c_3 c_5 R_1 R_2 R_4 c_5}{c_1 C_6 R_2 + C_1 C_6 R_4 + C_3 C_6 R_4 + s^2 \left(C_1 C_3 C_5 C_6 R_1 R_4 R_5 - C_1 C_3 C_5 C_6 R_2 R_3 R_4 + C_1 C_3 C_5 C_6 R_2 R_4 R_5 + C_1 C_3 C_5 C_6 R_2 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 + C_1 C_3 C_6 R_4 + C_1 C_5 C_$ 

### Parameters:

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_3C_5R_1R_4R_5 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_3R_4R_5}}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_1C_3C_5R_1R_2R_4}{C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_4R_5 + C_3C_5C_6R_4R_5} \\ \text{Qz: None} \end{array}$ 

Wz: None

# 8.288 X-INVALID-NUMER-288 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_1C_3R_1R_2R_6s + C_3R_2R_6}{C_1C_3C_4R_2R_3R_5s^2 - C_1R_2 + C_1R_5 + C_3R_5 + s\left(C_1C_3R_1R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5\right)}$$

Q:  $\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{\sqrt{C_1}C_3R_1R_5-\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_5+\sqrt{C_1}C_3R_3R_5+\sqrt{C_1}C_4R_2R_5}}$  wo:  $\frac{\sqrt{-C_1}R_2+C_1R_5+C_3R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}}$  bandwidth:  $\frac{\sqrt{C_1}C_3R_1R_5-\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_5+\sqrt{C_1}C_3R_3R_5+\sqrt{C_1}C_4R_2R_5}}{\sqrt{C_1}C_3C_4R_2R_3R_5}}$ K-LP:  $-\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}$ K-HP: 0 K-BP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5}$  Qz: None Wz: None 8.289 X-INVALID-NUMER-289  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3\right) + s\left(C_1C_3R_1 + C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2\right)}$ Parameters: Q:  $\frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_{1}+\sqrt{C_1}C_3R_2+\sqrt{C_1}C_3R_3+\sqrt{C_1}C_4R_2-\sqrt{C_1}C_5R_2}$ wo:  $\sqrt{C_1 + C_3} \sqrt{\frac{1}{C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}}$ bandwidth:  $\frac{\sqrt{C_1 + C_3} \left(\sqrt{C_1} C_3 R_1 + \sqrt{C_1} C_3 R_2 + \sqrt{C_1} C_3 R_3 + \sqrt{C_1} C_4 R_2 - \sqrt{C_1} C_5 R_2\right) \sqrt{\frac{1}{C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}}}{\sqrt{C_3} C_4 \sqrt{R_2} \sqrt{R_3} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_4 - C_5}} - \sqrt{C_3} C_5 \sqrt{R_2} \sqrt{R_3} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_4 - C_5}}}$ K-LP: 0 K-HP:  $\frac{C_5 R_1 R_6}{C_4 R_3 - C_5 R_3}$  $\begin{array}{l} \text{K-BP:} \ \frac{C_3 C_5 R_2 R_6}{C_1 C_3 R_1 + C_1 C_3 R_2 + C_1 C_3 R_3 + C_1 C_4 R_2 - C_1 C_5 R_2} \\ \text{Qz:} \ \ \text{None} \end{array}$ Wz: None **8.290** X-INVALID-NUMER-290  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_2s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3\right) + s\left(C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2\right)}$ Parameters:  $Q \colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_4 - C_5}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1 + C_3}\sqrt{\frac{1}{C_4 - C_5}}}{\sqrt{C_1}C_3R_1 + \sqrt{C_1}C_3R_2 + \sqrt{C_1}C_3R_3 + \sqrt{C_1}C_4R_2 - \sqrt{C_1}C_5R_2}$ wo:  $\sqrt{C_1 + C_3} \sqrt{\frac{1}{C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}}$ bandwidth:  $\frac{\sqrt{C_1C_3C_4L_2L_3}}{\sqrt{C_1+C_3}\left(\sqrt{C_1}C_3R_1+\sqrt{C_1}C_3R_2+\sqrt{C_1}C_3R_3+\sqrt{C_1}C_4R_2-\sqrt{C_1}C_5R_2\right)\sqrt{\frac{1}{C_1C_3C_4R_2R_3-C_1C_3C_5R_2R_3}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}}$ K-LP:  $\frac{C_3C_5R_2}{C_1C_6+C_3C_6}$ K-HP: 0 K-BP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_3C_6R_3+C_4C_6R_2-C_5C_6R_2}$  Qz: None Wz: None **8.291** X-INVALID-NUMER-291  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$  $C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6$  $H(s) = \frac{12.5 \times 12.2 \times 12.5}{C_1 C_3 C_4 R_2 R_3 R_4 R_5 s^2 - C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left( C_1 C_3 R_1 R_4 R_5 - C_1 C_3 R_2 R_3 R_4 + C_1 C_3 R_2 R_3 R_5 + C_1 C_3 R_2 R_4 R_5 + C_1 C_3 R_5 R_5 + C_1 C_5 R_$ Parameters: Q:  $\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1}C_3R_1R_4R_5-\sqrt{C_1}C_3R_2R_3R_4+\sqrt{C_1}C_3R_2R_3R_5+\sqrt{C_1}C_3R_2R_4R_5+\sqrt{C_1}C_3R_3R_4R_5+\sqrt{C_1}C_4R_2R_4R_5}}$  wo:  $\frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_4}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}}$  bandwidth:  $\frac{\sqrt{C_1C_3R_1R_4R_5-\sqrt{C_1}C_3R_2R_3R_4+\sqrt{C_1}C_3R_2R_3R_5+\sqrt{C_1}C_3R_2R_4R_5+\sqrt{C_1}C_3R_3R_4R_5+\sqrt{C_1}C_4R_2R_4R_5}}{\sqrt{C_1}C_3C_4R_2R_3R_4R_5}}$ K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_3R_1R_2R_4R_6}{C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 + C_4R_2R_4R_5}$ 

Qz: None Wz: None

8.292 X-INVALID-NUMER-292 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4\right) + s\left(C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4\right)}$$

Parameters:

 $\frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_1R_4+\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4+\sqrt{C_1}C_4R_2R_4-\sqrt{C_1}C_5R_2R_4}}$ 

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}$ 

 $\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \Big( \sqrt{C_1}C_3R_1R_4 + \sqrt{C_1}C_3R_2R_3 + \sqrt{C_1}C_3R_2R_4 + \sqrt{C_1}C_3R_3R_4 + \sqrt{C_1}C_4R_2R_4 - \sqrt{C_1}C_5R_2R_4 \Big) \sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}} \\ + \sqrt{C_1R_2 + C_1R_4 + C_3R_4} \Big( \sqrt{C_1C_3R_1R_4} + \sqrt{C_1C_3R_2R_3} + \sqrt{C_1C_3R_2R_4} + \sqrt{C_1C_3R_3R_4} + \sqrt{$  $\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}$ 

K-LP: 0

K-HP:  $\frac{C_5 R_1 R_6}{C_4 R_3 - C_5 R_3}$ 

K-BP:  $\frac{C_3C_5R_2R_4R_6}{C_1C_3R_1R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4+C_1C_4R_2R_4-C_1C_5R_2R_4}$  Qz: None

Wz: None

# **8.293** X-INVALID-NUMER-293 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_4C_6R_2R_3R_4 - C_1C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$$

Parameters:

$$\text{Q: } \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_1R_4+\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4+\sqrt{C_1}C_4R_2R_4-\sqrt{C_1}C_5R_2R_4}}$$

wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}$ 

 $\frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\left(\sqrt{C_1}C_3R_1R_4 + \sqrt{C_1}C_3R_2R_3 + \sqrt{C_1}C_3R_2R_4 + \sqrt{C_1}C_3R_3R_4 + \sqrt{C_1}C_4R_2R_4 - \sqrt{C_1}C_5R_2R_4\right)\sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_4-C_5}}}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_3C_6R_1R_4+C_3C_6R_2R_3+C_3C_6R_2R_4+C_3C_6R_3R_4+C_4C_6R_2R_4-C_5C_6R_2R_4}$  Qz: None

Wz: None

## **8.294** X-INVALID-NUMER-294 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_1C_5R_1R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_6R_1R_4R_6 + C_1C_2C_6R_3R_4R_6 - C_1C_5C_6R_3R_4R_6\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6\right)}$$

Parameters:

$$Q: \frac{\sqrt{C_{1}C_{2}\sqrt{C_{6}}R_{1}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3} - C_{5}R_{3}}} + \sqrt{C_{1}C_{2}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3} - C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3} - C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3} - C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3} - C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3} - C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3}} - C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3}} - C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1} + C_{2}R_{3}} - C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}} + C_{1}R_{4} + C_{2}R_{4}\sqrt{C_{1}R_{3}} + C_{1}R_{4}\sqrt{C_{1}R_{3}} + C_{1}R_{4}\sqrt{$$

wo:  $\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2C_6R_1R_4R_6 + C_1C_2C_6R_3R_4R_6 - C_1C_5C_6R_3R_4R_6}}$ 

 $\begin{array}{c} \sqrt{C_1C_2C_6R_1R_4R_6+C_1C_2C_6R_3R_4+C_1C_3C_6R_3R_4+C_1C_6R_3R_6+C_1C_6R_4R_6+C_2C_6R_4R_6)} \sqrt{\frac{1}{C_1C_2C_6R_3R_4+C_1C_2C_6R_3R_4+C_1C_2R_3R_4+C_1C_6R_3R_6+C_1C_6R_4R_6+C_2C_6R_4R_6)} \sqrt{\frac{1}{C_1C_2C_6R_1R_4R_6+C_1C_2C_6R_3R_4R_6-C_1C_5C_6R_3R_4R_6}} \\ \text{bandwidth: } \frac{\sqrt{C_1C_2\sqrt{C_6}R_1\sqrt{R_4}\sqrt{C_2R_1+C_2R_3-C_5R_3}} + \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1C_2\sqrt{C_6}R_3R_4R_6-C_1C_5C_6R_3R_4R_6}} }{\sqrt{C_1C_2\sqrt{C_6}R_1\sqrt{R_4}\sqrt{C_2R_1+C_2R_3-C_5R_3}}} + \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3+C_1R_4+C_2R_4}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{C_1R_4+C_1C_3}}} - \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{C_1R_4+C_1C_3}}} - \sqrt{C_1C_2\sqrt{C_6$ 

K-LP:  $\frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4}$ K-HP: 0

K-BP:  $\frac{C_1C_5R_1R_4R_6}{C_1C_2R_1R_4+C_1C_2R_3R_4-C_1C_5R_3R_4+C_1C_6R_3R_6+C_1C_6R_4R_6+C_2C_6R_4R_6}$  Qz: None

**8.295** X-INVALID-NUMER-295 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_1C_5R_1R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_5R_1R_4R_5 + C_1C_2C_5R_3R_4R_5\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_5R_4R_5\right)}$$

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_1R_3+C_1R_4+C_2R_4}}{C_1C_2R_1R_4+C_1C_2R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}$  wo:  $\frac{\sqrt{C_1R_3+C_1R_4+C_2R_4}}{\sqrt{C_1C_2C_5R_1R_4R_5+C_1C_2C_5R_3R_4R_5}}$  bandwidth:  $\frac{C_1C_2R_1R_4+C_1C_2R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_1C_2C_5R_1R_4R_5+C_1C_5R_3R_4R_5}}$  K-LP:  $\frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4}$  K-HP: 0

K-BP:  $\frac{C_1C_5R_1R_4R_6}{C_1C_2R_1R_4+C_1C_2R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}$  Qz: None

Wz: None

# **8.296** X-INVALID-NUMER-296 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_1C_5R_1R_6s + C_5R_6}{C_1 + C_2 + s^2\left(C_1C_2C_6R_1R_6 + C_1C_2C_6R_3R_6 + C_1C_4C_6R_3R_6 - C_1C_5C_6R_3R_6\right) + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_4R_3 - C_1C_5R_3 + C_1C_6R_6 + C_2C_6R_6\right)}$$

### **Parameters:**

 $\frac{\sqrt{C_{1}C_{2}\sqrt{C_{6}}R_{1}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}C_{2}\sqrt{C_{6}}R_{3}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}C_{4}\sqrt{C_{6}}R_{3}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{6}}\sqrt{C_{1}+C_{2}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-C_{1}C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}$ 

wo:  $\sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 C_6 R_1 R_6 + C_1 C_2 C_6 R_3 R_6 + C_1 C_4 C_6 R_3 R_6 - C_1 C_5 C_6 R_3 R_6}$ 

K-LP:  $\frac{C_5R_6}{C_1+C_2}$ K-HP: 0

K-BP:  $\frac{C_1C_5R_1R_6}{C_1C_2R_1+C_1C_2R_3+C_1C_4R_3-C_1C_5R_3+C_1C_6R_6+C_2C_6R_6}$  Qz: None

Wz: None

# **8.297** X-INVALID-NUMER-297 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_5R_1R_6s + C_5R_6}{C_1 + C_2 + s^2\left(C_1C_2C_5R_1R_5 + C_1C_2C_5R_3R_5 + C_1C_4C_5R_3R_5\right) + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_4R_3 - C_1C_5R_3 + C_1C_5R_5 + C_2C_5R_5\right)}$$

### Parameters:

wo:  $\frac{\sqrt{C_1 + C_2}}{\sqrt{C_1 C_2 C_5 R_1 R_5 + C_1 C_2 C_5 R_3 R_5 + C_1 C_4 C_5 R_3 R_5}}$ bandwidth:  $\frac{C_1 C_2 R_1 + C_1 C_2 R_3 + C_1 C_4 R_3 - C_1 C_5 R_3 + C_1 C_5 R_5 + C_2 C_5 R_5}{\sqrt{C_1} \sqrt{C_5} \sqrt{R_5} \sqrt{C_2 R_1 + C_2 R_3 + C_4 R_3} \sqrt{C_1 C_2 C_5 R_1 R_5 + C_1 C_2 C_5 R_3 R_5 + C_5}}$ K-LP:  $\frac{C_5 R_6}{C_1 + C_2}$ K-HP: 0

K-BP:  $\frac{C_1C_5R_1R_6}{C_1C_2R_1+C_1C_2R_3+C_1C_4R_3-C_1C_5R_3+C_1C_5R_5+C_2C_5R_5}$ 

Qz: None Wz: None

# 8.298 X-INVALID-NUMER-298 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_1C_5R_1R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_6R_1R_4R_6 + C_1C_2C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 - C_1C_5C_6R_3R_4R_6\right) + s\left(C_1C_2R_1R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6 + C_2C_6R_4R_6\right)}$$

### Parameters:

 $\frac{\sqrt{C_{1}}C_{2}\sqrt{C_{6}}R_{1}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{4}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{5}\sqrt{C_{6}}R_{3}\sqrt{R_{4}}\sqrt{R_{6}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{\frac{1}{C_{2}R_{3}+C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{1}R_{4}+C_{2}R_{4}}\sqrt{C_{$ 

```
 \text{wo: } \sqrt{C_1R_3 + C_1R_4 + C_2R_4} \sqrt{\frac{1}{C_1C_2C_6R_1R_4R_6 + C_1C_2C_6R_3R_4R_6 + C_1C_5C_6R_3R_4R_6}} \\ \text{bandwidth: } \frac{\sqrt{C_1R_3 + C_1R_4 + C_2R_4} (C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_5R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6) \sqrt{\frac{1}{C_1C_2C_6R_1R_4R_6 + C_1C_2C_6R_3R_4R_6 + C_1C_5C_6R_3R_4R_6}}}{\sqrt{C_1C_2\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_1C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_1C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_1C_2\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - \sqrt{C_1C_5\sqrt{C_6}R_3\sqrt{R_4}\sqrt{R_6}\sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_6R_3R_4 + C_1C_6R_4R_6 + C_2C_6R_4R_6}}} \\ \text{K--BP: } \frac{C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_6R_4R_6 + C_2C_6R_4R_6}}{C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_5R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6 + C_2C_6R_4R_6}}} \\ \text{Vone}
```

# **8.299** X-INVALID-NUMER-299 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_5R_1R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_5R_1R_4R_5 + C_1C_2C_5R_3R_4R_5 + C_1C_4C_5R_3R_4R_5\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_5R_4R_5\right)}$$

#### Parameters:

Wz: None

```
Q: \frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1R_3}+C_1R_4+C_2R_4}{C_1C_2R_3R_4+C_1C_2R_3R_4+C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5}+C_2C_5R_4R_5}{\sqrt{C_1R_3}+C_1R_4+C_2R_4}} wo: \frac{\sqrt{C_1R_3}+C_1R_4+C_2R_4}{\sqrt{C_1C_2C_5R_1R_4R_5}+C_1C_2C_5R_3R_4R_5+C_1C_4C_5R_3R_4R_5}} bandwidth: \frac{C_1C_2R_1R_4+C_1C_2R_3R_4+C_1C_4R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3}+C_4R_3\sqrt{C_1C_2C_5R_1R_4R_5}+C_1C_2C_5R_3R_4R_5+C_1C_4C_5R_3R_4R_5}} K-LP: \frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4} K-HP: 0
K-BP: \frac{C_1C_5R_1R_4+C_1C_2R_3R_4+C_1C_4R_3R_4-C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}{C_1C_2R_1R_4+C_1C_2R_3R_4+C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5} Qz: None
```

# **8.300** X-INVALID-NUMER-300 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_1C_3R_1R_4R_6s + C_3R_4R_6}{C_1C_2C_3R_1R_4R_5s^2 - C_1R_4 + C_1R_5 + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_2C_3R_4R_5\right)}$$

### Parameters:

```
Q: \frac{C_{1}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{-R_{4}+R_{5}}}{C_{1}C_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}+C_{2}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}} wo: \frac{\sqrt{-R_{4}+R_{5}}}{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}} bandwidth: \frac{C_{1}C_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}+C_{2}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}}{C_{1}C_{2}C_{3}R_{1}\sqrt{R_{4}}\sqrt{R_{5}}} K-LP: -\frac{C_{3}R_{4}R_{6}}{C_{1}R_{4}-C_{1}R_{5}} K-HP: 0 K-BP: \frac{C_{1}C_{3}R_{1}R_{6}}{C_{1}C_{2}R_{5}+C_{1}C_{3}R_{5}+C_{2}C_{3}R_{5}} Qz: None Wz: None
```

## 8.301 X-INVALID-NUMER-301 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3R_1R_4s^2 + C_1 + s\left(C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4\right)}$$

## Parameters:

Q:  $\frac{C_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_1C_2\sqrt{R_4}+C_1C_3\sqrt{R_4}-C_1C_5\sqrt{R_4}+C_2C_3\sqrt{R_4}}$  wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}}$  bandwidth:  $\frac{C_1C_2\sqrt{R_4}+C_1C_3\sqrt{R_4}-C_1C_5\sqrt{R_4}+C_2C_3\sqrt{R_4}}{C_1C_2C_3R_1\sqrt{R_4}}$  K-LP: 0 K-HP:  $\frac{C_5R_6}{C_2}$  K-BP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$  Qz: None Wz: None

## **8.302** X-INVALID-NUMER-302 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_4s + C_3C_5R_4}{C_1C_2C_3C_6R_1R_4s^2 + C_1C_6 + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

## Parameters:

Q:  $\frac{C_{1}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}}{C_{1}C_{2}\sqrt{R_{4}}+C_{1}C_{3}\sqrt{R_{4}}-C_{1}C_{5}\sqrt{R_{4}}+C_{2}C_{3}\sqrt{R_{4}}}$ wo:  $\frac{1}{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{4}}}$ bandwidth:  $\frac{C_{1}C_{2}\sqrt{R_{4}}+C_{1}C_{3}\sqrt{R_{4}}-C_{1}C_{5}\sqrt{R_{4}}+C_{2}C_{3}\sqrt{R_{4}}}{C_{1}C_{2}C_{3}R_{1}\sqrt{R_{4}}}$ 

K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1}{C_1C_2C_6+C_1C_3C_6-C_1C_5C_6+C_2C_3C_6}$  Qz: None

Wz: None

**8.303** X-INVALID-NUMER-303  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_1 C_3 R_1 R_6 s + C_3 R_6}{C_1 C_2 C_3 R_1 R_5 s^2 - C_1 + s \left( C_1 C_2 R_5 + C_1 C_3 R_5 + C_1 C_4 R_5 + C_2 C_3 R_5 \right)}$$

### Parameters:

Q:  $\frac{iC_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_1C_2\sqrt{R_5} + C_1C_3\sqrt{R_5} + C_1C_4\sqrt{R_5} + C_2C_3\sqrt{R_5}}$ 

wo:  $\frac{i}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_5}}$ bandwidth:  $\frac{C_1C_2\sqrt{R_5}+C_1C_3\sqrt{R_5}+C_1C_4\sqrt{R_5}+C_2C_3\sqrt{R_5}}{C_1C_2C_3R_1\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3 R_6}{C_1}$ K-HP: 0

K-BP:  $\frac{C_1C_3R_1R_6}{C_1C_2R_5+C_1C_3R_5+C_1C_4R_5+C_2C_3R_5}$ 

Qz: None Wz: None

**8.304** X-INVALID-NUMER-304  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_6s + C_3C_5R_6}{C_1C_2C_3C_6R_1R_6s^2 + C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_3R_1 + C_1C_2C_6R_6 + C_1C_3C_6R_6 + C_1C_4C_6R_6 - C_1C_5C_6R_6 + C_2C_3C_6R_6\right)}$ 

### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{C_1C_2C_3R_1+C_1C_2C_6R_6+C_1C_3C_6R_6+C_1C_4C_6R_6-C_1C_5C_6R_6+C_2C_3C_6R_6}}$  wo:  $\frac{\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}}$  bandwidth:  $\frac{C_1C_2C_3R_1+C_1C_2C_6R_6+C_1C_3C_6R_6+C_1C_4C_6R_6-C_1C_5C_6R_6+C_2C_3C_6R_6}{C_1C_2C_3C_6R_1R_6}}$ 

K-LP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$  K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1R_6}{C_1C_2C_3R_1+C_1C_2C_6R_6+C_1C_3C_6R_6+C_1C_4C_6R_6-C_1C_5C_6R_6+C_2C_3C_6R_6}$  Qz: None

Wz: None

**8.305** X-INVALID-NUMER-305  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_6s + C_3C_5R_6}{C_1C_2C_3C_5R_1R_5s^2 + C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_3R_1 + C_1C_2C_5R_5 + C_1C_3C_5R_5 + C_1C_4C_5R_5 + C_2C_3C_5R_5\right)}$$

## Parameters:

 $\begin{array}{l} \text{Q:} \ \ \frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{C_1C_2C_3R_1+C_1C_2C_5R_5+C_1C_3C_5R_5+C_1C_4C_5R_5+C_2C_3C_5R_5} \\ \text{wo:} \ \ \frac{\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}} \\ \text{bandwidth:} \ \ \frac{C_1C_2C_3R_1+C_1C_2C_5R_5+C_1C_3C_5R_5+C_1C_4C_5R_5+C_2C_3C_5R_5}{C_1C_2C_3C_5R_1R_5} \end{array}$ 

K-LP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$ K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1R_6}{C_1C_2C_3R_1+C_1C_2C_5R_5+C_1C_3C_5R_5+C_1C_4C_5R_5+C_2C_3C_5R_5}$  Qz: None

Wz: None

**8.306** X-INVALID-NUMER-306  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $H(s) = \frac{C_1C_3R_1R_4R_6s + C_3R_4R_6}{C_1C_2C_3R_1R_4R_5s^2 - C_1R_4 + C_1R_5 + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 + C_2C_3R_4R_5\right)}$ 

### Parameters:

Q:  $\frac{C_{1}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{-R_{4}+R_{5}}}{C_{1}C_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{4}\sqrt{R_{4}}\sqrt{R_{5}}+C_{2}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}}$ wo:  $\frac{\sqrt{-R_{4}+R_{5}}}{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}}$ bandwidth:  $\frac{C_{1}C_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{4}\sqrt{R_{4}}\sqrt{R_{5}}+C_{2}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}}{C_{1}C_{2}C_{3}R_{1}\sqrt{R_{4}}\sqrt{R_{5}}}$ 

K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$ K-HP: 0

K-BP:  $\frac{C_1C_3R_1R_6}{C_1C_2R_5+C_1C_3R_5+C_1C_4R_5+C_2C_3R_5}$  Qz: None

Wz: None

**8.307** X-INVALID-NUMER-307  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3R_1R_4s^2 + C_1 + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_2C_3R_4\right)}$ 

#### Parameters:

Q:  $\frac{C_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_1C_2\sqrt{R_4} + C_1C_3\sqrt{R_4} + C_1C_4\sqrt{R_4} - C_1C_5\sqrt{R_4} + C_2C_3\sqrt{R_4}}$  wo:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}}$  bandwidth:  $\frac{C_1C_2\sqrt{R_4} + C_1C_3\sqrt{R_4} + C_1C_4\sqrt{R_4} - C_1C_5\sqrt{R_4} + C_2C_3\sqrt{R_4}}{C_1C_2C_2R_1\sqrt{R_4}}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$  Qz: None

Wz: None

**8.308** X-INVALID-NUMER-308  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_4s + C_3C_5R_4}{C_1C_2C_3C_6R_1R_4s^2 + C_1C_6 + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$ 

### Parameters:

Q:  $\frac{C_{1}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}}{C_{1}C_{2}\sqrt{R_{4}}+C_{1}C_{3}\sqrt{R_{4}}+C_{1}C_{4}\sqrt{R_{4}}-C_{1}C_{5}\sqrt{R_{4}}+C_{2}C_{3}\sqrt{R_{4}}}$ wo:  $\frac{1}{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{4}}}$ bandwidth:  $\frac{C_{1}C_{2}\sqrt{R_{4}}+C_{1}C_{3}\sqrt{R_{4}}+C_{1}C_{4}\sqrt{R_{4}}-C_{1}C_{5}\sqrt{R_{4}}+C_{2}C_{3}\sqrt{R_{4}}}{C_{1}C_{2}C_{3}R_{1}\sqrt{R_{4}}}$ where  $C_{1}C_{2}C_{3}R_{4}$ 

K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1}{C_1C_2C_6+C_1C_3C_6+C_1C_4C_6-C_1C_5C_6+C_2C_3C_6}$  Qz: None

## **8.309** X-INVALID-NUMER-309 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_1C_3R_1R_4R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_3R_3R_4R_5\right) + s\left(C_1C_2R_4R_5 - C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 + C_2C_3R_4R_5\right)}$$

## Parameters:

Q:  $\frac{C_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{-R_4+R_5}}{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_2C_3R_4R_5}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5}}$  bandwidth:  $\frac{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_2C_3R_4R_5}{C_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5}}$  K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$  K-HP: 0

K-BP:  $\frac{C_1C_3R_1R_4R_6}{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_2C_3R_4R_5}$  Qz: None

Wz: None

# **8.310** X-INVALID-NUMER-310 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_3R_3R_4 - C_1C_3C_5R_3R_4\right) + s\left(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4\right)}$$

### Parameters:

 $Q: \frac{C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}{C_1C_2R_4+C_1C_3R_4+C_1C_5R_4+C_2C_3R_4}$ 

 $\text{bandwidth: } \frac{(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4}}}{C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}}$ 

K-LP: 0

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}$ K-BP:  $\frac{C_5R_1R_6}{C_1C_2R_4+C_1C_3R_3+C_1C_3R_4+C_1C_5R_4+C_2C_3R_4}$ Qz: None

Wz: None

# **8.311** X-INVALID-NUMER-311 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_4s + C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_3R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

### Parameters:

 $\underbrace{\frac{C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}+C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}-C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}_{C_1C_2R_4+C_1C_3R_3+C_1C_3R_4-C_1C_5R_4+C_2C_3R_4}$ 

 $\text{wo: } \sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4}} \\ \text{bandwidth: } \frac{(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4}}}{C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} \\ + C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} \\ + C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_3 - C_5R_3}} \\ + C_1C_2\sqrt{C_3}R_3\sqrt{\frac{1}{C_3}} + C_1C_2\sqrt{C_3}R_3\sqrt{$ 

K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1R_4}{C_1C_2C_6R_4+C_1C_3C_6R_3+C_1C_3C_6R_4-C_1C_5C_6R_4+C_2C_3C_6R_4}$  Qz: None

Wz: None

# **8.312** X-INVALID-NUMER-312 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_1C_3R_1R_6s + C_3R_6}{-C_1 + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_3R_3R_5 + C_1C_3C_4R_3R_5\right) + s\left(C_1C_2R_5 - C_1C_3R_3 + C_1C_3R_5 + C_1C_4R_5 + C_2C_3R_5\right)}$$

```
wo: \frac{i}{\sqrt{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5}} bandwidth: \frac{C_1C_2R_5-C_1C_3R_3+C_1C_3R_5+C_1C_4R_5+C_2C_3R_5}{C_1\sqrt{C_3}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5}} K-LP: -\frac{C_3R_6}{C_1}
            K-HP: 0
           K-BP: \frac{C_1C_3R_1R_6}{C_1C_2R_5-C_1C_3R_3+C_1C_3R_5+C_1C_4R_5+C_2C_3R_5} Qz: None
            Wz: None
8.313 X-INVALID-NUMER-313 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
          H(s) = \frac{C_1C_3C_5R_1R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_6R_1R_6 + C_1C_3C_4C_6R_3R_6 - C_1C_3C_5C_6R_3R_6\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_6R_6 + C_1C_3C_5R_3 + C_1C_3C_5R_3 + C_1C_3C_6R_6 + C_1C_3C_6R_6
      Parameters:
             O: \frac{\sqrt{C_1}C_2\sqrt{C_3}\sqrt{C_6}R_1\sqrt{R_6}\sqrt{\frac{C_1C_2}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{C_1C_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{C_1C_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{C_1C_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{C_2C_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \sqrt{C_1}C_2\sqrt{C_3}\sqrt{C_6}R_3\sqrt{R_6}\sqrt{\frac{C_1C_2}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{C_1C_3}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{C_1
            Wo: \sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_6R_1R_6+C_1C_2C_3C_6R_3R_6+C_1C_3C_4C_6R_3R_6-C_1C_3C_5C_6R_3R_6}}
            \frac{1}{\sqrt{C_{1}C_{2}\sqrt{C_{3}}\sqrt{C_{6}}R_{1}\sqrt{R_{6}}\sqrt{\frac{C_{1}C_{2}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + \frac{C_{1}C_{4}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}} + \frac{C_{1}C_{4}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}} + \frac{C_{1}C_{3}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + \sqrt{C_{1}C_{2}\sqrt{C_{3}}\sqrt{C_{6}}R_{3}\sqrt{R_{6}}\sqrt{\frac{C_{1}C_{2}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}} + \frac{C_{1}C_{4}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + \frac{C_{1}C_{3}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}} 
            K-LP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}
K-HP: 0
            \text{K-BP: } \frac{C_1C_3C_5R_1R_6}{C_1C_2C_3R_1+C_1C_2C_3R_3+C_1C_2C_6R_6+C_1C_3C_4R_3-C_1C_3C_5R_3+C_1C_3C_6R_6+C_1C_4C_6R_6-C_1C_5C_6R_6+C_2C_3C_6R_6}
              Qz: None
            Wz: None
8.314 X-INVALID-NUMER-314 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_1C_3C_5R_1R_6s + C_3C_5R_6
                                                                         H(s) = \frac{C_1 C_3 C_5 I \iota_1 I \iota_6 s + C_3 C_5 I \iota_6}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3 + s^2 \left(C_1 C_2 C_3 C_5 R_1 R_5 + C_1 C_2 C_3 C_5 R_3 R_5 + C_1 C_3 C_4 C_5 R_3 R_5\right) + s \left(C_1 C_2 C_3 R_1 + C_1 C_2 C_5 R_5 + C_1 C_3 C_4 R_3 - C_1 C_3 C_5 R_3 + C_1 C_3 C_5 R_5 + C_1 C_4 C_5 R_5 + C_2 C_3 C_5 R_5\right)}
     Parameters:
       \begin{array}{l} \text{K-BP:} \ \frac{C_1C_3C_5R_1R_6}{C_1C_2C_3R_1+C_1C_2C_3R_3+C_1C_2C_5R_5+C_1C_3C_4R_3-C_1C_3C_5R_3+C_1C_3C_5R_5+C_1C_4C_5R_5+C_2C_3C_5R_5} \end{array} 
             Qz: None
            Wz: None
8.315 X-INVALID-NUMER-315 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_1C_3R_1R_4R_6s + C_3R_4R_6
                                                                                                                                                                        Parameters:
             Q: \frac{C_1\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_4+R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}}{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_1C_4R_4R_5+C_2C_3R_4R_5} wo: \frac{\sqrt{-R_4+R_5}}{\sqrt{-R_4+R_5}}
          W0: \frac{\sqrt{-n_4+n_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5+C_3C_4R_3R_4R_5}} bandwidth: \frac{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_1C_4R_4R_5+C_2C_3R_4R_5}{C_1\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_3R_4R_5+C_3C_4R_3R_4R_5}} K-LP: -\frac{C_3R_4R_6}{C_1R_4-C_1R_5} K-HP: 0
             K-HP: 0
```

K-BP:  $\frac{C_1C_3R_1R_4R_6}{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_1C_4R_4R_5+C_2C_3R_4R_5}$  Qz: None

**8.316** X-INVALID-NUMER-316 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_3R_3R_4 + C_1C_3C_4R_3R_4 - C_1C_3C_5R_3R_4\right) + s\left(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_2C_3R_4\right)}$$

$$\begin{array}{c} Q: \frac{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + C_{1}C_{2}\sqrt{C_{3}}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + C_{1}\sqrt{C_{3}}C_{4}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} - C_{1}\sqrt{C_{3}}C_{5}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} \\ wo: \sqrt{\frac{1}{C_{2}C_{3}R_{1}R_{4}+C_{2}C_{3}R_{3}R_{4}+C_{3}C_{4}R_{3}R_{4}-C_{3}C_{5}R_{3}R_{4}}} \\ bandwidth: \frac{(C_{1}C_{2}R_{4}+C_{1}C_{3}R_{3}+C_{1}C_{3}R_{4}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4})\sqrt{\frac{1}{C_{2}C_{3}R_{1}R_{4}+C_{2}C_{3}R_{3}R_{4}+C_{3}C_{4}R_{3}R_{4}-C_{3}C_{5}R_{3}R_{4}}} \\ bandwidth: \frac{(C_{1}C_{2}R_{4}+C_{1}C_{3}R_{3}+C_{1}C_{3}R_{4}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4})\sqrt{\frac{1}{C_{2}C_{3}R_{1}R_{4}+C_{2}C_{3}R_{3}R_{4}+C_{3}C_{5}R_{3}R_{4}}{C_{2}C_{3}R_{1}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} + C_{1}\sqrt{C_{3}C_{4}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}C_{3}R_{1}R_{4}+C_{2}C_{3}R_{3}R_{4}+C_{3}C_{5}R_{3}R_{4}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} \\ K-LP: 0 \\ K-HP: \frac{C_{5}R_{1}R_{6}}{C_{2}C_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}{C_{1}C_{2}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}} \\ K-BP: \frac{C_{5}R_{1}R_{6}}{C_{1}C_{2}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4}}}{C_{2}C_{2}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4}} \\ Wz: None \end{aligned}$$

# 8.317 X-INVALID-NUMER-317 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_4s + C_3C_5R_4}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

#### Parameters:

```
 Q: \frac{C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - C_1\sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3}C_3} - C_1\sqrt{C_3}C_5R_3\sqrt{\frac{1}{C_3
```

# **8.318** X-INVALID-NUMER-318 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_1R_1R_2R_4R_6s + R_2R_4R_6}{R_4R_5 + s^2\left(C_1C_2R_1R_2R_4R_5 + C_1C_2R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5\right)}$$

## Parameters:

## **8.319** X-INVALID-NUMER-319 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 - C_1C_5R_2R_3R_4\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4\right)}$$

```
Q \colon \frac{\sqrt{C_1}C_2R_1\sqrt{R_2}R_4\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + \sqrt{C_1}C_2\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}{C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}
\text{wo: } \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3-C_1C_5R_2R_3}}
\text{bandwidth: } \frac{(C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3-C_1C_5R_2R_3}}}{\sqrt{C_1}C_2R_1\sqrt{R_2}R_4\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} + \sqrt{C_1}C_2\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}}
\text{K-LP: 0}
\text{K-HP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}
\text{K-BP: } \frac{C_5R_1R_6}{C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}}{C_1R_1R_2R_4+C_1R_3R_4+C_2R_2R_4}}
\text{Qz: None}
\text{Wz: None}
```

# **8.320** X-INVALID-NUMER-320 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_1C_5R_1R_2R_4s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_2C_6R_2R_4\right)}$ 

### Parameters:

# **8.321** X-INVALID-NUMER-321 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$

 $H(s) = \frac{C_1R_1R_2R_6s + R_2R_6}{R_5 + s^2\left(C_1C_2R_1R_2R_5 + C_1C_2R_2R_3R_5 + C_1C_4R_2R_3R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5\right)}$ 

#### Parameters:

# 8.322 X-INVALID-NUMER-322 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_5R_1R_2R_6s^2 + C_5R_2R_6s}{s^2\left(C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_2R_2\right) + 1}$$

$$Q: \frac{\sqrt{C_{1}C_{2}R_{1}\sqrt{R_{2}}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + \sqrt{C_{1}C_{2}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + \sqrt{C_{1}C_{4}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}$$

K-BP:  $\frac{C_5R_2R_6}{C_1R_1+C_1R_2+C_1R_3+C_2R_2}$  Qz: None

Wz: None

**8.323** X-INVALID-NUMER-323 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5R_1R_2s + C_5R_2}{C_6 + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2\right)}$$

### Parameters:

 $\text{Q:} \ \frac{\sqrt{C_{1}}C_{2}R_{1}\sqrt{R_{2}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2}}$ 

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}}$ 

 $(C_1R_1 + C_1R_2 + C_1R_3 + C_2R_2)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}$  $\frac{1}{\sqrt{C_1}C_2R_1\sqrt{R_2}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+\sqrt{C_1}C_4\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}-\sqrt{C_1}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3$ 

K-LP:  $\frac{C_5R_2}{C_6}$ K-HP: 0

K-BP:  $\frac{C_1C_5R_1R_2}{C_1C_6R_1+C_1C_6R_2+C_1C_6R_3+C_2C_6R_2}$  Qz: None

Wz: None

# **8.324** X-INVALID-NUMER-324 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$

$$H(s) = \frac{C_1R_1R_2R_4R_6s + R_2R_4R_6}{R_4R_5 + s^2\left(C_1C_2R_1R_2R_4R_5 + C_1C_2R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5\right)}$$

#### Parameters:

wo:  $\frac{1}{\sqrt{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3}}$  bandwidth:  $\frac{C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5}{\sqrt{C_1\sqrt{R_2}R_4R_5\sqrt{C_2R_1 + C_2R_3 + C_4R_3}\sqrt{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3}}}$  K-LP:  $\frac{R_2R_6}{R_5}$  K-HP: 0

K-BP:  $\frac{C_1R_1R_2R_4R_6}{C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5}$ 

Qz: None Wz: None

**8.325** X-INVALID-NUMER-325  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_4R_2R_3R_4 - C_1C_5R_2R_3R_4\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4\right)}$$

### Parameters:

 $\text{Q:} \ \frac{\sqrt{C_{1}}C_{2}R_{1}\sqrt{R_{2}}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{R_{2}}R_{3}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}R_{3}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}R_{3}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-C_{1}R_{1}R_{4}+C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}}$ 

 $\frac{(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}{\sqrt{C_1C_2R_1\sqrt{R_2}R_4\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_1C_2\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + \sqrt{C_1C_4\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}} + \sqrt{C_1C_4\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}}}} + \sqrt{C_1C_4\sqrt{R_2}R_3 - C_5R_3}} +$ 

K-LP: 0

 $\begin{array}{l} \text{K-HP: } \frac{C_5 R_1 R_6}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3} \\ \text{K-BP: } \frac{C_5 R_2 R_4 R_6}{C_1 R_1 R_4 + C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_2 R_2 R_4} \\ \end{array}$ 

Qz: None Wz: None

**8.326** X-INVALID-NUMER-326 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5R_1R_2R_4s + C_5R_2R_4}{C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_1C_6R_2R_4\right)}$$

$$Q: \frac{\sqrt{C_1C_2R_1\sqrt{R_2}R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1C_2\sqrt{R_2}R_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1C_4\sqrt{R_2}R_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_1C_5\sqrt{R_2}R_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} } \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3}} \\ bandwidth: \frac{(C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1C_5R_2R_3}}}{\sqrt{C_1C_2R_1\sqrt{R_2}R_4\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}} + \sqrt{C_1C_2\sqrt{R_2}R_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1C_4R_2R_4-C_1R_2R_4+C_1R_3R_4+C_2R_2R_4}}{\sqrt{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1C_2R_2R_3+C_1C_5R_2R_3}}}} \\ bandwidth: \frac{(C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1R_2R_3-C_1C_5R_2R_3}}}{\sqrt{C_1C_2R_1\sqrt{R_2}R_4\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}} + \sqrt{C_1C_2\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1C_5R_2R_3}}} \\ bandwidth: \frac{(C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1C_5R_2R_3}}}}{\sqrt{C_1C_2R_1\sqrt{R_2}R_4\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}} + \sqrt{C_1C_2\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}}{\sqrt{C_1C_2R_1R_2R_4+C_1R_3R_4+C_2R_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}{\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}} + \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}{\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}{\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}{\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}{\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}{\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}} \\ wo: \sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_3+C_4R_3-C_5R_3}}}{\sqrt{\frac{1}{$$

# 8.327 X-INVALID-NUMER-327 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{C_1C_2C_3R_1R_2R_4R_5s^2 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 + C_2C_3R_2R_4R_5\right)}$$

#### Parameters:

$$\begin{array}{l} Q\colon \frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_2R_2\sqrt{R_4}\sqrt{R_5}+C_1C_3R_1\sqrt{R_4}\sqrt{R_5}+C_1C_3R_2\sqrt{R_4}\sqrt{R_5}+C_2C_3R_2\sqrt{R_4}\sqrt{R_5}}\\ \text{wo: } \frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}\\ \text{bandwidth: } \frac{C_1C_2R_2\sqrt{R_4}\sqrt{R_5}+C_1C_3R_1\sqrt{R_4}\sqrt{R_5}+C_1C_3R_2\sqrt{R_4}\sqrt{R_5}+C_2C_3R_2\sqrt{R_4}\sqrt{R_5}}{C_1C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}\\ \text{K-LP: } -\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}\\ \text{K-HP: } 0\\ \text{K-BP: } \frac{C_1C_3R_1R_2R_6}{C_1C_2R_2R_5+C_1C_3R_1R_2R_6}\\ \text{Qz: None}\\ \text{Wz: None} \end{array}$$

## 8.328 X-INVALID-NUMER-328 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1C_2C_3R_1R_2R_4s^2 + C_1R_2 + C_1R_4 + C_3R_4 + s\left(C_1C_2R_2R_4 + C_1C_3R_1R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4\right)}$$

### Parameters:

8.329 X-INVALID-NUMER-329 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_2C_3C_6R_1R_2R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}$ 

wo:  $\frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$ bandwidth:  $\frac{C_1C_2R_2\sqrt{R_4} + C_1C_3R_1\sqrt{R_4} + C_1C_3R_2\sqrt{R_4} - C_1C_5R_2\sqrt{R_4} + C_2C_3R_2\sqrt{R_4}}{C_1C_2C_3R_1R_2\sqrt{R_4}}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1R_2}{C_1C_2C_6R_2+C_1C_3C_6R_1+C_1C_3C_6R_2-C_1C_5C_6R_2+C_2C_3C_6R_2}$  Qz: None

Wz: None

**8.330** X-INVALID-NUMER-330  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_1C_3R_1R_2R_6s + C_3R_2R_6}{C_1C_2C_3R_1R_2R_5s^2 - C_1R_2 + C_1R_5 + C_3R_5 + s\left(C_1C_2R_2R_5 + C_1C_3R_1R_5 + C_1C_3R_2R_5 + C_1C_4R_2R_5 + C_2C_3R_2R_5\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{-C_{1}R_{2}+C_{1}R_{5}+C_{3}R_{5}}}{C_{1}C_{2}R_{2}\sqrt{R_{5}}+C_{1}C_{3}R_{1}\sqrt{R_{5}}+C_{1}C_{3}R_{2}\sqrt{R_{5}}+C_{1}C_{4}R_{2}\sqrt{R_{5}}+C_{2}C_{3}R_{2}\sqrt{R_{5}}}$  wo:  $\frac{\sqrt{-C_{1}R_{2}+C_{1}R_{5}+C_{3}R_{5}}}{\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}}}$  bandwidth:  $\frac{C_{1}C_{2}R_{2}\sqrt{R_{5}}+C_{1}C_{3}R_{1}\sqrt{R_{5}}+C_{1}C_{3}R_{2}\sqrt{R_{5}}+C_{1}C_{4}R_{2}\sqrt{R_{5}}+C_{2}C_{3}R_{2}\sqrt{R_{5}}}{C_{1}C_{2}C_{3}R_{1}R_{2}\sqrt{R_{5}}}$ 

K-LP:  $-\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}$ K-HP: 0

K-BP:  $\frac{C_1C_3R_1R_2R_6}{C_1C_2R_2R_5+C_1C_3R_1R_5+C_1C_3R_2R_5+C_1C_4R_2R_5+C_2C_3R_2R_5}$  Qz: None

Wz: None

**8.331** X-INVALID-NUMER-331  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1C_2C_3R_1R_2s^2 + C_1 + C_3 + s\left(C_1C_2R_2 + C_1C_3R_1 + C_1C_3R_2 + C_1C_4R_2 - C_1C_5R_2 + C_2C_3R_2\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{C_1+C_3}}{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}$  wo:  $\frac{\sqrt{C_1+C_3}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}$  bandwidth:  $\frac{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}{C_1C_2C_3R_1R_2}$  K IP: 0

K-LP: 0

K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_3C_5R_2R_6}{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}$  Qz: None

Wz: None

**8.332** X-INVALID-NUMER-332  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2s + C_3C_5R_2}{C_1C_2C_3C_6R_1R_2s^2 + C_1C_6 + C_3C_6 + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2\right)}$ 

Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{C_1+C_3}}{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}$  wo:  $\frac{\sqrt{C_1+C_3}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}$  bandwidth:  $\frac{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}{C_1C_2C_3R_1R_2}$ 

K-LP:  $\frac{C_3C_5R_2}{C_1C_6+C_3C_6}$ K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1R_2}{C_1C_2C_6R_2+C_1C_3C_6R_1+C_1C_3C_6R_2+C_1C_4C_6R_2-C_1C_5C_6R_2+C_2C_3C_6R_2}$  Qz: None

**8.333** X-INVALID-NUMER-333 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{C_1C_2C_3R_1R_2R_4R_5s^2 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 + C_2C_3R_2R_4R_5\right)}$$

Q:  $\frac{\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{-C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}}}{C_{1}C_{2}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}R_{1}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{4}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{2}C_{3}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}}}$ wo:  $\frac{\sqrt{-C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}}{\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}}}$ bandwidth:  $\frac{C_{1}C_{2}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}R_{1}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{4}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{2}C_{3}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}}}{C_{1}C_{2}C_{3}R_{1}R_{2}\sqrt{R_{4}}\sqrt{R_{5}}}}$ 

K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_1C_3R_1R_2R_6}{C_1C_2R_2R_5+C_1C_3R_1R_5+C_1C_3R_2R_5+C_1C_4R_2R_5+C_2C_3R_2R_5}$  Qz: None

Wz: None

# **8.334** X-INVALID-NUMER-334 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1C_2C_3R_1R_2R_4s^2 + C_1R_2 + C_1R_4 + C_3R_4 + s\left(C_1C_2R_2R_4 + C_1C_3R_1R_4 + C_1C_3R_2R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}+C_1C_4R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}$  wo:  $\frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$  bandwidth:  $\frac{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}+C_1C_4R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}{C_1C_2C_3R_1R_2\sqrt{R_4}}$ 

K-LP: 0 K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_3C_5R_2R_6}{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}$  Qz: None

Wz: None

# **8.335** X-INVALID-NUMER-335 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_2C_3C_6R_1R_2R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + c_3C_6R_4 + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}+C_1C_4R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}$  wo:  $\frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$  bandwidth:  $\frac{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}+C_1C_4R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}{C_1C_2C_2R_2R_2\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP: 0

K-BP:  $\frac{C_1C_3C_5R_1R_2}{C_1C_2C_6R_2 + C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2}$ 

Qz: None Wz: None

# **8.336** X-INVALID-NUMER-336 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_2R_4R$$

#### Parameters:

 $\begin{aligned} & \text{Q:} \ \frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_3}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_2R_2R_4R_5+C_1C_3R_1R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_5+C_1C_3R_2R_4R_5+C_1C_3R_3R_4R_5+C_2C_3R_2R_4R_5} \\ & \text{wo:} \ \frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1C_2C_3R_1R_2R_4R_5+C_1C_2C_3R_2R_3R_4R_5}} \end{aligned}$ 

```
bandwidth: \frac{C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_3R_4R_5 + C_2C_3R_2R_4R_5}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1 + R_3}\sqrt{C_1C_2C_3R_1R_2R_4R_5 + C_1C_2C_3R_2R_3R_4R_5}} K-LP: -\frac{C_3R_2R_4R_6}{C_1R_2R_4 - C_1R_2R_5 - C_1R_4R_5 - C_3R_4R_5} K HP: 0
                K-BP: \frac{C_1C_3R_1R_2R_4R_6}{C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_3R_4R_5 + C_2C_3R_2R_4R_5} Qz: None
                 Wz: None
8.337 X-INVALID-NUMER-337 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s
                                                                                                                                                                                Parameters:
                  wo: \sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}
                                                                                                                                                                                \sqrt{C_1R_2 + C_1R_4 + C_3R_4}(C_1C_2R_2R_4 + C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4)\sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}
                                                                                    \frac{\sqrt{C_1C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}+\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}-\sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}-\frac{1}{C_2R_1+C_2R_3-C_5R_3}}+\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}-\sqrt{C_1}\sqrt{C_2}R_3\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}-\frac{1}{C_2R_1+C_2R_3-C_5R_3}}+\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}-\frac{1}{C_2R_1+C_2R_3-C_5R_3}}+\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}-\frac{1}{C_2R_1+C_2R_3-C_5R_3}}+\frac{1}{C_2R_1+C_2R_3-C_5R_3}}
                  K-LP: 0
                K-HP: \frac{C_5 R_1 R_6}{C_2 R_1 + C_2 R_3 - C_5 R_3}
                 \text{K-BP:} \frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4+C_1C_3R_1R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4-C_1C_5R_2R_4+C_2C_3R_2R_4} 
                    Qz: None
                 Wz: None
8.338 X-INVALID-NUMER-338 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4
                                                                                    H(s) = \frac{1}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_3C_6R_2R_3R_4 - C_1C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6
         Parameters:
                  Q: \frac{\sqrt{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \sqrt{C_{1}C_{2}\sqrt{C_{3}}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} - \sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} - \frac{1}{C_{1}C_{2}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}R_{4}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R
                  \text{wo: } \sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}(C_1C_2R_2R_4 + C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_2C_3R_2R_4)\sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_3R_2R_3 + C_1C_3C_5R_2R_3R_4}}}{\sqrt{C_1C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}}\sqrt{R_2}\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_3}}} + \sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_3}}} - \sqrt{C_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_3}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_2}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}} - \sqrt{C_1\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{
               K-LP: \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}
K-HP: 0
                K-BP: \frac{C_1C_3C_5R_1R_2R_4}{C_1C_2C_6R_2R_4+C_1C_3C_6R_1R_4+C_1C_3C_6R_2R_3+C_1C_3C_6R_2R_4+C_1C_3C_6R_3R_4-C_1C_5C_6R_2R_4+C_2C_3C_6R_2R_4} Qz: None
                  Wz: None
8.339 X-INVALID-NUMER-339 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C_1C_3R_1R_2R_6s + C_3R_2R_6
                                                                                                                                                                           H(s) = \frac{1}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_3R_1R_2R_5 + C_1C_2C_3R_2R_3R_5 + C_1C_3C_4R_2R_3R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_3R_1R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5 + C_2C_3R_2R_3R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_3R_2R_5 + C_1C_3R_2R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_3R_2R_5 + C_1C_3R_2R_5 + C_1C_3R_2R_5 + C_1C_3R_2R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_3R_2R_5 + C_1C_3R_2R_5 + C_1C_3R_2R_5 + C_1C_3R_2R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_3R_3R_5\right) + s\left(C_1C_2R_3R_5\right) + s\left(C_1C_2R_
        Parameters:
             \begin{array}{l} \dots & \sqrt{C_1C_2C_3R_1R_2R_5+C_1C_2C_3R_2R_3R_5+C_1C_3C_4R_2R_3R_5} \\ \text{bandwidth:} & \frac{C_1C_2R_2R_5+C_1C_3R_1R_5-C_1C_3R_2R_3+C_1C_3R_2R_5+C_1C_3R_3R_5+C_1C_4R_2R_5+C_2C_3R_2R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_2}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_1C_2C_3R_1R_2R_5+C_1C_2C_3R_2R_3R_5+C_1C_3C_4R_2R_3R_5}} \\ \text{K-LP:} & -\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5} \\ \text{K-HP:} & 0 \end{array} 
                  \text{K-BP: } \frac{C_1C_3R_1R_2R_6}{C_1C_2R_2R_5 + C_1C_3R_1R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5 + C_2C_3R_2R_5}
```

Qz: None Wz: None

**8.340** X-INVALID-NUMER-340 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^2\left(C_1C_2C_3R_1R_2 + C_1C_2C_3R_2R_3 + C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3\right) + s\left(C_1C_2R_2 + C_1C_3R_1 + C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2 + C_2C_3R_2\right)}$$

 $Q: \frac{\sqrt{C_1}C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2}R_1+C_2}R_3+C_4R_3-C_5R_3} + \sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2}R_1+C_2}R_3+C_4R_3-C_5R_3} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2}R_1+C_2}R_3+C_4R_3-C_5R_3} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2}R_1+C_2}R_3+C_4R_3-C_5R_3} } \\ wo: \sqrt{C_1} + C_3\sqrt{\frac{1}{C_1}C_2C_3R_1R_2+C_1C_2C_3R_2R_3+C_1C_3C_5R_2R_3} \\ bandwidth: \frac{\sqrt{C_1}C_2C_3R_1R_2+C_1C_2C_3R_2R_3+C_1C_3C_5R_2R_3} + \sqrt{C_1}\sqrt{C_2}C_3R_2R_3+C_1C_3C_5R_2R_3} + \sqrt{C_1}\sqrt{C_2}C_3R_2R_3+C_1C_3C_5R_2R_3} \\ k-LP: 0 \\ K-HP: \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} \\ K-BP: \frac{C_3C_5R_2R_6}{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_5R_2+C_2C_3R_2} \\ Qz: None \\ \\ C_3C_5R_2R_6 \\ Qz: None \\ \\ C_3C_5R_2R_6 \\ C_3C_5R_5R_6 \\ C_3C_$ 

# 8.341 X-INVALID-NUMER-341 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_1C_3C_5R_1R_2s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_3C_6R_1R_2 + C_1C_2C_3C_6R_2R_3 + C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3\right) + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2\right)}$ 

### Parameters:

Wz: None

 $Q: \frac{\sqrt{C_1C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_1\sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} }} } \\ wo: \sqrt{C_1+C_3}\sqrt{\frac{1}{C_1C_2C_3R_1R_2+C_1C_2C_3R_2R_3+C_1C_3C_4R_2R_3-C_1C_3C_5R_2R_3}} \\ bandwidth: \frac{\sqrt{C_1+C_3}(C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_3R_2+C_1C_3R_2+C_2C_3R_2)}\sqrt{\frac{1}{C_1C_2C_3R_1R_2+C_1C_2C_3R_2R_3+C_1C_3C_5R_2R_3}} } \\ \sqrt{C_1C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2C_3R_1R_2+C_1C_2C_3R_2R_3+C_1C_3C_5R_2R_3}}} } \\ K-LP: \frac{C_3C_5R_2}{C_1C_4C_5C_3C_6} \\ K-HP: 0 \\ K-BP: \frac{C_1C_2C_6R_2+C_1C_3C_6R_1+C_1C_3C_6R_3+C_1C_4C_6R_2-C_1C_5C_6R_2+C_2C_3C_6R_2}{C_1C_2C_6R_2+C_1C_3C_6R_3+C_1C_4C_6R_2-C_1C_5C_6R_2+C_2C_3C_6R_2}} \\ Qz: None \\ \\$ 

## **8.342** X-INVALID-NUMER-342 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$

 $H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + S^2\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_3C_4R_2R_3R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_2R_3R_4 + C_1C_3R_3R_3R_4 + C_1C_3R$ 

#### Parameters:

Wz: None

Q:  $\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{C_1C_2R_2R_4R_5+C_1C_3R_1R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_5+C_1C_3R_2R_4R_5+C_1C_3R_3R_4R_5+C_1C_4R_2R_4R_5+C_2C_3R_2R_4R_5}$ wo:  $\frac{\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}}{\sqrt{C_1C_2C_3R_1R_2R_4R_5+C_1C_2C_3R_2R_3R_4R_5+C_1C_3C_4R_2R_3R_4R_5}}$ bandwidth:  $\frac{C_1C_2R_2R_4R_5+C_1C_2C_3R_2R_3R_4R_5+C_1C_3C_4R_2R_3R_4R_5}{\sqrt{C_1\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_2R_1+C_2R_3+C_4R_3}\sqrt{C_1C_2C_3R_1R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5}}$ K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ K-HP: 0

K-BP:  $\frac{C_1C_3R_1R_2R_4R_6}{C_1C_2R_2R_4R_5+C_1C_3R_1R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_4R_2R_4R_5+C_2C_3R_2R_4R_5}}$ Qz: None
Wz: None

### **8.343** X-INVALID-NUMER-343 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_4R_2R_3R_4 + C_1C_3C_5R_2R_3R_4\right) + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4\right)}$ 

```
wo: \sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}
                                                                                                                                                                                                                                                                                                                                 \sqrt{C_1R_2 + C_1R_4 + C_3R_4} (C_1C_2R_2R_4 + C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4) \sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_3C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}} \sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_3R_2R_3 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}}{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_
                 \frac{\text{bandwidth:}}{\sqrt{C_{1}C_{2}\sqrt{C_{3}R_{1}\sqrt{R_{2}}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} + \sqrt{C_{1}C_{2}\sqrt{C_{3}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} + \sqrt{C_{1}\sqrt{C_{2}\sqrt{C_{3}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} + \sqrt{C_{1}\sqrt{C_{2}\sqrt{C_{3}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} + \sqrt{C_{1}\sqrt{C_{2}\sqrt{C_{3}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} + \sqrt{C_{1}\sqrt{C_{2}\sqrt{C_{3}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}} - \sqrt{C_{1}\sqrt{C_{3}C_{4}\sqrt{R_{2}R_{3}+C_{
                 K-LP: 0
                K-HP: \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}
                 \text{K-BP: } \frac{C_3C_5R_2R_4R_6}{C_1C_2R_2R_4+C_1C_3R_1R_4+C_1C_3R_2R_3+C_1C_3R_2R_4+C_1C_3R_3R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_2C_3R_2R_4} 
                    Qz: None
                  Wz: None
8.344 X-INVALID-NUMER-344 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4
H(s) = \frac{1133311247 + 3333247}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_3R_4 + C_1C
      Parameters:
                  Q: \frac{\sqrt{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + \sqrt{C_{1}C_{2}\sqrt{C_{3}}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + \sqrt{C_{1}\sqrt{C_{3}}C_{4}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} - \sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} - \sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} - \sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} - \sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{3}+C_{1}R_{4}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{3}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R
                 wo: \sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}
                                                                                                                                                                                                                                                                                                                                \sqrt{C_1R_2 + C_1R_4 + C_3R_4} (C_1C_2R_2R_4 + C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4) \sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_4 + C_1C_3C_5R_4 + C_1C_5R_4R_4 + C_1C_3C_5R_4R_4 + C_1C_5R_4R_4 + C_1C_5R_5R_4 + C_1C_5R_5R_4 + C_1C_5R_5R_4 + C_1C_5R_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5 + C_
                 K-LP: \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}
                \text{K-BP:} \quad \frac{C_1C_3C_5R_1R_2R_4}{C_1C_2C_6R_2R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_2R
                    Qz: None
                  Wz: None
8.345 X-INVALID-NUMER-345 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4
                                                                                                                                                                                                                                                                                                                 H(s) = \frac{C_5 C_6 R_1 R_2 R_4 R_5 + C_5 R_1 R_2 R_4}{-C_1 C_5 C_6 R_1 R_2 R_3 R_4 s^2 + C_6 R_1 R_4 + C_6 R_2 R_4 + C_6 R_2 R_4 + C_6 R_3 R_4 + s \left(C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_4 + C_1 C_6 R_1 R_3 R_4 - C_5 C_6 R_2 R_3 R_4\right)}
       Parameters:
                                             \frac{i\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4-C_5R_2R_3R_4} \frac{\sqrt{-R_1R_4-R_2R_3-R_2R_4-R_3R_4}}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}
                 bandwidth: \frac{i\sqrt{-R_1R_4-R_2R_3-R_2R_4-R_3R_4}(C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4-C_5R_2R_3R_4)}{C_1C_5R_1R_2R_3R_4\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}
               K-LP: \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}
                K-BP: \frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4-C_5R_2R_3R_4}
                    Qz: None
                  Wz: None
8.346 X-INVALID-NUMER-346 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4
H(s) = \frac{1}{C_{6}R_{1}R_{4} + C_{6}R_{2}R_{3} + C_{6}R_{2}R_{4} + C_{6}R_{3}R_{4} + s^{2}\left(-C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3} + C_{1}C_{5}C_{
       Parameters:
                  Q: \frac{-\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}R_2R_3R_4\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_5+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R_3R_4+R_2R_4+R_3R_4}\sqrt{\frac{1}{-R_2R
                  Wo: \sqrt{\frac{-R_1R_4 - R_2R_3 - R_2R_4 - R_3R_4}{C_1C_5R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_5 - C_1C_5R_1R_2R_4R_5 - C_1C_5R_1R_3R_4R_5}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                \sqrt{\frac{-R_1R_4-R_2R_3-R_2R_4-R_3R_4}{C_1C_5R_1R_2R_3R_4-C_1C_5R_1R_2R_3R_5-C_1C_5R_1R_2R_4R_5-C_1C_5R_1R_3R_4R_5}}(C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5)
                                                                                      K-LP: \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4}
```

 $\frac{\sqrt{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}C_{2}\sqrt{C_{3}}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}\sqrt{C_{3}}C_{4}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{4}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}+C_{1}R_{4}$ 

```
K-HP: 0
```

 $\text{K-BP:} \ \frac{C_5 R_1 R_2 R_4 R_6}{C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5 }$ 

Qz: None Wz: None

### **8.347** X-INVALID-NUMER-347 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_5 R_6 s + R_1 R_2 R_4 R_6}{-C_1 C_5 R_1 R_2 R_3 R_4 R_5 s^2 + R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + s \left(-C_1 R_1 R_2 R_3 R_4 + C_1 R_1 R_2 R_3 R_5 + C_1 R_1 R_2 R_4 R_5 + C_1 R_1 R_2 R_4 R_5 - C_5 R_2 R_3 R_4 R_5\right)}$$

#### Parameters:

 $\begin{array}{l} \text{Q:} \ \, \frac{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_1}R_4R_5 + R_2R_3R_4 - R_2R_3R_5 - R_2R_4R_5 - R_3R_4R_5}{C_1R_1R_2R_3R_4 - C_1R_1R_2R_3R_5 - C_1R_1R_2R_4R_5 - C_1R_1R_3R_4R_5 + C_5R_2R_3R_4R_5}\\ \text{wo:} \ \, \frac{\sqrt{-R_1}R_4R_5 + R_2R_3R_4 - R_2R_3R_5 - R_2R_4R_5 - R_3R_4R_5}}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}\\ \text{bandwidth:} \ \, \frac{C_1R_1R_2R_3R_4 - C_1R_1R_2R_3R_5 - C_1R_1R_2R_4R_5 - C_1R_1R_3R_4R_5 + C_5R_2R_3R_4R_5}{C_1C_5R_1R_2R_3R_4R_5}\\ - C_1C_5R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4R_5} \end{array}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP: 0

K-BP:  $-\frac{C_5R_1R_2R_4R_5R_6}{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5+C_5R_2R_3R_4R_5}$  Qz: None

Wz: None

## **8.348** X-INVALID-NUMER-348 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_5C_6R_1R_2R_6s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_1C_4C_6R_1R_2R_3 - C_1C_5C_6R_1R_2R_3\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_3 + C_4C_6R_2R_3 - C_5C_6R_2R_3\right)}$$

### Parameters:

$$Q\colon \frac{\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_1R_1R_2+C_1R_1R_3+C_4R_2R_3-C_5R_2R_3}\\ \text{wo: } \sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_4R_1R_2R_3-C_1C_5R_1R_2R_3}}\\ \text{bandwidth: } \frac{\sqrt{R_1+R_2+R_3}(C_1R_1R_2+C_1R_1R_3+C_4R_2R_3-C_5R_2R_3)\sqrt{\frac{1}{C_1C_4R_1R_2R_3-C_1C_5R_1R_2R_3}}}{\sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: } \frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_5R_1R_2R_2R_6}{C_1R_1R_2+C_1R_1R_3+C_4R_2R_3-C_5R_2R_3}\\ \text{Qz: None}$$

**8.349** X-INVALID-NUMER-349  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_5R_1R_2R_5R_6s + R_1R_2R_6}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_1C_4R_1R_2R_3R_5 - C_1C_5R_1R_2R_3R_5\right) + s\left(-C_1R_1R_2R_3 + C_1R_1R_2R_5 + C_1R_1R_3R_5 + C_4R_2R_3R_5 - C_5R_2R_3R_5\right)}$$

### Parameters:

Wz: None

```
8.350 X-INVALID-NUMER-350 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
```

 $C_4R_1R_2R_4R_6s + R_1R_2R_6$  $H(s) = \frac{c_4R_1R_2R_4R_5 + R_1R_2R_5}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(-C_1C_4R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_5 + C_1C_4R_1R_2R_4R_5 + C_1C_4R_1R_2R_3 + C_1R_1R_2R_5 + C_1R_1R_3R_5 + C_4R_1R_4R_5 - C_4R_2R_3R_4 + C_4R_2R_3R_5 + C_4R_2R_4R_5 + C_4R_3R_4R_5\right)}$ 

### Parameters:

 $Q: \frac{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}R_2R_3R_4\sqrt{\frac{R_1R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{R_1}R_2R_3R_4\sqrt{\frac{R_1R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_4}\sqrt{R_1}R_2R_3R_5\sqrt{\frac{R_1R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{R_1}R_2R_3R_5\sqrt{\frac{R_1R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_4}\sqrt{R_1}R_2R_3R_5\sqrt{\frac{R_1R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_4}\sqrt{R_1}R_2R_3R_5+\frac{R_2R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_1}\sqrt{R_1}R_2R_3R_5+\frac{R_2R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_1}\sqrt{R_1}R_2R_3R_5+\frac{R_2R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_1}\sqrt{R_1}R_2R_3R_5+\frac{R_2R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{R_1}R_2R_3R_5+\frac{R_2R_5}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_1}\sqrt{R_1}R_2R_3R_5+\frac{R_2R_5}{-R_2R_3R_4+R_2R_$ 

K-BP:  $-\frac{C_4R_1R_2R_4R_6}{C_1R_1R_2R_3-C_1R_1R_2R_5-C_1R_1R_3R_5-C_4R_1R_4R_5+C_4R_2R_3R_4-C_4R_2R_3R_5-C_4R_2R_4R_5-C_4R_3R_4R_5}$  Qz: None

Wz: None

## **8.351** X-INVALID-NUMER-351 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4$  $H(s) = \frac{C_{6}R_{1}R_{4} + C_{6}R_{2}R_{3} + C_{6}R_{2}R_{4} + C_{6}R_{3}R_{4} + s^{2}\left(C_{1}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4} - C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}\right) + s\left(C_{1}C_{6}R_{1}R_{2}R_{3} + C_{1}C_{6}R_{1}R_{2}R_{4} + C_{1}C_{6}R_{1}R_{3}R_{4} + C_{4}C_{6}R_{2}R_{3}R_{4} - C_{5}C_{6}R_{2}R_{3}R_{4}\right)}$ 

#### Parameters:

 $Q: \frac{\sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_4R_2R_3R_4-C_5R_2R_3R_4}}$  wo:  $\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_4-C_5}}$ 

 $\text{bandwidth: } \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4)\sqrt{\frac{1}{C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}}}{\sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_4 - C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_4 - C_5}}}$ 

K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_4R_2R_3R_4-C_5R_2R_3R_4}$  Qz: None

Wz: None

## **8.352** X-INVALID-NUMER-352 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $C_5 R_1 R_2 R_4 R_5 R_6 s + R_1 R_2 R_4 R_6$  $H(s) = \frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + S^2\left(C_1C_4R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4 + C_1R_1R_2R_3R_5 + C_1R_1R_2R_3R_5 + C_1R_1R_2R_3R_4 + C_1R_1R_2R_3R_5 + C_1R_1R_2R_3R_4 + C_1R_1R_2R_3R_$ 

### Parameters:

 $\text{wo: } \sqrt{\frac{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{C_1C_4R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4R_5}} \\ \text{bandwidth: } \frac{\sqrt{\frac{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{C_1C_4R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4}} (C_1R_1R_2R_3R_4 - C_1R_1R_2R_3R_5 - C_1R_1R_2R_4R_5 - C_1R_1R_3R_4R_5 - C_4R_2R_3R_4R_5 + C_5R_2R_3R_4R_5)}{-\sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_4 - C_5} - \frac{R_2R_3R_5}{C_4 - C_5} + \frac{R_2R_3R_5}{C_4 - C_5} + \frac{R_2R_4R_5}{C_4 - C_5} + \frac{R_2R_4R$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP: 0

K-BP:  $-\frac{C_5R_1R_2R_4R_5R_6}{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5-C_4R_2R_3R_4R_5+C_5R_2R_3R_4R_5}$ Qz: None

**8.353** X-INVALID-NUMER-353 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{C_1C_3C_6R_1R_2R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6$$

 $\begin{array}{l} Q\colon -\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_2}R_4+R_2R_5+R_4R_5}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}\\ \text{wo: } \frac{\sqrt{-R_2}R_4+R_2R_5+R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}\\ \text{bandwidth: } -\frac{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}{C_1C_3R_1R_2R_4R_5}\\ \text{K-LP: } -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}\\ \text{K-HP: } 0\\ \text{K-BP: } -\frac{C_3R_1R_2R_4}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_2R_4R_5}\\ \text{Qz: None} \end{array}$ 

**8.354** X-INVALID-NUMER-354  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_1C_3C_6R_1R_2R_4 - C_1C_5C_6R_1R_2R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

### Parameters:

Wz: None

 $Q\colon \frac{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3-C_5}}}{C_1R_1R_2+C_1R_1R_4+C_3R_1R_4+C_3R_2R_4-C_5R_2R_4}\\ \text{wo: } \sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_3R_1R_2R_4-C_1C_5R_1R_2R_4}}\\ \text{bandwidth: } \frac{\sqrt{R_2+R_4}(C_1R_1R_2+C_1R_1R_4+C_3R_1R_4+C_3R_2R_4-C_5R_2R_4)\sqrt{\frac{1}{C_1C_3R_1R_2R_4-C_1C_5R_1R_2R_4}}}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}}\sqrt{\frac{1}{C_3-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3-C_5}}}\\ \text{K-LP: 0}\\ \text{K-HP: } \frac{C_3C_5R_6}{C_1C_3-C_1C_5}\\ \text{K-BP: } \frac{C_3C_5R_1R_2R_4}{C_1C_6R_1R_2+C_1C_6R_1R_4+C_3C_6R_2R_4-C_5C_6R_2R_4}}\\ \text{Qz: None}\\ \text{Wz: None}$ 

**8.355** X-INVALID-NUMER-355  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_1C_3R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5\right) + s\left(-C_1R_1R_2R_4 + C_1R_1R_2R_5 + C_1R_1R_4R_5 + C_3R_1R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5\right)}$$

### Parameters:

 $Q\colon \frac{-\sqrt{C_{1}}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{3}-C_{5}}} + \frac{R_{2}R_{5}}{C_{3}-C_{5}} + \frac{R_{4}R_{5}}{C_{3}-C_{5}}} + \sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{3}-C_{5}}} + \frac{R_{4}R_{5}}{C_{3}-C_{5}}}}{\frac{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}}{R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}}}}$ wo:  $\sqrt{\frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{4}R_{5}}}}{\frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{4}R_{5}}}}{\frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{4}R_{5}}}}{\frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{4}R_{5}}}{\frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{C_{3}-C_{5}}+\frac{R_{2}R_{5}}{C_{3}-C_{5}}} + \frac{R_{4}R_{5}}{C_{3}-C_{5}}}{\frac{-R_{2}R_{4}}{C_{3}-C_{5}}} + \frac{R_{2}R_{5}}{C_{3}-C_{5}}} + \sqrt{C_{1}C_{5}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{3}-C_{5}}} + \frac{R_{2}R_{5}}{C_{3}-C_{5}}}}}$ K-LP: 0

K-HP:  $\frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}-C_{1}C_{5}}}$ K-BP:  $-\frac{C_{3}R_{1}R_{2}R_{4}R_{6}}{C_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}}}{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}+C_{5}R_{2}R_{4}R_{5}}}$ Qz: None
Wz: None

**8.356** X-INVALID-NUMER-356  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_3C_6R_1R_2R_4R_5 - C_1C_5C_6R_1R_2R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5\right)}$$

```
Q\colon \frac{-\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}\sqrt{-\frac{R_2R_4}{C_3-C_5}+\frac{R_2R_5}{C_3-C_5}+\frac{R_4R_5}{C_3-C_5}}}{C_1R_1R_2R_4-C_1R_1R_2}+\frac{R_2R_5}{C_3-C_5}+\frac{R_4R_5}{C_3-C_5}}+\sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}\sqrt{-\frac{R_2R_4}{C_3-C_5}+\frac{R_2R_5}{C_3-C_5}+\frac{R_4R_5}{C_3-C_5}}}}{V\circ \cdot \sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_1C_5R_1R_2R_4R_5}}}}
bandwidth: \frac{\sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_1C_3R_1R_2R_4R_5-C_1C_5R_1R_2R_4R_5}}}{\sqrt{C_1C_3R_1R_2R_4R_5-C_1C_5R_1R_2R_4R_5}}(C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5+C_5R_2R_4R_5)}}{-\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_3-C_5}+\frac{R_2R_5}{C_3-C_5}+\frac{R_4R_5}{C_3-C_5}}}}+\sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_3-C_5}+\frac{R_4R_5}{C_3-C_5}+\frac{R_4R_5}{C_3-C_5}}}}
K-LP: -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}}{C_1C_6R_1R_2R_5-C_1C_6R_1R_4R_5-C_3C_6R_1R_4R_5-C_3C_6R_2R_4R_5+C_5C_6R_2R_4R_5}}
K-BP: -\frac{C_3C_5R_1R_2R_4R_5}{C_1C_6R_1R_2R_4-C_1C_6R_1R_4R_5-C_3C_6R_1R_4R_5-C_3C_6R_2R_4R_5+C_5C_6R_2R_4R_5}}{C_2: None}
Wz: None
```

### **8.357** X-INVALID-NUMER-357 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_6R_1R_2R_6s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^2\left(C_1C_3C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_5\right) + s\left(-C_1C_6R_1R_2 + C_1C_6R_1R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5\right)}$$

### Parameters:

 $\begin{array}{l} \mathrm{Q:} -\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{-R_2+R_5}}{C_1R_1R_2-C_1R_1R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}\\ \mathrm{wo:} \ \frac{\sqrt{-R_2+R_5}}{\sqrt{C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5}}\\ \mathrm{bandwidth:} \ -\frac{C_1R_1R_2-C_1R_1R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5}}\\ \mathrm{K-LP:} \ -\frac{C_3R_1R_2}{C_6R_2-C_6R_5}\\ \mathrm{K-HP:} \ 0\\ \mathrm{K-BP:} \ -\frac{C_3R_1R_2}{C_1R_1R_2-C_1R_1R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5}\\ \mathrm{Qz:} \ \mathrm{None}\\ \mathrm{Wz:} \ \mathrm{None} \end{array}$ 

## **8.358** X-INVALID-NUMER-358 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s^2\left(C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 - C_1C_5C_6R_1R_2\right) + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2\right)}$$

### Parameters:

$$Q \colon \frac{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{\frac{1}{C_3+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_1+C_3R_1+C_3R_2+C_4R_2-C_5R_2} \\ \text{wo: } \sqrt{\frac{1}{C_1C_3R_1R_2+C_1C_4R_1R_2-C_1C_5R_1R_2}} \\ \text{bandwidth: } \frac{(C_1R_1+C_3R_1+C_3R_2+C_4R_2-C_5R_2)\sqrt{\frac{1}{C_1C_3R_1R_2+C_1C_4R_1R_2-C_1C_5R_1R_2}}}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}}\sqrt{\frac{1}{C_3+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{\frac{1}{C_3+C_4-C_5}}}} \\ \text{K-LP: 0} \\ \text{K-HP: } \frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5} \\ \text{K-BP: } \frac{C_3C_5R_6}{C_1C_6R_1+C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}}{C_1C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2} \\ \text{Qz: None} \\ \text{Wz: None}$$

**8.359** X-INVALID-NUMER-359 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^2\left(C_1C_3R_1R_2R_5 + C_1C_4R_1R_2R_5 - C_1C_5R_1R_2R_5\right) + s\left(-C_1R_1R_2 + C_1R_1R_5 + C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5 - C_5R_2R_5\right)}$$

$$Q\colon \frac{-\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}}{C_{3}+C_{4}-C_{5}}} + \frac{R_{5}}{C_{3}+C_{4}-C_{5}} - \sqrt{C_{1}}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}}{C_{3}+C_{4}-C_{5}}} + \frac{R_{5}}{C_{3}+C_{4}-C_{5}}}{\frac{C_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}+C_{5}R_{2}R_{5}}{\frac{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{4}R_{1}R_{2}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{5}}{\frac{R_{2}R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{4}R_{1}R_{2}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{5}}}}} \\ \text{bandwidth:} \frac{\sqrt{\frac{-R_{2}+R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{4}R_{1}R_{2}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{5}}}{\frac{-R_{2}+R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{4}R_{1}R_{2}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{5}}}{\frac{-R_{2}+R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{5}}{\frac{-R_{2}+R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}}}}} \\ \text{bandwidth:} \frac{\sqrt{\frac{-R_{2}+R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{5}}}{\frac{-R_{2}+R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}}}}} \\ \text{C}_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}+C_{5}R_{2}R_{5}}}{\frac{-R_{2}+R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}}}{\frac{-R_{2}+R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}}{\frac{-R_{2}+R_{5}}{C_{3}+C_{4}-C_{5}}+\frac{R_{5}}{C_{3}+C_{4}-C_{5}}}}}} \\ \text{K-LP: 0}$$

K-HP:  $\frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5}$ 

K-BP:  $-\frac{C_{1}R_{1}R_{2}-C_{1}C_{5}}{C_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}+C_{5}R_{2}R_{5}}{C_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}+C_{5}R_{2}R_{5}}$ 

Qz: None Wz: None

## **8.360** X-INVALID-NUMER-360 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5R_1R_2R_5s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^2\left(C_1C_3C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_5 - C_1C_5C_6R_1R_2R_5\right) + s\left(-C_1C_6R_1R_2 + C_1C_6R_1R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5 - C_5C_6R_2R_5\right)}$ 

### Parameters:

 $\text{bandwidth: } \frac{\sqrt{\frac{-R_2+R_5}{C_1C_3R_1R_2R_5+C_1C_4R_1R_2}R_5 - C_1C_5R_1R_2R_5}}{\sqrt{\frac{-R_2+R_5}{C_1C_3R_1R_2R_5+C_1C_4R_1R_2}R_5 - C_1C_5R_1R_2R_5}} (C_1R_1R_2 - C_1R_1R_5 - C_3R_1R_5 - C_3R_2R_5 - C_4R_2R_5 + C_5R_2R_5)}{-\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}} - \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}} + \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}}$ 

K-HP: 0

K-BP:  $-\frac{C_3C_5R_1R_2R_5}{C_1C_6R_1R_2-C_1C_6R_1R_5-C_3C_6R_1R_5-C_3C_6R_2R_5-C_4C_6R_2R_5+C_5C_6R_2R_5}$  Qz: None

Wz: None

## **8.361** X-INVALID-NUMER-361 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_3C_6R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5\right)}$ 

### Parameters:

Q:  $-\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3+C_4}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5}$ wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_1C_2R_2R_3R_3R_3R_4+R_2R_5+R_4R_5}}$ 

wo:  $\frac{\sqrt{-R_2R_4 + R_2R_5 + R_4R_5}}{\sqrt{C_1C_3R_1R_2R_4R_5 + C_1C_4R_1R_2R_4R_5}}$ bandwidth:  $-\frac{C_1R_1R_2R_4 - C_1R_1R_2R_5 - C_1R_1R_4R_5 - C_3R_1R_4R_5 - C_3R_2R_4R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3 + C_4}\sqrt{C_1C_3R_1R_2R_4R_5 + C_1C_4R}}$ K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4 - C_6R_2R_5 - C_6R_4R_5}$ 

 $\text{K-BP:} - \frac{C_3 R_1 R_2 R_4 R_6}{C_1 R_1 R_2 R_4 - C_1 R_1 R_2 R_5 - C_1 R_1 R_4 R_5 - C_3 R_1 R_4 R_5 - C_3 R_2 R_4 R_5 - C_4 R_2 R_4 R_5}$ 

Qz: None Wz: None

# **8.362** X-INVALID-NUMER-362 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s$  $H(s) = \frac{C_3C_5C_6R_1R_2R_4C_6S_7 + C_3C_5R_1R_2R_4C_6S_7 + C_3C_5R_1R_2R_4C_5R_5R_5C_5R_5R_5C_5R_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5R_5C_5R_5C_5R_5R_5C_5R_5C_5R_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5R_5C_5R$ 

#### Parameters:

 $Q: \frac{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_1R_2+C_1R_1R_4+C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4}$ 

 $\sqrt{R_2 + R_4} (C_1 R_1 R_2 + C_1 R_1 R_4 + C_3 R_1 R_4 + C_3 R_2 R_4 + C_4 R_2 R_4 - C_5 R_2 R_4) \sqrt{\frac{1}{C_1 C_3 R_1 R_2 R_4 + C_1 C_4 R_1 R_2 R_4 - C_1 C_5 R_1 R_2 R_4}}$ bandwidth:  $\frac{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_3+C_4-C_5}}$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5}$ 

K-BP:  $\frac{C_3C_5R_1R_2R_4}{C_1C_6R_1R_2+C_1C_6R_1R_4+C_3C_6R_1R_4+C_3C_6R_2R_4+C_4C_6R_2R_4-C_5C_6R_2R_4}$  Qz: None

```
8.363 X-INVALID-NUMER-363 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)
```

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_1C_3R_1R_2R_4R_5 + C_1C_4R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5\right) + s\left(-C_1R_1R_2R_4 + C_1R_1R_2R_5 + C_1R_1R_4R_5 + C_3R_1R_4R_5 + C_3R_2R_4R_5 + C_4R_2R_4R_5 - C_5R_2R_4R_5\right)}$ 

### Parameters:

 $Q: \frac{-\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3+C_4}} + \frac{R_2}{C_3+C_4} + \frac{R_2}{C_3+C_4} - C_5}{C_1R_1R_2R_4 - C_5} - \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3+C_4}} + \frac{R_2}{C_3+C_4} + \frac{R_2}{C_3+C_4} - C_5}{C_3+C_4-C_5} + \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3+C_4}} + \frac{R_2}{C_3+C_4} + \frac{R_2}{C_3+C_4} - C_5}}{C_3+C_4-C_5} \\ \text{wo: } \sqrt{\frac{-R_2}{C_1}R_4R_5 - C_1R_1R_2R_5 - C_1R_1R_4R_5 - C_3R_1R_4R_5 - C_3R_2R_4R_5 - C_4R_2R_4R_5 + C_5R_2R_4R_5}{C_1C_3R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5}}} \\ \text{bandwidth: } \frac{\sqrt{C_1C_3R_1R_2R_4R_5 + C_1C_5R_1R_2R_4R_5}}{\sqrt{C_1C_3R_1R_2R_4R_5 + C_1C_4R_1R_2R_4R_5 + C_1C_5R_1R_2R_4R_5}}(C_1R_1R_2R_4 - C_1R_1R_2R_5 - C_1R_1R_4R_5 - C_3R_1R_4R_5 - C_3R_2R_4R_5 - C_4R_2R_4R_5 + C_5R_2R_4R_5}) \\ \text{bandwidth: } \frac{\sqrt{C_1C_3R_1R_2R_4R_5 + C_1C_5R_1R_2R_4R_5}}{\sqrt{C_1C_3R_1R_2R_4R_5 + C_1C_4R_1R_2R_4 + C_1C_5R_1R_2R_4R_5}}(C_1R_1R_2R_4 - C_1R_1R_2R_5 - C_1R_1R_4R_5 - C_3R_1R_4R_5 - C_3R_2R_4R_5 - C_4R_2R_4R_5 + C_5R_2R_4R_5}) \\ \text{bandwidth: } \frac{\sqrt{C_1C_3R_1R_2R_4R_5 + C_1C_4R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5}}{\sqrt{C_1C_3R_1R_2R_4R_5 + C_1C_4R_1R_2R_4 - C_1R_1R_2R_5 - C_1R_1R_4R_5 - C_3R_1R_4R_5 - C_3R_2R_4R_5 - C_4R_2R_4R_5 + C_5R_2R_4R_5}}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{R_4}R_5 + C_4R_2R_4R_5 + C_5R_2R_4R_5}}}}(C_1R_1R_2R_4 - C_1R_1R_2R_5 - C_1R_1R_4R_5 - C_3R_1R_4R_5 - C_3R_2R_4R_5 - C_4R_2R_4R_5 + C_5R_2R_4R_5}) \\ \text{bandwidth: } \frac{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{R_4}R_5 - C_4R_2R_4R_5 - C_4R_2R_4R$ 

## **8.364** X-INVALID-NUMER-364 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_3C_6R_1R_2R_4R_5 + C_1C_6C_6R_1R_2R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$ 

### Parameters:

```
 Q: \frac{-\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_3+C_4-C_5}} + \frac{R_4R_5}{C_3+C_4-C_5} + \frac{R_4R_5}{C_3+C_4-C_5}}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5+C_5} + \frac{R_4R_5}{C_3+C_4-C_5} + \frac{R_4R_5}{C_3+C_
```

## **8.365** X-INVALID-NUMER-365 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(-C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_4R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_3R_3R_5 + C_3C_6R_3R_3$ 

#### **Parameters:**

 $Q: \frac{\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{4}\sqrt{-\frac{R_{2}R_{3}}{R_{2}}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{5} + \frac{R_{4}R_{5}}{R_{2}}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{5} + \frac{R_{2}R_{3}}{R_{4}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{5} + \frac{R_{4}R_{5}}{R_{2}}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{5} - C_{1}R_{1}R_{2}R_{3}R_{5} + \frac{R_{4}R_{5}}{R_{2}}R_{4}R_{5}+R_{3}R_{4}R_{5}} - \sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}R_{2}R_{3}R_{5} - C_{1}R_{1}R_{4}R_{5} - C_{1}R_{1}R_{4}R_{5}$ 

K-BP:  $-\frac{C_3R_1R_2R_4R_6}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5+C_3R_2R_3R_4-C_3R_2R_3R_5-C_3R_2R_4R_5-C_3R_3R_4R_5}$  Qz: None

**8.366** X-INVALID-NUMER-366 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6}{C_1C_3R_1R_2R_3R_4R_5s^2 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s\left(-C_1R_1R_2R_3R_4 + C_1R_1R_2R_3R_5 + C_1R_1R_2R_4R_5 + C_1R_1R_3R_4R_5 + C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5\right)}$$

Q:  $-\frac{\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{1}}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}{C_{1}R_{1}R_{2}R_{3}R_{5}-C_{1}R_{1}R_{2}R_{4}R_{5}-C_{1}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{2}R_{3}R_{4}R_{5}}}$ wo:  $\frac{\sqrt{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}{\sqrt{C_{1}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}}}$ bandwidth:  $-\frac{C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{5}-C_{1}R_{1}R_{2}R_{4}R_{5}-C_{1}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{2}R_{3}R_{4}R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP: 0

Wz: None

## **8.367** X-INVALID-NUMER-367 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4\right) + s\left(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4\right)}$$

### Parameters:

$$Q: \frac{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}\sqrt{\frac{1}{C_3-C_5}}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_3R_1R_3R_4+C_3R_2R_3R_4-C_5R_2R_3R_4}$$

 $Q\colon \frac{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}}{C_{1}R_{1}R_{2}R_{3}+C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}-C_{5}R_{2}R_{3}R_{4}}\\ \text{wo: } \sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}}\\ \text{bandwidth: } \frac{\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}}{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}}\sqrt{\frac{1}{C_{3}-C_{5}}}-\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}}}\\ \text{bandwidth: } \frac{\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{3}-R_{1}R_{2}R_{3}R_{4}}-C_{5}R_{2}R_{3}R_{4}}-C_{5}R_{2}R_{3}R_{4}}}{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}}}\sqrt{\frac{1}{C_{3}-C_{5}}}}$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_6}{C_1C_3-C_1C_5}$ 

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_3R_1R_3R_4+C_3R_2R_3R_4-C_5R_2R_3R_4}$  Qz: None

Wz: None

## **8.368** X-INVALID-NUMER-368 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_3C_6R_1R_2R_3R_4 - C_1C_5C_6R_1R_2R_3R_4\right) + s\left(C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

### Parameters:

$$Q: \frac{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}{C_3-C_5} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3-C_5}}}{C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4}} \\ \text{wo: } \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_1C_3R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}}} \\ \text{bandwidth: } \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4)}\sqrt{\frac{1}{C_1C_3R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}}} \\ \frac{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3-C_5}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3-C_5}}}}{\sqrt{C_3C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3-C_5}}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3-C_5}}}} \\ \frac{C_1R_3R_3R_4}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3-C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3-C_5}}}}}$$

K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_3R_4}{C_1C_6R_1R_2R_3+C_1C_6R_1R_2R_4+C_1C_6R_1R_3R_4+C_3C_6R_1R_3R_4+C_3C_6R_2R_3R_4-C_5C_6R_2R_3R_4}$  Qz: None

Wz: None

**8.369** X-INVALID-NUMER-369 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3R_1R_2R_3R_6s + R_1R_2R_6}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_1C_3R_1R_2R_3R_5 + C_1C_4R_1R_2R_3R_5\right) + s\left(-C_1R_1R_2R_3 + C_1R_1R_2R_5 + C_1R_1R_3R_5 + C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_5\right)}$$

```
 \begin{array}{c} & \frac{1}{\sqrt{1-C_3}\sqrt{1-C_3}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_3}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_3}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_3}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_3}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_3}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_3}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_3}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_3}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}} \frac{1}{\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1-C_4}\sqrt{1
                   K-BP: -\frac{C_3R_1R_2R_3R_6}{C_1R_1R_2R_3-C_1R_1R_2R_5-C_1R_1R_3R_5-C_3R_1R_3R_5-C_3R_2R_3R_5-C_4R_2R_3R_5} Qz: None
                     Wz: None
8.370 X-INVALID-NUMER-370 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                 H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^2\left(C_1C_3R_1R_2R_3 + C_1C_4R_1R_2R_3 - C_1C_5R_1R_2R_3\right) + s\left(C_1R_1R_2 + C_1R_1R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 - C_5R_2R_3\right)}
         Parameters:
                         Q \colon \frac{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_1R_2+C_1R_1R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}
                   \text{wo: } \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_1 C_3 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3}} \\ \text{bandwidth: } \frac{\sqrt{R_1 + R_2 + R_3} (C_1 R_1 R_2 + C_1 R_1 R_3 + C_3 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3) \sqrt{\frac{1}{C_1 C_3 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3}}}{\sqrt{C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} - \sqrt{C_1 C_5 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \frac{1}{\sqrt{C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} - \sqrt{C_1 C_5 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \frac{1}{\sqrt{C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\ \frac{1}{\sqrt{C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\ \frac{1}{\sqrt{C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\ \frac{1}{\sqrt{C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\ \frac{1}{\sqrt{C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\ \frac{1}{\sqrt{C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1 C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}}} 
                  K-HP: \frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5} K-BP: \frac{C_5R_1R_2R_6}{C_1R_1R_2+C_1R_1R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3} Qz: None
                     Wz: None
8.371 X-INVALID-NUMER-371 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_3C_5R_1R_2R_3s + C_5R_1R_2
                                                                                                                                                                                                                                                                      H(s) = \frac{C_3C_5R_1R_2R_3s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_1C_3C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 - C_1C_5C_6R_1R_2R_3\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_3 + C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_4C_6R_2R_3 - C_5C_6R_2R_3\right)}
           Parameters:
                  Q \colon \frac{\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_1R_2+C_1R_1R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}\\ \text{wo: } \sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_3R_1R_2R_3+C_1C_4R_1R_2R_3-C_1C_5R_1R_2R_3}}\\ \text{bandwidth: } \frac{\sqrt{R_1+R_2+R_3}(C_1R_1R_2+C_1R_1R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3)\sqrt{\frac{1}{C_1C_3R_1R_2R_3+C_1C_4R_1R_2R_3-C_1C_5R_1R_2R_3}}}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}\\ \text{bandwidth: } \frac{C_1R_1R_2}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}\\ \text{bandwidth: } \frac{C_1R_1R_2}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}\\ \text{bandwidth: } \frac{C_1R_1R_2}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}\\ \text{bandwidth: } \frac{C_1R_1R_2}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}} + \sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}} - \sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3+C_4-C_5}}}
                   K-LP: \frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}
K-HP: 0
                     K-BP: \frac{C_3C_5R_1R_2R_3}{C_1C_6R_1R_2+C_1C_6R_1R_3+C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3-C_5C_6R_2R_3} Qz: None
                      Wz: None
8.372 X-INVALID-NUMER-372 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6
                                                                                          H(s) = \frac{C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s^2\left(C_1C_3R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4 + C_1R_1R_2R_3R_5 + C_1R_1R_2R_3R_4 +
         Parameters:
                 \begin{array}{l} \text{Q:} -\frac{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3} + C_4\sqrt{R_1R_4R_5} - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{C_1R_1R_2R_3R_4 - C_1R_1R_2R_3R_5 - C_1R_1R_2R_4R_5 - C_1R_1R_3R_4R_5 - C_3R_1R_3R_4R_5 - C_3R_2R_3R_4R_5 - C_4R_2R_3R_4R_5} \\ \text{wo:} \  \, \frac{\sqrt{R_1R_4R_5} - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{\sqrt{C_1C_3}R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4R_5} \\ \text{bandwidth:} \  \, -\frac{C_1R_1R_2R_3R_4 - C_1R_1R_2R_3R_5 - C_1R_1R_2R_4R_5 - C_1R_1R_3R_4R_5 - C_3R_1R_3R_4R_5 - C_3R_2R_3R_4R_5 - C_4R_2R_3R_4R_5}{\sqrt{C_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3} + C_4\sqrt{C_1C_3}R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4R_5} \\ \text{K-LP:} \  \, \frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5} \\ \text{K-HP:} \  \, 0 \end{array}
                    \text{K-BP:} - \frac{C_3 R_1 R_2 R_3 R_4 R_6}{C_1 R_1 R_2 R_3 R_4 - C_1 R_1 R_2 R_3 R_5 - C_1 R_1 R_2 R_4 R_5 - C_1 R_1 R_3 R_4 R_5 - C_3 R_1 R_3 R_4 R_5 - C_3 R_2 R_3 R_4 R_5 - C_4 R_2 R_3 R_4 R_5}
```

```
Qz: None
Wz: None
```

```
8.373 X-INVALID-NUMER-373 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)
```

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4\right) + s\left(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4\right)}$ 

#### Parameters:

 $Q: \frac{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}} + \sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}} - \sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}}{\frac{C_{1}R_{1}R_{2}R_{3}+C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{2}R_{3}R_{4}-C_{5}R_{2}R_{3}R_{4}}{\sqrt{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{4}R_{1}R_{2}R_{3}+C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}}}}}$   $\text{wo: } \sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}{\sqrt{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}}}}}$   $\text{bandwidth: } \frac{\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}{\sqrt{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}}}}}{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}}} + \sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}}}}$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5}$ 

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_3R_1R_3R_4+C_3R_2R_3R_4+C_4R_2R_3R_4-C_5R_2R_3R_4} \\ \text{Qz: None}$ 

Wz: None

# **8.374** X-INVALID-NUMER-374 $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_3C_6R_1R_2R_3R_4 + C_1C_6C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$ 

### **Parameters:**

 $Q \colon \frac{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}} + \sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}} - \sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}{C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{3}R_{4}+C_{3}R_{2}R_{3}R_{4}+C_{4}R_{2}R_{3}R_{4}-C_{5}R_{2}R_{3}R_{4}}$ 

 $\text{wo: } \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_3R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} (C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4) \sqrt{\frac{1}{C_1C_3R_1R_2R_3R_4 + C_1C_5R_1R_2R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}} \sqrt{\frac{1}{C_3 + C_4 - C_5}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{$ 

K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ K-HP: 0

 $\text{K-BP: } \frac{C_3C_5R_1R_2R_3R_4}{C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 - C_5C_6R_2R_3R_4}$ 

Qz: None Wz: None

### **8.375** X-INVALID-NUMER-375 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_5C_6R_1R_4R_6s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_3R_4 - C_1C_5C_6R_1R_3R_4\right) + s\left(C_1C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_1R_4 + C_2C_6R_3R_4 - C_5C_6R_3R_4\right)}$ 

### Parameters:

$$Q \colon \frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_2-C_5}}}{\underbrace{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4-C_5R_3R_4}}$$

wo:  $\sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4}}$ bandwidth:  $\frac{\sqrt{R_3 + R_4} (C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4) \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4}}}{\sqrt{C_1} C_2 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_2 - C_5}} - \sqrt{C_1} C_5 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_2 - C_5}}}$ 

K-LP:  $\frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_4R_6}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4-C_5R_3R_4}$  Qz: None

**8.376** X-INVALID-NUMER-376 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_4 R_5 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(C_1 C_2 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_3 R_4 R_5\right) + s \left(-C_1 R_1 R_3 R_4 + C_1 R_1 R_3 R_5 + C_1 R_1 R_4 R_5 + C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 - C_5 R_3 R_4 R_5\right)}$$

$$Q\colon \frac{-\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_2-C_5}+\frac{R_3R_5}{C_2-C_5}+\frac{R_4R_5}{C_2-C_5}}+\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_2-C_5}+\frac{R_3R_5}{C_2-C_5}+\frac{R_4R_5}{C_2-C_5}}}{C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5+C_5R_3R_4R_5}\\ \text{wo: } \sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_1C_2R_1R_3R_4R_5-C_1C_5R_1R_3R_4R_5}}\\ \text{bandwidth: } \frac{\sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_1C_2R_1R_3R_4+R_3R_5+R_4R_5}}(C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5+C_5R_3R_4R_5)}{-\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_2-C_5}+\frac{R_3R_4}{C_2-C_5}}+\frac{R_4R_5}{C_2-C_5}}+\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_2-C_5}+\frac{R_4R_5}{C_2-C_5}}}\\ \text{K-LP: } -\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}\\ \text{K-HP: } 0\\ \text{K-BP: } -\frac{C_5R_1R_4R_5R_6}{C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_3R_4R_5+C_5R_3R_4R_5}}{C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5+C_5R_3R_4R_5}\\ \text{Qz: None}\\ \text{Wz: None}$$

### **8.377** X-INVALID-NUMER-377 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_5C_6R_1R_6s + C_5R_1}{C_6 + s^2\left(C_1C_2C_6R_1R_3 + C_1C_4C_6R_1R_3 - C_1C_5C_6R_1R_3\right) + s\left(C_1C_6R_1 + C_2C_6R_1 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$$

#### Parameters:

$$Q\colon \frac{\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1R_1+C_2R_1+C_2R_3+C_4R_3-C_5R_3}\\ \text{wo: } \sqrt{\frac{1}{C_1C_2R_1R_3+C_1C_4R_1R_3-C_1C_5R_1R_3}}\\ \text{bandwidth: } \frac{(C_1R_1+C_2R_1+C_2R_3+C_4R_3-C_5R_3)\sqrt{\frac{1}{C_1C_2R_1R_3+C_1C_4R_1R_3-C_1C_5R_1R_3}}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}}\sqrt{\frac{1}{C_2+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}\\ \text{K-LP: } \frac{C_5R_1}{C_6}\\ \text{K-HP: 0}\\ \text{K-BP: } \frac{C_5R_1R_6}{C_1R_1+C_2R_1+C_2R_3+C_4R_3-C_5R_3}\\ \text{Qz: None}\\ \text{Wz: None}$$

## 8.378 X-INVALID-NUMER-378 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_5 R_1 R_5 R_6 s + R_1 R_6}{-R_3 + R_5 + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 R_1 R_3 R_5 - C_1 C_5 R_1 R_3 R_5\right) + s \left(-C_1 R_1 R_3 + C_1 R_1 R_5 + C_2 R_1 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5 - C_5 R_3 R_5\right)}$$

$$Q\colon \frac{-\sqrt{C_{1}}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{2}+C_{4}-C_{5}}}+\frac{R_{5}}{C_{2}+C_{4}-C_{5}}-\sqrt{C_{1}}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{2}+C_{4}-C_{5}}}+\frac{R_{5}}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{2}+C_{4}-C_{5}}}+\frac{R_{5}}{C_{2}+C_{4}-C_{5}}}}{\frac{C_{1}}{R_{1}}R_{3}-C_{1}R_{1}R_{5}-C_{2}R_{1}R_{5}-C_{2}R_{3}R_{5}-C_{4}R_{3}R_{5}+C_{5}R_{3}R_{5}}}$$
wo: 
$$\sqrt{\frac{-R_{3}+R_{5}}{C_{1}C_{2}R_{1}R_{3}R_{5}+C_{1}C_{5}R_{1}R_{3}R_{5}}}{\sqrt{\frac{C_{1}C_{2}R_{1}R_{3}R_{5}-C_{1}C_{5}R_{1}R_{3}R_{5}}{C_{2}+C_{4}R_{1}R_{3}}}}}(C_{1}R_{1}R_{3}-C_{1}R_{1}R_{5}-C_{2}R_{1}R_{5}-C_{2}R_{3}R_{5}-C_{4}R_{3}R_{5}+C_{5}R_{3}R_{5}}})$$
bandwidth: 
$$\frac{\sqrt{\frac{C_{1}C_{2}R_{1}R_{3}R_{5}-C_{1}C_{5}R_{1}R_{3}R_{5}}{C_{2}+C_{4}R_{1}R_{3}R_{5}-C_{1}C_{5}R_{1}R_{3}R_{5}}}(C_{1}R_{1}R_{3}-C_{1}R_{1}R_{5}-C_{2}R_{1}R_{5}-C_{2}R_{3}R_{5}-C_{4}R_{3}R_{5}+C_{5}R_{3}R_{5}})}{-\sqrt{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{2}+C_{4}-C_{5}}}}-\sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{2}+C_{4}-C_{5}}}}+\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{2}+C_{4}-C_{5}}}}}$$

$$K-LP: -\frac{R_{1}R_{6}}{R_{3}-R_{5}}$$
K-HP: 0

K-BP:  $-\frac{C_{5}R_{1}R_{5}R_{6}}{C_{1}R_{1}R_{5}-C_{2}R_{1}R_{5}-C_{2}R_{3}R_{5}-C_{4}R_{3}R_{5}+C_{5}R_{3}R_{5}}}{C_{1}R_{3}R_{5}-C_{4}R_{3}R_{5}+C_{5}R_{3}R_{5}}}$ 
Qz: None

Wz: None

**8.379** X-INVALID-NUMER-379 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_1R_4R_6s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 - C_1C_5C_6R_1R_3R_4\right) + s\left(C_1C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_4C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

$$Q \colon \frac{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}}\sqrt{\frac{1}{C_2+C_4-C_5}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}}\sqrt{\frac{1}{C_2+C_4-C_5}}}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4}} \\ \text{wo: } \sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2R_1R_3R_4+C_1C_4R_1R_3R_4-C_1C_5R_1R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{R_3+R_4}(C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4)\sqrt{\frac{1}{C_1C_2R_1R_3R_4+C_1C_4R_1R_3R_4-C_1C_5R_1R_3R_4}}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3}+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3}+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3}+R_4}\sqrt{\frac{1}{C_2+C_4-C_5}}} \\ \text{K-LP: } \frac{C_5R_1R_4}{C_6R_3+C_6R_4}} \\ \text{K-HP: 0} \\ \text{K-BP: } \frac{C_5R_1R_4R_6}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_5R_3R_4}} \\ \text{Qz: None} \\ \text{Wz: None} \\ \end{aligned}$$

### **8.380** X-INVALID-NUMER-380 $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$

$$H(s) = \frac{C_5 R_1 R_4 R_5 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(C_1 C_2 R_1 R_3 R_4 R_5 + C_1 C_4 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_3 R_4 R_5\right) + s \left(-C_1 R_1 R_3 R_4 + C_1 R_1 R_3 R_5 + C_1 R_1 R_4 R_5 + C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 + C_4 R_3 R_4 R_5 - C_5 R_3 R_4 R_5\right)}$$

#### Parameters:

$$\begin{array}{c} Q: \frac{-\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_2+C_4-C_5}} + \frac{R_3R_5}{C_2+C_4-C_5} + \frac{R_4R_5}{C_2+C_4-C_5}}{C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5-C_4R_3R_4R_5} + \frac{R_4R_5}{C_2+C_4-C_5} + \frac{R_4R_5}{C_2+C_4-C_5} + \frac{R_4R_5}{C_2+C_4-C_5} + \frac{R_4R_5}{C_2+C_4-C_5}} \\ \text{Wo: } \sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_1C_2R_1R_3R_4R_5+C_1C_4R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_3R_4R_5-C_4R_3R_4R_5+C_5R_3R_4R_5}} \\ \text{bandwidth: } \frac{\sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_1C_2R_1R_3R_4R_5+C_1C_4R_1R_3R_4R_5-C_1C_5R_1R_3R_4R_5}} \\ \text{bandwidth: } \frac{\sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_1C_2R_1R_3R_4R_5+C_1C_4R_1R_3R_4R_5-C_4R_1R_4R_5-C_2R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5-C_4R_3R_4R_5-C_4R_3R_4R_5+C_5R_3R_4R_5}} \\ \text{bandwidth: } \frac{\sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_1C_2R_1R_3R_4R_5+C_1C_5R_1R_3R_4R_5}} (C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5-C_4R_3R_4R_5+C_5R_3R_4R_5)} \\ -\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_2+C_4-C_5}+\frac{R_4R_5}{C_2+C_4-C_5}-\sqrt{C_1}C_4\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_2+C_4-C_5}+\frac{R_4R_5$$

## **8.381** X-INVALID-NUMER-381 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_6R_1R_4R_6s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

### Parameters:

Q: 
$$-\frac{\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_4+R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}}{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5}$$
 wo: 
$$\frac{\sqrt{-R_4+R_5}}{\sqrt{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5}}$$
 bandwidth: 
$$-\frac{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5}{\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_2C_3R_1R_4}}$$
 K-LP: 
$$-\frac{C_3R_1R_4}{C_6R_4-C_6R_5}$$
 K-HP: 
$$0$$
 K-BP: 
$$-\frac{C_3R_1R_4R_6}{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5}$$
 Qz: None Wz: None

**8.382** X-INVALID-NUMER-382  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 - C_1C_5C_6R_1R_4 + C_2C_3C_6R_1R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4\right)}$$

```
+ \frac{C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3
                     Wo: \sqrt{\frac{1}{C_1C_2R_1R_4+C_1C_3R_1R_4-C_1C_5R_1R_4+C_2C_3R_1R_4}}
                                                                                                                                                                                                                                                                                                                                                           (C_1R_1 + C_2R_4 + C_3R_4 - C_5R_4)\sqrt{\frac{1}{C_1C_2R_1R_4 + C_1C_3R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_1R_4}}
                     \text{bandwidth: } \frac{C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C
                    K-LP: 0
                 K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} K-BP: \frac{C_3C_5R_1R_4}{C_1C_6R_1+C_2C_6R_4+C_3C_6R_4-C_5C_6R_4} Qz: None
                     Wz: None
8.383 X-INVALID-NUMER-383 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                    H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^2\left(C_1C_2R_1R_4R_5 + C_1C_3R_1R_4R_5 - C_1C_5R_1R_4R_5 + C_2C_3R_1R_4R_5\right) + s\left(-C_1R_1R_4 + C_1R_1R_5 + C_2R_4R_5 + C_3R_4R_5 - C_5R_4R_5\right)}
          Parameters:
                     Q: \frac{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}
                    \frac{-R_4 + R_5}{\sqrt{C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 - C_1 C_5 R_4 R_5 
                     K-LP: 0
                 K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} K-BP: -\frac{C_3R_1R_4R_6}{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5+C_5R_4R_5} Qz: None
                       Wz: None
8.384 X-INVALID-NUMER-384 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C_3C_5R_1R_4R_5s + C_3R_1R_4
                                                                                                                                                                                                                                                        H(s) = \frac{-3 \cdot 5 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 2 \cdot 1}{-C_6 R_4 + C_6 R_5 + s^2 \left(C_1 C_2 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 - C_1 C_5 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5\right) + s \left(-C_1 C_6 R_1 R_4 + C_1 C_6 R_1 R_5 + C_2 C_6 R_4 R_5 + C_3 C_6 R_4 R_5 - C_5 C_6 R_4 R_5\right)}
          Parameters:
                     Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + \frac{R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} - C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_3-C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_
                    Wo: \sqrt{\frac{-R_4 + R_5}{C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 + C_2 C_3 R_1 R_4 R_5}}
                    \frac{-R_4 + R_5}{\sqrt{C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 - C_1 C_1 R_4 R_5 - C_1 
                   K-LP: -\frac{C_3R_1R_4}{C_6R_4-C_6R_5}
                    K-HP: 0
                   K-BP: -\frac{C_3C_5R_1R_4R_5}{C_1C_6R_1R_4-C_1C_6R_1R_5-C_2C_6R_4R_5-C_3C_6R_4R_5+C_5C_6R_4R_5}
                     Qz: None
                     Wz: None
8.385 X-INVALID-NUMER-385 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                            H(s) = \frac{C_3C_6R_1R_6s + C_3R_1}{-C_6 + s^2\left(C_1C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_1R_5\right) + s\left(-C_1C_6R_1 + C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5\right)}
          Parameters:
                     Q: -\frac{i\sqrt{R_1}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1R_1-C_2R_5-C_3R_5-C_4R_5}
```

K-LP:  $-\frac{C_3R_1}{C_2}$ 

K-HP: 0

K-BP:  $-\frac{C_3R_1R_6}{C_1R_1-C_2R_5-C_3R_5-C_4R_5}$ 

Qz: None Wz: None

### **8.386** X-INVALID-NUMER-386 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_3C_5C_6R_1R_6s + C_3C_5R_1$  $H(s) = \frac{1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_1C_2C_5C_6R_1R_5 + C_1C_3C_5C_6R_1R_5 + C_2C_3C_5C_6R_1R_5\right) + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_3C_6R_1 + C_2C_3C_6R_1 + C_2$ 

#### Parameters:

 $\begin{array}{l} \text{Q: } \frac{\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}\sqrt{C_2+C_3+C_4-C_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}\\ \text{wo: } \frac{\sqrt{C_2+C_3+C_4-C_5}}{\sqrt{C_1C_2C_5R_1R_5+C_1C_3C_5R_1R_5+C_1C_4C_5R_1R_5+C_2C_3C_5R_1R_5}}\\ \text{bandwidth: } \frac{C_1C_2R_1+C_1C_3R_1+C_1C_3R_1+C_1C_5R_1+C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}{\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2C_5R_1R_5+C_1C_3C_5R_1R_5+C_1C_4C_5R_1R_5+C_4C_5R_1R_5+C_4C_5R_1R_5+C_4C_5R_1R_5+C_4C_5R_1R_5+C_4C_5R_1R_5+C_4C_5R_1R_5+C_4$ 

K-BP:  $\frac{C_3C_5R_1R_6}{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_1+C_2C_5R_5+C_3C_5R_5+C_4C_5R_5}$  Qz: None

Wz: None

## **8.387** X-INVALID-NUMER-387 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $H(s) = \frac{C_3C_5R_1R_5R_6s^2 + C_3R_1R_6s}{s^2\left(C_1C_2R_1R_5 + C_1C_3R_1R_5 + C_1C_4R_1R_5 - C_1C_5R_1R_5 + C_2C_3R_1R_5\right) + s\left(-C_1R_1 + C_2R_5 + C_3R_5 + C_4R_5 - C_5R_5\right) - 1}$ 

### Parameters:

 $\frac{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{$  $\sqrt{-\frac{1}{C_{1}C_{2}R_{1}R_{5}+C_{1}C_{3}R_{1}R_{5}+C_{1}C_{4}R_{1}R_{5}-C_{1}C_{5}R_{1}R_{5}+C_{2}C_{3}R_{1}R_{5}}}(C_{1}R_{1}-C_{2}R_{5}-C_{3}R_{5}-C_{4}R_{5}+C_{5}R_{5})$  $\frac{\sqrt{-C_{1}C_{2}R_{1}R_{5}+C_{1}C_{3}R_{1}R_{5}+C_{1}C_{3}R_{1}R_{5}+C_{1}C_{3}R_{1}R_{5}+C_{2}C_{3}R_{1}R_{5}}}{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$  K-BP:  $-\frac{C_3R_1R_6}{C_1R_1-C_2R_5-C_3R_5-C_4R_5+C_5R_5}$  Qz: None

Wz: None

## **8.388** X-INVALID-NUMER-388 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5R_1R_5s + C_3R_1}{-C_6 + s^2\left(C_1C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_4C_6R_1R_5 - C_1C_5C_6R_1R_5 + C_2C_3C_6R_1R_5\right) + s\left(-C_1C_6R_1 + C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5\right)}$ 

### Parameters:

 $-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_$ 

 $-\frac{1}{C_1C_2R_1R_5+C_1C_3R_1R_5+C_1C_4R_1R_5-C_1C_5R_1R_5+C_2C_3R_1R_5}$  $\sqrt{-\frac{1}{C_{1}C_{2}R_{1}R_{5}+C_{1}C_{3}R_{1}R_{5}+C_{1}C_{4}R_{1}R_{5}-C_{1}C_{5}R_{1}R_{5}+C_{2}C_{3}R_{1}R_{5}}}\left(C_{1}R_{1}-C_{2}R_{5}-C_{3}R_{5}-C_{4}R_{5}+C_{5}R_{5}\right)$  $-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_$ 

K-LP:  $-\frac{C_3R_1}{C_6}$ 

K-HP: 0

K-BP:  $-\frac{C_3C_5R_1R_5}{C_1C_6R_1 - C_2C_6R_5 - C_3C_6R_5 - C_4C_6R_5 + C_5C_6R_5}$ 

Qz: None Wz: None

**8.389** X-INVALID-NUMER-389 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_1C_2C_4R_1R_4 + C_1C_3C_4R_1R_4 - C_1C_4C_5R_1R_4 + C_2C_3C_4R_1R_4\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_5R_1 + C_2C_3R_1 + C_2C_4R_4 + C_3C_4R_4 - C_4C_5R_4\right)}$$

 $\frac{C_{1}C_{2}\sqrt{C_{4}}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{\frac{C_{2}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{3}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}-\frac{C_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{C_{3}}$ 

 $\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_1 C_2 C_4 R_1 R_4 + C_1 C_3 C_4 R_1 R_4 - C_1 C_4 C_5 R_1 R_4 + C_2 C_3 C_4 R_1 R_4}} (C_1 C_2 R_1 + C_1 C_3 R_1 + C_1 C_4 R_1 - C_1 C_5 R_1 + C_2 C_3 R_1 + C_2 C_4 R_4 + C_1 C_5 R_1 + C_2 C_3 R_1 + C_2 C_4 R_4 + C_1 C_5 R_1 + C_2 C_4 R_4 + C_1 C_5 R_1 + C_2 C_4 R_4 + C_1 C_5 R_1 + C_2 C_5 R_$  $\frac{\sqrt{\frac{C_1C_2C_4R_1R_4+C_1C_3$ 

K-LP: 0

K-BP:  $\frac{C_{1}C_{2}R_{1}+C_{1}C_{3}R_{1}+C_{2}C_{3}}{C_{1}C_{2}R_{1}+C_{1}C_{3}R_{1}+C_{1}C_{4}R_{1}-C_{1}C_{5}R_{1}+C_{2}C_{3}R_{1}+C_{2}C_{4}R_{4}+C_{3}C_{4}R_{4}-C_{4}C_{5}R_{4}}{\text{Qz: None}}$ 

Wz: None

# **8.390** X-INVALID-NUMER-390 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_4C_5R_1R_4s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_1C_2C_4C_6R_1R_4 + C_1C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_1R_4 + C_1C_3C_6R_1 + C_1C_3C_6R_1 + C_1C_3C_6R_1 + C_1C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_$ 

### Parameters:

 $Q: \frac{C_1C_2\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{C_2}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{C_3}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{C_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} - \frac{C_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + C_1C_3\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{C_2}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{C_3}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{C_3}{C_1C_2+C_1C_3-C_1C_3+C_1C_3-C_1C_3+C_1C_3-$ 

wo:  $\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_1 C_2 C_4 R_1 R_4 + C_1 C_3 C_4 R_1 R_4 - C_1 C_4 C_5 R_1 R_4 + C_2 C_3 C_4 R_1 R_4}$ 

 $\frac{\frac{C_{2}+C_{3}+C_{4}-C_{5}}{C_{1}C_{2}C_{4}R_{1}R_{4}+C_{1}C_{3}R_{1}+C_{1}C_{4}R_{1}$ 

K-LP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_4C_5R_1R_4}{C_1C_2C_6R_1+C_1C_3C_6R_1+C_1C_4C_6R_1-C_1C_5C_6R_1+C_2C_3C_6R_1+C_2C_4C_6R_4+C_3C_4C_6R_4-C_4C_5C_6R_4}$  Qz: None

Wz: None

## **8.391** X-INVALID-NUMER-391 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_6R_1R_4R_6s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_4C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5\right)}$ 

### Parameters:

Q:  $-\frac{\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_4+R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}}{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5}$  wo:  $-\frac{\sqrt{-R_4+R_5}}{\sqrt{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_1C_4R_1R_4R_5+C_2C_3R_1R_4R_5}}{\frac{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5}{\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_1C_$ 

K-BP:  $-\frac{C_3R_1R_4R_6}{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5}$ 

Qz: None

Wz: None

## **8.392** X-INVALID-NUMER-392 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_4C_6R_1R_4 - C_1C_5C_6R_1R_4 + C_2C_3C_6R_1R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_4 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$ 

```
\frac{C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_1C_4\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}-C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}+C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C
                   Wo: \sqrt{\frac{1}{C_1C_2R_1R_4+C_1C_3R_1R_4+C_1C_4R_1R_4-C_1C_5R_1R_4+C_2C_3R_1R_4}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                              (C_1R_1 + C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4)\sqrt{\frac{1}{C_1C_2R_1R_4 + C_1C_3}\frac{1}{R_1R_4 + C_1C_4R_1R_4} - C_1C_5R_1R_4 + C_2C_3R_1R_4}
                  K-LP: 0
              K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} K-BP: \frac{C_3C_5R_1R_4}{C_1C_6R_1+C_2C_6R_4+C_3C_6R_4+C_4C_6R_4-C_5C_6R_4} Qz: None
                   Wz: None
8.393 X-INVALID-NUMER-393 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                                                                                   H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^2\left(C_1C_2R_1R_4R_5 + C_1C_3R_1R_4R_5 + C_1C_4R_1R_4R_5 - C_1C_5R_1R_4R_5 + C_2C_3R_1R_4R_5\right) + s\left(-C_1R_1R_4 + C_1R_1R_5 + C_2R_4R_5 + C_3R_4R_5 + C_4R_4R_5 - C_5R_4R_5\right)}
         Parameters:
                   Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + \frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \sqrt{\frac{-R_4+R_5}{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_1C_4R_1R_4R_5-C_1C_5R_1R_4R_5+C_2C_3R_1R_4R_5}}(C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5+C_5R_4R_5)
                                                                                           -C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}
                   K-LP: 0
               \begin{array}{l} \text{K-H1:} & \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP:} & -\frac{C_3R_1R_4R_6}{C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5+C_5R_4R_5} \end{array} 
                     Qz: None
                     Wz: None
8.394 X-INVALID-NUMER-394 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C_3C_5R_1R_4R_5s + C_3R_1R_4
                                                                                                                                  H(s) = \frac{-C_6R_4 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_4C_6R_1R_4R_5 - C_1C_5C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5\right)}{-c_6R_4 + c_6R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_5C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5\right)}
         Parameters:
                   Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{-C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} -C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} -C_1C_4\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} +C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} -C_1C_4\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} +C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} +C_1C_5\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R
                  wo: \sqrt{\frac{-R_4 + R_5}{C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 + C_1 C_4 R_1 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 + C_2 C_3 R_1 R_4 R_5}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          \sqrt{\frac{-R_4+R_5}{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_1C_4R_1R_4R_5-C_1C_5R_1R_4R_5+C_2C_3R_1R_4R_5}}(C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5+C_5R_4R_5)
                  \frac{\sqrt{C_1C_2R_1R_4R_5 + C_1C_3}R_4}{-C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_5+C_1C_3+C_1C_5+C_1C_3+C_1C_5+C_1C_3+C_1C_5+C_1C_5+C_1C_5+C_1C_5+C_
                  K-HP: 0
                 K-BP: -\frac{C_3C_5R_1R_4R_5}{C_1C_6R_1R_4 - C_1C_6R_1R_5 - C_2C_6R_4R_5 - C_3C_6R_4R_5 - C_4C_6R_4R_5 + C_5C_6R_4R_5}
                     Qz: None
                   Wz: None
8.395 X-INVALID-NUMER-395 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                  H(s) = \frac{C_3C_5C_6R_1R_6s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_1C_2C_3C_6R_1R_3 + C_1C_3C_4C_6R_1R_3 - C_1C_3C_5C_6R_1R_3\right) + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_3C_5C_6R_3\right)}
         Parameters:
                   Q: \underbrace{\frac{\sqrt{C_{1}}C_{2}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} + \frac{C_{5}}{C_{2}+C_{4}-C_{5}} + \sqrt{C_{1}}\sqrt{C_{3}}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}} + \frac{C_{3}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}} + \frac{C_{4}}{C_{2}+C_{4}-C_{5}} - \frac{C_{5}}{C_{2}+C_{4}-C_{5}} 
                                                                                          \frac{C_{2}+C_{3}+C_{4}-C_{5}}{\sqrt{C_{1}C_{2}C_{3}R_{1}R_{3}+C_{1}C_{3}C_{4}R_{1}R_{3}-C_{1}C_{3}C_{5}R_{1}R_{3}}}(C_{1}C_{2}R_{1}+C_{1}C_{3}R_{1}+C_{1}C_{4}R_{1}-C_{1}C_{5}R_{1}+C_{2}C_{3}R_{3}+C_{3}C_{4}R_{3}-C_{3}C_{5}R_{3})}{\sqrt{C_{1}C_{2}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{3}}{C_{2}+C_{4}-C_{5}}+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}-\sqrt{C_{1}\sqrt{C_{3}}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{3}}{C_{2}+C_{4}-C_{5}}+\frac{C_{4}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}-\sqrt{C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{C_{2}}{C_{2}+C_{4}-C_{5}}+\frac{C_{3}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_{4}-C_{5}}+\frac{C_{5}}{C_{2}+C_
```

```
K-LP: \frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}
K-HP: 0
K-BP: \frac{C_3C_5R_1R_6}{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_1+C_2C_3R_3+C_3C_4R_3-C_3C_5R_3} Qz: None
```

Wz: None

**8.396** X-INVALID-NUMER-396  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_3 R_4 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(C_1 C_2 R_1 R_3 R_4 R_5 + C_1 C_3 R_1 R_3 R_4 R_5 + C_2 C_3 R_1 R_3 R_4 R_5\right) + s \left(-C_1 R_1 R_3 R_4 + C_1 R_1 R_3 R_5 + C_1 R_1 R_4 R_5 + C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 + C_3 R_3 R_4 R_5\right)}$ 

### Parameters:

Q:  $-\frac{\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{2}C_{3}}\sqrt{-R_{3}R_{4}+R_{3}R_{5}+R_{4}R_{5}}}{C_{1}R_{1}R_{3}R_{4}-C_{1}R_{1}R_{3}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{1}R_{4}R_{5}-C_{2}R_{3}R_{4}R_{5}-C_{3}R_{3}R_{4}R_{5}}}$ wo:  $\frac{\sqrt{-R_{3}R_{4}+R_{3}R_{5}+R_{4}R_{5}}}{\sqrt{C_{1}C_{2}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{3}R_{4}R_{5}}}$ bandwidth:  $-\frac{C_{1}R_{1}R_{3}R_{4}-C_{1}R_{1}R_{3}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{1}R_{4}R_{5}-C_{2}R_{3}R_{4}R_{5}-C_{3}R_{3}R_{4}R_{5}}{\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{2}C_{3}}\sqrt{C_{1}C_{2}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{3}R_{1}}}$ K-LP:  $-\frac{R_{1}R_{4}R_{6}}{R_{3}R_{4}-R_{3}R_{5}-R_{4}R_{5}}}{K_{5}-R_{4}R_{5}}$ K-HP: 0K DD.

K-BP:  $-\frac{C_3R_1R_3R_4R_6}{C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5-C_3R_3R_4R_5}$ 

Qz: None Wz: None

**8.397** X-INVALID-NUMER-397  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s$  $H(s) = \frac{C_3C_5\kappa_1\kappa_3\kappa_4\kappa_6s^2 + C_5\kappa_1\kappa_4\kappa_6s}{R_3 + R_4 + s^2\left(C_1C_2R_1R_3R_4 + C_1C_3R_1R_3R_4 - C_1C_5R_1R_3R_4 + C_2C_3R_1R_3R_4\right) + s\left(C_1R_1R_3 + C_1R_1R_4 + C_2R_1R_4 + C_2R_3R_4 + C_3R_3R_4 - C_5R_3R_4\right)}$ 

### Parameters:

 $\text{Q:} \frac{ \frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}$ 

 $\sqrt{R_3 + R_4} (C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 + C_3 R_3 R_4 - C_5 R_3 R_4) \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4 + C_2 C_3 R_1 R_3 R_4}{C_1 C_2 R_1 R_3 R_4 + C_2 R_3 R_4 + C_3 R_3 R_4$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$  K-BP:  $\frac{C_5R_1R_4R_6}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_3R_3R_4-C_5R_3R_4}$  Qz: None

Wz: None

**8.398** X-INVALID-NUMER-398  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_3R_4s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 - C_1C_5C_6R_1R_3R_4 + C_2C_3C_6R_1R_3R_4\right) + s\left(C_1C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 - C_5C_6R_3R_4\right)}$ 

### Parameters:

 $Q: \frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1$ 

wo:  $\sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4 + C_2 C_3 R_1 R_3 R_4}$ 

 $\text{K-BP: } \frac{C_3C_5R_1R_3R_4}{C_1C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 - C_5C_6R_3R_4}$ 

Qz: None Wz: None

**8.399** X-INVALID-NUMER-399 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3R_1R_3R_6s + R_1R_6}{-R_3 + R_5 + s^2\left(C_1C_2R_1R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_4R_1R_3R_5 + C_2C_3R_1R_3R_5\right) + s\left(-C_1R_1R_3 + C_1R_1R_5 + C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5\right)}$$

K-LP:  $-\frac{R_1R_6}{R_3-R_5}$ K-HP: 0

K-BP:  $-\frac{C_3R_1R_3R_6}{C_1R_1R_3 - C_1R_1R_5 - C_2R_1R_5 - C_2R_3R_5 - C_3R_3R_5 - C_4R_3R_5}$ 

Qz: None Wz: None

### **8.400** X-INVALID-NUMER-400 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_3R_6s^2 + C_5R_1R_6s}{s^2\left(C_1C_2R_1R_3 + C_1C_3R_1R_3 + C_1C_4R_1R_3 - C_1C_5R_1R_3 + C_2C_3R_1R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3\right) + 1}$$

### Parameters:

 $Q: \frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}+C_{2}R_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}+C_{2}R_{3}+C_{3}R_{3}+C_{4}R_{3}-C_{5}R_{3}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{3}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{4}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{2}C_{4}\sqrt{R_{1}C_{$ 

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_3 + C_1C_3R_1R_3 + C_1C_4R_1R_3 - C_1C_5R_1R_3 + C_2C_3R_1R_3}}$ 

 $\text{bandwidth: } \frac{(C_1R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3)\sqrt{\frac{1}{C_1C_2R_1R_3 + C_1C_3R_1R_3 + C_1C_5R_1R_3 + C_2C_3R_1R_3}}{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 +$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$  K-BP:  $\frac{C_5R_1R_6}{C_1R_1+C_2R_1+C_2R_3+C_3R_3+C_4R_3-C_5R_3}$  Qz: None

Wz: None

## **8.401** X-INVALID-NUMER-401 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5R_1R_3s + C_5R_1}{C_6 + s^2\left(C_1C_2C_6R_1R_3 + C_1C_3C_6R_1R_3 + C_1C_4C_6R_1R_3 - C_1C_5C_6R_1R_3 + C_2C_3C_6R_1R_3\right) + s\left(C_1C_6R_1 + C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$$

### Parameters:

$$Q: \frac{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{$$

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_3+C_1C_3R_1R_3+C_1C_4R_1R_3-C_1C_5R_1R_3+C_2C_3R_1R_3}}$ 

 $(C_1R_1 + C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3)\sqrt{\frac{1}{C_1C_2R_1R_3 + C_1C_3R_1R_3 + C_1C_4R_1R_3 - C_1C_5R_1R_3 + C_2C_3R_1R_3}}$ 

K-LP:  $\frac{C_5R_1}{C_6}$ K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_3}{C_1C_6R_1+C_2C_6R_1+C_2C_6R_3+C_3C_6R_3+C_4C_6R_3-C_5C_6R_3}$ 

Qz: None

Wz: None

## **8.402** X-INVALID-NUMER-402 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$

$$H(s) = \frac{C_3R_1R_3R_4R_6s + R_1R_4R_6}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_1C_2R_1R_3R_4R_5 + C_1C_3R_1R_3R_4R_5 + C_2C_3R_1R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5 + C_4R_3R_4R_5\right)}$$

```
K-LP: -\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}
                        K-HP: 0
                      K-BP: -\frac{C_3R_1R_3R_4R_6}{C_1R_1R_3R_4 - C_1R_1R_3R_5 - C_1R_1R_4R_5 - C_2R_1R_4R_5 - C_2R_3R_4R_5 - C_3R_3R_4R_5 - C_4R_3R_4R_5}{C_1R_1R_3R_4 - C_1R_1R_3R_5 - C_1R_1R_4R_5 - C_2R_1R_4R_5 - C_2R_3R_4R_5 - C_3R_3R_4R_5 - C_4R_3R_4R_5}
                        Wz: None
8.403 X-INVALID-NUMER-403 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s
                                                                                                                                                                                                                                                                      H(s) = \frac{C_3C_5R_1R_3R_4R_6s - C_5R_1R_3R_4R_6s - C_5R_1R_3R_4R_6s - C_5R_1R_3R_4R_6s - C_5R_1R_3R_4 + C_2R_3R_4R_4 + C_3R_3R_4 + C_3R_3
            Parameters:
                           Q: \frac{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}R_{3}+C_{1}R_{4}+C_{2}R_{3}R_{4}+C_{3}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \sqrt{R_3 + R_4} (C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 + C_3 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4) \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_4 + C_1 C_4 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4 + C_2 C_3 R_1 R_3 R_4 + C_1 
                                                                                                                 \overline{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+
                       K-LP: 0
                    \begin{array}{lll} \text{K-HP:} & \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP:} & \frac{C_5R_1R_4R_6}{C_1R_1R_3+C_1R_1R_4+C_2R_1R_4+C_2R_3R_4+C_3R_3R_4+C_4R_3R_4-C_5R_3R_4} \\ \end{array} 
                           Qz: None
                        Wz: None
8.404 X-INVALID-NUMER-404 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C_3C_5R_1R_3R_4s + C_5R_1R_4
                                                                                                                                H(s) = \frac{C_3 C_3 C_4 C_1 C_2 C_6 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_3 R_4 + C_1 C_4 C_6 R_1 R_3 R_4 + C_1 C_5 C_6 R_1 R_3 R_4 + C_2 C_3 C_6 R_1 R_3 R_4 + C_2 C_3 C_6 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_4 + C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 + C_3 C_6 R_3 R_4 + C_4 C_6 R_3 R_4 + C_5 C_6 R_5 R_5 + C_5 C_6 R_5 R
            Parameters:
                                            + \frac{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1R_1R_3+C_1R_4+C_2R_3R_4+C_2R_3R_4+C_3R_3R_4+C_4R_3R_4-C_5R_3} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{-C_1C_5\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_2C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3
                       wo: \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_4 + C_1 C_4 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4 + C_2 C_3 R_1 R_3 R_4}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \sqrt{R_3 + R_4} (C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 + C_3 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4) \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_4 + C_1 C_5 R_1 R_3 R_4 + C_2 C_3 R_1 R_3 R_4 + C_2 C_3 R_1 R_3 R_4 + C_3 R_4 + C_3 R_3 R_4 + C_3 R_3 R_4 + C_3 R_4 + 
                       \frac{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_
                    K-LP: \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}
K-HP: 0
                       K-BP: \frac{C_3C_5R_1R_3R_4}{C_1C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_4C_6R_3R_4 - C_5C_6R_3R_4}
                           Qz: None
                        Wz: None
8.405 X-INVALID-NUMER-405 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C_2 R_1 R_2 R_4 R_6 s + R_1 R_4 R_6
                                                                                              H(s) = \frac{C_2 R_1 R_2 R_4 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(-C_1 C_2 R_1 R_2 R_3 R_4 + C_1 C_2 R_1 R_2 R_3 R_5 + C_1 C_2 R_1 R_2 R_4 R_5 + C_1 C_2 R_1 R_3 R_4 R_5\right) + s \left(-C_1 R_1 R_3 R_4 + C_1 R_1 R_3 R_5 + C_1 R_1 R_4 R_5 + C_2 R_2 R_3 R_4 + C_2 R_2 R_3 R_5 + C_2 R_2 R_4 R_5 + C_2 R_3 R_4 R_5\right)}
         Parameters:
                       Q: \frac{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}R_2R_3R_4\sqrt{-\frac{R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_2}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_2}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_4R_5+R_3R_4R_5}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_4R_5+R_3R_4R_5}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_4R_5+R_3R_4R_5}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{R_1}R_2R_3R_5\sqrt{-\frac{R_3R_4}{-R_2R_3R_4+R_2R_3R_5+R_4R_5}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{R_1}R_2R_3R_
```

K-LP:  $-\frac{R_1R_4R_6}{R_2R_4-R_2R_5-R_4R_5}$ 

 $\frac{1}{\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{4}\sqrt{-\frac{R_{3}R_{4}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}\sqrt{-\frac{R_{3}R_{4}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}\sqrt{-\frac{R_{3}R_{4}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}\sqrt{-\frac{R_{3}R_{4}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{4}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}-\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{R_{1}}R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}+\frac{R_{3}R_{5}R_{5}}{-R_{2}R_{$ 

 $\sqrt{\frac{R_3R_4 - R_3R_5 - R_4R_5}{C_1C_2R_1R_2R_3R_4 - C_1C_2R_1R_2R_3R_5 - C_1C_2R_1R_2R_4R_5 - C_1C_2R_1R_3R_4R_5}}(C_1R_1R_3R_4 - C_1R_1R_3R_5 - C_1R_1R_4R_5 - C_1R_1R_3R_4 - C_1R_1R_3R_4 - C_1R_1R_3R_4 - C_1R_1R_3R_5 - C_1R_1R_4R_5 - C_1R_1R_3R_4 - C_1R_1R_3R_5 - C_1R_1R_5 - C_1R_5 - C_1R_5$ 

```
K-HP: 0
```

 $\text{K-BP:} - \frac{C_2 R_1 R_2 R_4 R_6}{C_1 R_1 R_3 R_4 - C_1 R_1 R_3 R_5 - C_1 R_1 R_4 R_5 - C_2 R_1 R_4 R_5 + C_2 R_2 R_3 R_4 - C_2 R_2 R_3 R_5 - C_2 R_2 R_4 R_5 - C_2 R_3 R_4 R_5}$ 

Qz: None

Wz: None

### **8.406** X-INVALID-NUMER-406 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_1C_2C_3R_1R_2 + C_1C_2C_4R_1R_2 - C_1C_2C_5R_1R_2\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_5R_1 + C_2C_3R_1 + C_2C_3R_2 + C_2C_4R_2 - C_2C_5R_2\right)}$ 

#### Parameters:

 $Q: \underbrace{\frac{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{\frac{C_2}{C_3+C_4-C_5}} + \frac{C_3}{C_3+C_4-C_5} + \frac{C_4}{C_3+C_4-C_5} + \frac{C_5}{C_3+C_4-C_5}}_{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_2+C_2C_3R_2+C_2C_5R_2} - \underbrace{\frac{C_3}{C_3+C_4-C_5}}_{C_1\sqrt{C_2}C_5\sqrt{R_1}\sqrt{R_2}} + \underbrace{\frac{C_3}{C_3+C_4-C_5}}_{C_3+C_4-C_5} + \underbrace{\frac{C_4}{C_3+C_4-C_5}}_{C_3+C_4-C_5} - \underbrace{\frac{C_5}{C_3+C_4-C_5}}_{C_3+C_4-C_5} - \underbrace{\frac{C_5}{C_3+C_4-C_5}}_{C_3+C_4-C_5} + \underbrace{\frac{C_4}{C_3+C_4-C_5}}_{C_3+C_4-C_5} + \underbrace{\frac{C_4}{C_3+C_4-C_5}}_{C_3+C_4-C_5} - \underbrace{\frac{C_5}{C_3+C_4-C_5}}_{C_3+C_4-C_5} -$ 

 $\text{bandwidth: } \frac{\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_1 C_2 C_3 R_1 R_2 + C_1 C_2 C_4 R_1 R_2 - C_1 C_2 C_5 R_1 R_2}}}{\sqrt{C_1 \sqrt{C_2} C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{C_2}{C_3 + C_4 - C_5} + \frac{C_3}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_3}{C_3 + C_4 - C_5} + \sqrt{C_1} \sqrt{C_2} C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{C_2}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_5}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_5}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_5}{C_3 + C_4 - C$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5}$ 

K-BP:  $\frac{C_3C_5R_1R_6}{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_1+C_2C_3R_2+C_2C_4R_2-C_2C_5R_2}$  Qz: None

Wz: None

# **8.407** X-INVALID-NUMER-407 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_2C_3C_5R_1R_2s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_1C_2C_3C_6R_1R_2 + C_1C_2C_4C_6R_1R_2 - C_1C_2C_5C_6R_1R_2\right) + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_4C_6R_2 - C_2C_5C_6R_2\right)}$ 

### Parameters:

 $Q: \underbrace{\frac{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{\frac{C_2}{C_3+C_4-C_5}} + \frac{C_3}{C_3+C_4-C_5} + \frac{C_4}{C_3+C_4-C_5} + \frac{C_5}{C_3+C_4-C_5}}_{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_2+C_2C_3R_2+C_2C_4R_2-C_2C_5R_2} - \underbrace{\frac{C_3}{C_3+C_4-C_5} + \frac{C_3}{C_3+C_4-C_5} + \frac{C_4}{C_3+C_4-C_5} + \frac{C_5}{C_3+C_4-C_5}}_{C_1C_2R_1+C_1C_3R_1+C_1C_4R_1-C_1C_5R_1+C_2C_3R_2+C_2C_4R_2-C_2C_5R_2} - \underbrace{\frac{C_4}{C_3+C_4-C_5} + \frac{C_3}{C_3+C_4-C_5} + \frac{C_4}{C_3+C_4-C_5} + \frac{C_4}{C_3+C_4-C_5} + \frac{C_5}{C_3+C_4-C_5}}_{C_1C_2R_1+C_1C_3R_1+C_1C_3R_1+C_1C_5R_1+C_2C_3R_2+C_2C_4R_2-C_2C_5R_2}$ 

 $\text{bandwidth:} \quad \frac{\frac{C_2 + C_3 + C_4 - C_5}{\sqrt{C_1 C_2 C_3 R_1 R_2 + C_1 C_2 C_4 R_1 R_2 - C_1 C_2 C_5 R_1 R_2}}}{\sqrt{C_1 \sqrt{C_2} C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{C_2}{C_3 + C_4 - C_5} + \frac{C_3}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_5}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_5}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_5}{C_3 + C_4 - C_5} + \frac$ 

K-LP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$ K-HP: 0

K-BP:  $\frac{C_2C_3C_5R_1R_2}{C_1C_2C_6R_1+C_1C_3C_6R_1+C_1C_4C_6R_1-C_1C_5C_6R_1+C_2C_3C_6R_1+C_2C_3C_6R_2+C_2C_4C_6R_2-C_2C_5C_6R_2}$  Qz: None

Wz: None

## **8.408** X-INVALID-NUMER-408 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_3R_4 - C_1C_5C_6R_1R_2R_3R_4\right) + s\left(C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_3R_4 + C_2C_6R_1R_2R_4 + C_2C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$  $C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4$ 

### Parameters:

 $\text{Q: } \frac{\sqrt{C_{1}}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}-C_{5}}}}{C_{1}R_{1}R_{2}R_{3}+C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{3}R_{4}+C_{2}R_{1}R_{2}R_{4}+C_{2}R_{2}R_{3}R_{4}-C_{5}R_{2}R_{3}R_{4}}$ 

wo:  $\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}}$ 

 $\text{bandwidth: } \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 - C_5R_2R_3R_4)}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2 - C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2 - C_5}}}$ 

K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_2R_1R_2R_4+C_2R_2R_3R_4-C_5R_2R_3R_4}$  Qz: None

```
8.409 X-INVALID-NUMER-409 Z(s) = \left(\frac{R_1}{C_1 R_1 s+1}, \frac{R_2}{C_2 R_2 s+1}, R_3, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6\right)
```

 $C_5R_1R_2R_4R_5R_6s + R_1R_2R_4R_6$ 

 $H(s) = \frac{\frac{C_{5}R_{1}R_{2}R_{3}R_{6}}{R_{1}R_{4}R_{5} - R_{2}R_{3}R_{4} + R_{2}R_{3}R_{5} + R_{2}R_{4}R_{5} + R_{3}R_{4}R_{5} + s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{3}R_{4}R_{5} - C_{1}C_{5}R_{1}R_{2}R_{3}R_{4} + C_{1}R_{1}R_{2}R_{3}R_{5} + C_{1}R_{1}R_{2}R_{3}R_{5} + C_{1}R_{1}R_{3}R_{4}R_{5} + C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}R_{2}R_{3}R_{4}R_{5} - C_{5}R_{2}R_{3}R_{4}R_{5}\right)}}$ 

### Parameters:

 $\frac{\sqrt{\frac{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}{C_1C_2R_1R_2R_3R_4+C_2C_5R_1R_2R_3R_4}}(C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_2R_1R_2R_4R_5-C_2R_1R_2R_4R_5-C_2R_2R_3R_4R_5)}{-\sqrt{C_1}C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_2-C_5}-\frac{R_2R_3R_4}{C_2-C_5}+\frac{R_2R_3R_5}{C_2-C_5}+\frac{R_2R_4R_5}{C_2-C_5}+\frac{R_3R_4R_5}{C_2-C_5}+\frac{R_3R_4R_5}{C_2-C_5}+\frac{R_3R_4R_5}{C_2-C_5}+\frac{R_3R_4R_5}{C_2-C_5}+\sqrt{C_1}C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_2-C_5}-\frac{R_2R_3R_4}{C_2-C_5}+\frac{R_2R_4R_5}{C_2-C_5}+\frac{R_3R_4R_5}{C_2-C_5}}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP: 0

K-BP:  $-\frac{C_5R_1R_2R_4R_5R_6}{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5-C_2R_1R_2R_4R_5-C_2R_2R_3R_4R_5+C_5R_2R_3R_4R_5}{\text{Qz: None}}$  Qz: None

Wz: None

### **8.410** X-INVALID-NUMER-410 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_5C_6R_1R_2R_6s + C_5R_1R_2$  $H(s) = \frac{C_5C_6R_1R_2R_6s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_1C_2C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 - C_1C_5C_6R_1R_2R_3\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_3 + C_2C_6R_1R_2 + C_2C_6R_2R_3 + C_4C_6R_2R_3 - C_5C_6R_2R_3\right)}$ 

#### **Parameters:**

 $\text{Q: } \frac{\sqrt{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}}{C_{1}R_{1}R_{2}+C_{1}R_{1}R_{2}+C_{2}R_{1}R_{2}+C_{2}R_{2}R_{3}+C_{4}R_{2}R_{3}-C_{5}R_{2}R_{3}}$ 

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3}}$ 

 $\text{bandwidth: } \frac{\sqrt{C_1C_2R_1R_2R_3 + C_1C_4R_1R_2R_3 - C_1C_5R_1R_2R_3}}{\sqrt{R_1+R_2+R_3}\left(C_1R_1R_2 + C_1R_1R_3 + C_2R_1R_2 + C_2R_2R_3 + C_4R_2R_3 - C_5R_2R_3\right)\sqrt{\frac{1}{C_1C_2R_1R_2R_3 + C_1C_4R_1R_2R_3 - C_1C_5R_1R_2R_3}}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2+C_4-C_5}}}}$ 

K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$ K-HP: 0

K-BP:  $\frac{C_5R_1R_2R_6}{C_1R_1R_2+C_1R_1R_3+C_2R_1R_2+C_2R_2R_3+C_4R_2R_3-C_5R_2R_3}$  Qz: None

Wz: None

### **8.411** X-INVALID-NUMER-411 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $C_5 R_1 R_2 R_5 R_6 s + R_1 R_2 R_6$  $H(s) = \frac{C_5R_1R_2R_5R_6s + R_1R_2R_6}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_1C_2R_1R_2R_3R_5 + C_1C_4R_1R_2R_3R_5 - C_1C_5R_1R_2R_3R_5\right) + s\left(-C_1R_1R_2R_3 + C_1R_1R_2R_5 + C_1R_1R_3R_5 + C_2R_1R_2R_5 + C_2R_2R_3R_5 + C_4R_2R_3R_5 - C_5R_2R_3R_5\right)}$ 

### Parameters:

 $Q: \underbrace{\frac{-\sqrt{C_{1}}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{5}}{C_{2}+C_{4}-C_{5}} - \frac{R_{2}R_{3}}{C_{2}+C_{4}-C_{5}} + \frac{R_{2}R_{5}}{C_{2}+C_{4}-C_{5}} - \sqrt{C_{1}}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{5}}{C_{2}+C_{4}-C_{5}} + \frac{R_{2}R_{5}}{C_{2}+C_{4}-C_{5}} + \frac{R_{2}R_{5}}{C_{$ 

 $\frac{\sqrt{\frac{R_{1}R_{5}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}}{C_{1}C_{2}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{3}R_{5}}}{\sqrt{\frac{R_{1}R_{5}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}}{C_{1}C_{4}R_{1}R_{2}R_{3}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{5}}}}(C_{1}R_{1}R_{2}R_{3}-C_{1}R_{1}R_{2}R_{5}-C_{2}R_{1}R_{2}R_{5}-C_{2}R_{2}R_{3}R_{5}-C_{4}R_{2}R_{3}R_{5}+C_{5}R_{2}R_{3}R_{5}})$   $\frac{R_{1}R_{5}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}}{C_{1}C_{2}R_{1}R_{2}R_{3}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{5}}(C_{1}R_{1}R_{2}R_{3}-C_{1}R_{1}R_{2}R_{5}-C_{2}R_{1}R_{2}R_{5}-C_{2}R_{2}R_{3}R_{5}-C_{4}R_{2}R_{3}R_{5}+C_{5}R_{2}R_{3}R_{5}})$   $\frac{R_{1}R_{5}-R_{2}R_{3}+R_{2}R_{5}+R_{2}R_{5}}{C_{2}+C_{4}-C_{5}}+\frac{R_{2}R_{5}}{C_{2}+C_{4}-$ 

 $\begin{array}{l} \text{K-BP:} -\frac{C_5R_1R_2R_5R_6}{C_1R_1R_2R_3-C_1R_1R_2R_5-C_1R_1R_3R_5-C_2R_1R_2R_5-C_2R_2R_3R_5-C_4R_2R_3R_5+C_5R_2R_3R_5} \end{array}$ 

```
8.412 X-INVALID-NUMER-412 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
                                                             H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_3R_4 + C_1C_6C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_2C_6R_1R_2R_4 + C_2C_6R_
        Parameters:
                                          \frac{\sqrt{C_{1}}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{2}+C_{4}-C_{5}}}-C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{2}R_{4}+C_{2}R_{2}R_{3}R_{4}+C_{2}R_{2}R_{3}R_{4}-C_{5}R_{2}R_{3}R_{4}
                    \text{bandwidth: } \frac{\sqrt{C_1C_2R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}}{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \left(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4\right) \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_5R_1R_2R_3R_4}}}{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_2 + C_4 - C_5}}}} \right) 
                 K-LP: \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}
K-HP: 0
                  K-BP: \frac{C_5R_1R_2R_4R_6}{C_1R_1R_2R_3+C_1R_1R_2R_4+C_1R_1R_3R_4+C_2R_1R_2R_4+C_2R_2R_3R_4+C_4R_2R_3R_4-C_5R_2R_3R_4} Qz: None
                    Wz: None
8.413 X-INVALID-NUMER-413 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_5R_1R_2R_4R_5R_6s + R_1R_2R_4R_6
                                                    \overline{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}\right)+s\left(-C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{3}R_{4}R
        Parameters:
                     Q: \frac{-\sqrt{C_{1}}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{2}+C_{4}-C_{5}}} - \frac{R_{2}R_{3}R_{4}}{C_{2}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{2}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{2}+C_{4}-C_{5}} - \sqrt{C_{1}}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{2}+C_{4}-C_{5}}} + \frac{R_{2}R_{3}R_{5}}{C_{2}+C_{4}-C_{5}}} + \sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{2}+C_{4}-C_{5}}} - \frac{R_{2}R_{3}R_{4}}{C_{2}+C_{4}-C_{5}}} + \frac{R_{2}R_{3}R_{5}}{C_{2}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{2}+C_{
                                                                                                                                                                                                                                                                                                                                                                                              \sqrt{\frac{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}{C_{1}C_{2}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}}}(C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{5}-C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{2}R_{3}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4}R_{5}-C_{4}R_{4
                                                                                                    \frac{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}} - \frac{R_2R_3R_4}{C_2+C_4-C_5} - \frac{R_2R_3R_4}
                   K-LP: \frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}
                    \begin{array}{l} \text{K-BP:} - \frac{C_5 R_1 R_2 R_4 R_5 R_6}{C_1 R_1 R_2 R_3 R_4 - C_1 R_1 R_2 R_3 R_5 - C_1 R_1 R_2 R_4 R_5 - C_1 R_1 R_3 R_4 R_5 - C_2 R_1 R_2 R_4 R_5 - C_2 R_2 R_3 R_4 R_5 - C_4 R_2 R_3 R_4 R_5 + C_5 R_2 R_3 R_4 R_5 \\ \text{Qz: None} \end{array} 
                     Wz: None
8.414 X-INVALID-NUMER-414 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4
                                                                                                                                      H(s) = \frac{1}{-C_{6}R_{2}R_{4} + C_{6}R_{2}R_{5} + C_{6}R_{4}R_{5} + s^{2}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{4}R_{5} + C_{1}C_{3}C_{6}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{3}C_{6}R_{1}R_{2}R_{4}R_{5} + s\left(-C_{1}C_{6}R_{1}R_{2}R_{4} + C_{1}C_{6}R_{1}R_{2}R_{5} + C_{1}C_{6}R_{1}R_{4}R_{5} + C_{3}C_{6}R_{1}R_{4}R_{5} + C_{3}C_{6}R_{1}R_{4}R_{5} + C_{3}C_{6}R_{1}R_{4}R_{5} + C_{3}C_{6}R_{1}R_{2}R_{4}R_{5} + C_{4}C_{6}R_{1}R_{2}R_{4} + C_{4}C_{6}R_{1}R_{2}R_{5} + C_{4}C_{6}R_{1}R_{4}R_{5} + C_{5}C_{6}R_{1}R_{4}R_{5} +
        Parameters:
```

```
\begin{array}{l} \mathrm{Q:} -\frac{\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_2R_2R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}\\ \mathrm{wo:} \ \frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5}}\\ \mathrm{bandwidth:} \ -\frac{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_2R_2R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5}{\sqrt{R_1\sqrt{R_4}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_5+C_2C_3R_1R_4R_
```

### 8.415 X-INVALID-NUMER-415 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_2C_3C_6R_1R_2R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_3C_6R_2R_4\right)}$$

```
\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{1}C_{1}C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{1}C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{1}C_{1}C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}+C_{1}C_{3}-C_{1}C_{5}}+C_{1}C_{1}C_{1}C_{2}}+C_{1}C_{1}C_{1}C_{2}-C_{1}C_{1}C_{1}C
                   wo: \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 - C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4}
                                                                                                                                                                                                                                                                                                                                     \sqrt{R_2 + R_4} (C_1 R_1 R_2 + C_1 R_1 R_4 + C_2 R_2 R_4 + C_3 R_1 R_4 + C_3 R_2 R_4 - C_5 R_2 R_4) \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 - C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4 + C_3 R_1 R_2 
                  K-LP: 0
              K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} K-BP: \frac{C_3C_5R_1R_2R_4}{C_1C_6R_1R_2+C_1C_6R_1R_4+C_2C_6R_2R_4+C_3C_6R_1R_4+C_3C_6R_2R_4-C_5C_6R_2R_4} Qz: None
                   Wz: None
8.416 X-INVALID-NUMER-416 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, R_6\right)
                                                                                                                        H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_1C_2R_1R_2R_4R_5 + C_1C_3R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5 + C_2C_3R_1R_2R_4R_5\right) + s\left(-C_1R_1R_2R_4 + C_1R_1R_2R_5 + C_1R_1R_4R_5 + C_2R_2R_4R_5 + C_3R_1R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5\right)}
         Parameters:
                   Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}-C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_
                  \frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}
                   K-LP: 0
                  K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}
                 K-BP: -\frac{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}+C_{5}R_{2}R_{4}R_{5}}{C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}+C_{5}R_{2}R_{4}R_{5}}
                     Qz: None
                   Wz: None
8.417 X-INVALID-NUMER-417 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4
             H(s) = \frac{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5 + c_2C_3C_3C_6R_1R_2R_4R_5 + c_2C_3C_3C_6R_1R_2R_4R_5 + c_2C_3C_3C_3C_3R_4R_5 + c_2C_3C_3C_3C_3R_3
          Parameters:
                  Q: \frac{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} - C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{4}R_{5}}{C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{4}R_{
                  wo: \sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5-C_1C_5R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5}}
                  \frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}
                K-LP: -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}
                 \text{K-BP:} - \frac{C_3C_5R_1R_2R_4R_5}{C_1C_6R_1R_2R_4 - C_1C_6R_1R_2R_5 - C_1C_6R_1R_4R_5 - C_2C_6R_2R_4R_5 - C_3C_6R_1R_4R_5 - C_3C_6R_2R_4R_5 + C_5C_6R_2R_4R_5}
                   Qz: None
                   Wz: None
8.418 X-INVALID-NUMER-418 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_3C_6R_1R_2R_6s + C_3R_1R_2
                                                                                                                                                                                          H(s) = \frac{1}{-C_{6}R_{2} + C_{6}R_{5} + s^{2}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{5} + C_{1}C_{3}C_{6}R_{1}R_{2}R_{5} + C_{2}C_{3}C_{6}R_{1}R_{2}R_{5}\right) + s\left(-C_{1}C_{6}R_{1}R_{2} + C_{1}C_{6}R_{1}R_{5} + C_{2}C_{6}R_{2}R_{5} + C_{3}C_{6}R_{1}R_{5} + C_{3}C_{6}R_{1}R_{5} + C_{4}C_{6}R_{2}R_{5}\right)}
         Parameters:
                 bandwidth: -\frac{C_1R}{\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{C_1C_2+C_1C_2}}

K-LP: -\frac{C_3R_1R_2}{C_6R_2-C_6R_5}
```

```
K-HP: 0
```

K-BP:  $-\frac{C_3R_1R_2R_6}{C_1R_1R_2 - C_1R_1R_5 - C_2R_2R_5 - C_3R_1R_5 - C_3R_2R_5 - C_4R_2R_5}$ 

Qz: None

Wz: None

## **8.419** X-INVALID-NUMER-419 $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

 $H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s^2\left(C_1C_2C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 - C_1C_5C_6R_1R_2 + C_2C_3C_6R_1R_2\right) + s\left(C_1C_6R_1 + C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2\right)}$ 

#### Parameters:

 $\underbrace{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}+C_{2}R_{2}+C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C$ 

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_3R_1R_2+C_1C_4R_1R_2-C_1C_5R_1R_2+C_2C_3R_1R_2}}$ 

 $(C_1R_1 + C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_3R_1R_2 + C_1C_4R_1R_2 - C_1C_5R_1R_2 + C_2C_3R_1R_2}}$ 

K-LP: 0

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$  K-BP:  $\frac{C_3C_5R_1R_2}{C_1C_6R_1+C_2C_6R_2+C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  Qz: None

Wz: None

## **8.420** X-INVALID-NUMER-420 $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$

 $H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^2\left(C_1C_2R_1R_2R_5 + C_1C_3R_1R_2R_5 + C_1C_4R_1R_2R_5 - C_1C_5R_1R_2R_5 + C_2C_3R_1R_2R_5\right) + s\left(-C_1R_1R_2 + C_1R_1R_5 + C_2R_2R_5 + C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5 - C_5R_2R_5\right)}$ 

#### Parameters:

 $Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_3$ Wo:  $\sqrt{\frac{-R_2+R_5}{C_1C_2R_1R_2R_5+C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5-C_1C_5R_1R_2R_5+C_2C_3R_1R_2R_5}}$ 

 $\sqrt{\frac{-R_2+R_5}{C_1C_2R_1R_2R_5+C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5-C_1C_5R_1R_2R_5+C_2C_3R_1R_2R_5}}(C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5+C_5R_2R_5)$  $\frac{\sqrt{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_$ 

K-LP: 0

 $\begin{array}{l} \text{K-HP: } \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP: } -\frac{C_3R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_2R_6}{C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5+C_5R_2R_5} \\ \text{Qz: None} \end{array}$ 

Wz: None

## **8.421** X-INVALID-NUMER-421 $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$

 $C_3C_5R_1R_2R_5s + C_3R_1R_2$  $H(s) = \frac{1}{-C_6R_2 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_2R_5 + C_1C_3C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_5 + C_2C_3C_6R_1R_2R_5\right) + s\left(-C_1C_6R_1R_2 + C_1C_6R_1R_5 + C_2C_6R_2R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_3C_6R_2R_5 + C_3C_6R_2R_5 + C_3C_6R_2R_5 + C_3C_6R_2R_5 + C_3C_6R_2R_5\right)}$ 

#### Parameters:

 $Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{-C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5+C_5R_2R_5}} + C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{-C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5+C_5R_2R_5}} + C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5+C_5R_2R_5}} + C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}} + C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{$ 

Wo:  $\sqrt{\frac{-R_2+R_5}{C_1C_2R_1R_2R_5+C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5-C_1C_5R_1R_2R_5+C_2C_3R_1R_2R_5}}$ 

 $\sqrt{\frac{-R_2+R_5}{C_1C_2R_1R_2R_5+C_1C_3R_1R_2R_5+C_1C_4R_1R_2R_5-C_1C_5R_1R_2R_5+C_2C_3R_1R_2R_5}}(C_1R_1R_2-C_1R_1R_5-C_2R_2R_5-C_3R_1R_5-C_3R_2R_5-C_4R_2R_5+C_5R_2R_5)$  $\frac{\sqrt{\sqrt{1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R$ 

K-LP:  $-\frac{C_3R_1R_2}{C_6R_2-C_6R_5}$ 

K-HP: 0

 $\text{K-BP:} - \frac{C_3C_5R_1R_2R_5}{C_1C_6R_1R_2 - C_1C_6R_1R_5 - C_2C_6R_2R_5 - C_3C_6R_1R_5 - C_3C_6R_2R_5 - C_4C_6R_2R_5 + C_5C_6R_2R_5}$ 

Qz: None

```
8.422 X-INVALID-NUMER-422 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4
              H(s) = \frac{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_5 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_4R_5 + C_1C_6R_1R_4R
           Parameters:
                 Q:  -\frac{\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}\sqrt{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{2}C_{3}}}{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}R_{5}-C_{1}R_{1}R_{4}R_{5}-C_{2}R_{2}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{2}R_{4}R_{5}-C_{4}R_{2}R_{4}R_{5}}} 
wo:  \frac{\sqrt{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}}{\sqrt{C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{4}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}}} 
bandwidth:  -\frac{C_{1}R_{1}R_{2}R_{4}-C_{1}R_{1}R_{2}R_{4}+C_{1}C_{3}+C_{1}C_{4}+C_{2}C_{3}\sqrt{C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C_{3}R_{1}R_{4}R_{5}-C
                    K-LP: -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}K-HP: 0
                     \text{K-BP:} - \frac{C_3 R_1 R_2 R_4 R_6}{C_1 R_1 R_2 R_4 - C_1 R_1 R_2 R_5 - C_1 R_1 R_4 R_5 - C_2 R_2 R_4 R_5 - C_3 R_1 R_4 R_5 - C_3 R_2 R_4 R_5 - C_4 R_2 R_4 R_5}
                      Wz: None
8.423 X-INVALID-NUMER-423 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s
                                                                                                                           H(s) = \frac{1}{C_6R_2 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_2C_3C_6R_1R_2R_4 + C_1C_6R_1R_2 + C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_
           Parameters:
                                          + \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1R_1R_2+C_1R_1R_4+C_2R_2R_4+C_3R_1R_4+C_3R_2R_4+C_4R_2R_4} - C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1R_1R_2+C_1R_1R_4+C_2R_2R_4+C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4} \\ - \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1R_1R_2+C_1R_1R_4+C_2R_2R_4+C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4} \\ - \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1R_1R_2+C_1R_1R_4+C_2R_2R_4+C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4} \\ - \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_2+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1R_1R_2+C_1R_1R_4+C_2R_2R_4+C_3R_1R_4+C_3R_2R_4+C_4R_2R_4-C_5R_2R_4} \\ - \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{
                      wo: \sqrt{R_2 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 + C_1 C_4 R_1 R_2 R_4 - C_1 C_5 R_1 R_2 R_4 + C_2 C_3 R_1 R_2 R_4}
                   \frac{\sqrt{R_2 + R_4} (C_1 R_1 R_2 + C_1 R_1 R_4 + C_2 R_2 R_4 + C_3 R_1 R_4 + C_3 R_2 R_4 + C_4 R_2 R_4 - C_5 R_2 R_4) \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_4 + C_1 C_3 R_1 R_2 R_4 + C_1 C_5 R_
                       K-LP: 0
                      K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}
                    K-BP: \frac{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{6}R_{1}R_{2}+C_{1}C_{6}R_{1}R_{4}+C_{2}C_{6}R_{2}R_{4}+C_{3}C_{6}R_{1}R_{4}+C_{3}C_{6}R_{2}R_{4}+C_{4}C_{6}R_{2}R_{4}+C_{5}C_{6}R_{2}R_{4}}{\text{Qz: None}}
                       Wz: None
8.424 X-INVALID-NUMER-424 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)
                                                                                      \frac{C_{3}C_{5}R_{1}R_{2}R_{4}R_{5}s^{2}+C_{3}R_{1}R_{2}R_{4}R_{6}s}{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}R_{1}
           Parameters:
```

 $Q: \frac{-c_{1}c_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}}{C_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}}} - c_{1}c_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}}{C_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}}} - c_{1}c_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}}{C_{1}R_{2}R_{4}R_{5}-c_{1}R_{1}R_{2}R_{5}-c_{1}R_{1}R_{2}R_{5}-c_{1}R_{1}R_{2}R_{5}-c_{1}R_{1}R_{2}R_{5}-c_{1}R_{1}R_{2}R_{5}-c_{1}R_{2}R_{4}R_{5}-c_{1}c_{2}R_{2}R_{4}R_{5}-c_{1}c_{2}R_{2}R_{4}R_{5}-c_{1}c_{2}R_{4}R_{5}-c_{2}R_{4}R_{5}}} \\ bandwidth: \frac{-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}}{-C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}+c_{1}C_{3}R_{1}R_{2}R_{4}R_{5}-c_{1}C_{5}R_{2}R_{4}R_{5}-c_{1}C_{5}R_{4}R_{5}-c_{2}R_{4}R_{5}-c_{2}C_{5}R_{4}R_{5}-c_{2}C_{5}R_{4}R_{5}-c_{2}C_{5}R_{4}R_{5}-c_{2}C_{5}R_{4}R_{5}-c_{2}R_{4}R_{5}-c_{2}C_{5}R_{4}R_{5}-c_{2}R_{4}R_{5}-c_{2}C_{5}R_{4}R_{5}-c_{2}R_{4}R_{5}$ 

8.425 X-INVALID-NUMER-425  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_6R_2R_5 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_5C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5 + C_1C_6R_1R_2R_4 + C_1C_6R$ 

Parameters:

Qz: None Wz: None

```
\frac{R_4 R_5}{-C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3} - C_1 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_2 R_4}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3} + \frac{R_2 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_1 C_5 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1 C_2 + C_1 C_3 + C_2 C_3} + \frac{R_4 R_5}{C_1
                       Wo: \sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_1C_4R_1R_2R_4R_5-C_1C_5R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5}
                                                                                                               -C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}-C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+
                     K-LP: -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}
                      K-HP: 0
                      \text{K-BP:} - \frac{C_3C_5R_1R_2R_4R_5}{C_1C_6R_1R_2R_4 - C_1C_6R_1R_2R_5 - C_1C_6R_1R_4R_5 - C_2C_6R_2R_4R_5 - C_3C_6R_1R_4R_5 - C_3C_6R_2R_4R_5 - C_3C_6R_2R_4R_5 - C_4C_6R_2R_4R_5 + C_5C_6R_2R_4R_5 - C_4C_6R_2R_4R_5 - C_4C_6R_4R_4R_5 - C_4C_6R_4R_5 - C_4C_6R_4R_5 - C_4C_6R_4R_5 - C_4C_6R_5R_5R_5 - C_4C_6R_5R_5 - C_4C_6R_5R_5 - C_4C_6R_5R_5 - C_4C_6R_5R_5 
                          Qz: None
                       Wz: None
8.426 X-INVALID-NUMER-426 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6
H(s) = \frac{c_{3}c_{1}c_{2}c_{3}c_{4}c_{0}c_{0}}{R_{1}R_{4}R_{5} - R_{2}R_{3}R_{4} + R_{2}R_{3}R_{5} + R_{2}R_{4}R_{5} + R_{3}R_{4}R_{5} + C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{1}R_{1}R_{2}R_{3}R_{4} + C_{1}R_{1}R_{2}R_{3}R_{4} + C_{1}R_{1}R_{2}R_{3}R_{4} + C_{1}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{2}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{2}R_{1}R_{2}R_{3}R_
        Parameters:
                      bandwidth: -\frac{1}{\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2R_1R_2R_3R_4R_5+C_1C_3}}{\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_2C_3}\sqrt{C_1C_2R_1R_2R_3R_4R_5+C_1C_3}}
K-LP: \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}
                     \text{K-BP:} - \frac{C_3 R_1 R_2 R_3 R_4 R_6}{C_1 R_1 R_2 R_3 R_4 - C_1 R_1 R_2 R_3 R_5 - C_1 R_1 R_2 R_4 R_5 - C_1 R_1 R_3 R_4 R_5 - C_2 R_1 R_2 R_4 R_5 - C_2 R_2 R_3 R_4 R_5 - C_3 R_1 R_3 R_4 R_5 - C_3 R_2 R_3 R_4 R_5}
                          Qz: None
                          Wz: None
8.427 X-INVALID-NUMER-427 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s
                                                                                  H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_1C_5R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4 + C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_3R_3R_3R_4 + C_3R_3R_4 + C_3R_3R_3R_4 + C_3R_3R_4 + C_3R_
           Parameters:
                                           \underbrace{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}}{C_{1}R_{1}R_{2}R_{3}+C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{3}R_{4}+C_{2}R_{1}R_{2}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}+C_{3}R_{3}+C_{3}R_{3}+C_{3}R_{3}+C_{3}R_{3}+C_{3}R_{3}+
                       wo: \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} (C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4) \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4 + C_3R_2R_3R_4 + C_3R_3R_4 +
                      K-LP: 0
                     K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}
                      \text{K-BP: } \frac{C_5 R_1 R_2 R_4 R_6}{C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_3 R_1 R_3 R_4 + C_3 R_2 R_3 R_4 - C_5 R_2 R_3 R_4} 
                          Qz: None
                       Wz: None
8.428 X-INVALID-NUMER-428 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4
H(s) = \frac{1}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_
        Parameters:
                                           . \frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{
                      wo: \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} (C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4) \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4 + C_3R_2R_3R_4 + C_3R_3R_3R_4 + C_3R_3R_4 +
                       \frac{1}{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R
                     K-LP: \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4}
```

K-HP: 0

 $\text{K-BP: } \frac{C_3C_5R_1R_2R_3R_4}{C_1C_6R_1R_2R_3+C_1C_6R_1R_2R_4+C_1C_6R_1R_3R_4+C_2C_6R_1R_2R_4+C_2C_6R_2R_3R_4+C_3C_6R_1R_3R_4+C_3C_6R_2R_3R_4+C_5C_6R_2R_3R_4}$ 

Qz: None

Wz: None

### **8.429** X-INVALID-NUMER-429 $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, R_6\right)$

 $C_3R_1R_2R_3R_6s + R_1R_2R_6$ 

 $H(s) = \frac{\frac{c_3 R_1 R_2 R_3 R_5 + R_1 R_2 R_3 + R_2 R_5 + R_3 R_5 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_5 + C_1 C_3 R_1 R_2 R_3 R_5 + C_2 C_3 R_1 R_2 R_3 R_5 \right) + s \left(-C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_5 + C_1 R_1 R_2 R_5 + C_2 R_2 R_3 R_5 + C_3 R_1 R_3 R_5 + C_3 R_2 R_3 R_5 + C_4 R_2 R_3 R_5 \right)}{R_1 R_2 R_3 R_5 + R_2 R_3 R_5 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_5 + C_1 C_3 R_1 R_2 R_3 R_5 + C_2 C_3 R_1 R_2 R_3 R_5 \right) + s \left(-C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_5 + C_2 R_1 R_2 R_5 + C_2 R_2 R_3 R_5 + C_3 R_1 R_3 R_5 + C_4 R_2 R_3 R_5 \right)}$ 

#### Parameters:

Q:  $-\frac{\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{C_1R_1R_2R_3-C_1R_1R_2R_5-C_1R_1R_2R_5-C_2R_1R_2R_5-C_2R_2R_3R_5-C_3R_1R_3R_5-C_3R_2R_3R_5-C_4R_2R_3R_5}$ wo:  $\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_1C_2R_1R_2R_3R_5+C_1C_3R_1R_2R_3R_5+C_1C_4R_2R_3R_5}}$ bandwidth:  $-\frac{C_1R_2R_3-C_1R_1R_2R_3-C_1R_1R_2R_5-C_1R_1R_3R_5-C_2R_1R_2R_3-C_3R_1R_3R_5-C_3R_2R_3R_5-C_4R_2R_3R_5}{\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{C_1C_2+C_1C_3+C_1C_4+C_2C_3}\sqrt{C_1C_2R_1R_2R_3R_5+C_1C_3R_1R_2R_3R_5+C_1C_4R_1R_2R_3R_5+C_2C_3R_1}}$ K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$ K-HP: 0

 $\text{K-BP:} - \frac{C_3 R_1 R_2 R_3 R_6}{C_1 R_1 R_2 R_3 - C_1 R_1 R_2 R_5 - C_1 R_1 R_3 R_5 - C_2 R_1 R_2 R_5 - C_2 R_2 R_3 R_5 - C_3 R_1 R_3 R_5 - C_3 R_2 R_3 R_5 - C_4 R_2 R_3 R_5}$ 

Qz: None Wz: None

### **8.430** X-INVALID-NUMER-430 $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$

 $H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^2\left(C_1C_2R_1R_2R_3 + C_1C_3R_1R_2R_3 + C_1C_5R_1R_2R_3 + C_2C_3R_1R_2R_3 + C_1R_1R_2 + C_1R_1R_3 + C_2R_1R_2 + C_2R_2R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 - C_5R_2R_3\right)}{R_1 + R_2 + R_3 + s^2\left(C_1C_2R_1R_2R_3 + C_1C_3R_1R_2R_3 + C_1C_5R_1R_2R_3 + C_2C_3R_1R_2R_3 + C_2R_1R_2 + C_2R_2R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 - C_5R_2R_3\right)}$ 

### **Parameters:**

 $+ \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}$ 

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_3 + C_1 C_3 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3}$ 

 $\sqrt{R_1 + R_2 + R_3} (C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_2 R_2 R_3 + C_3 R_1 R_3 + C_3 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3) \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_3 + C_1 C_3 R_1 R_2 R_3 + C_1 C_5 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3 + C_3 C_3 R_3 + C_3 C_$  $\frac{\sqrt{-1-2-1-2-3-1$ 

K-LP: 0

 $\begin{array}{l} \text{K-HP:} \ \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP:} \ \frac{C_5R_1R_2R_6}{C_1R_1R_2+C_1R_1R_3+C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3} \\ \end{array}$ 

Qz: None

Wz: None

# **8.431** X-INVALID-NUMER-431 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $C_3C_5R_1R_2R_3s + C_5R_1R_2$  $H(s) = \frac{-3.5311.2233 + 3.511.2}{C_6R_1 + C_6R_2 + C_6R_3 + s^2 \left( C_1C_2C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_2C_3C_6R_1R_2R_3 + C_2C_6R_1R_2 + C_2$ 

### **Parameters:**

 $Q: \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2$ 

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_3 + C_1 C_3 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3}$ 

 $\sqrt{R_1 + R_2 + R_3} (C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_2 R_2 R_3 + C_3 R_1 R_3 + C_3 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3) \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_3 + C_1 C_3 R_1 R_2 R_3 + C_1 C_5 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3 + C_3 R_1 R_3 + C_3 R_1 R_2 R_3 + C_3 R_1 R_3 + C_3 R_1 R_2 R_3 + C_3 R_1 R_3 +$ 

 $\frac{\text{bandwidth:}}{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt$ 

K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$ 

K-HP: 0

K-BP:  $\frac{C_3C_5R_1R_2R_3}{C_1C_6R_1R_2+C_1C_6R_1R_3+C_2C_6R_1R_2+C_2C_6R_2R_3+C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3-C_5C_6R_2R_3}$  Qz: None

```
8.432 X-INVALID-NUMER-432 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6
H(s) = \frac{1}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + C_1 C_2 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 R_1 R_2 R_3 R_4 R_5 + C_1 C_4 R_1 R_2 R_3 R_4 R_5 + C_1 C_4 R_1 R_2 R_3 R_4 R_5 + C_1 R_1 R_2 R_3 R_4 + C_1 R_1 R_2 R_3 
        Parameters:
                   Wz: None
8.433 X-INVALID-NUMER-433 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s
                                            \overline{R_{1}R_{4} + R_{2}R_{3} + R_{2}R_{4} + R_{3}R_{4} + s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}R_{1}R_{2}R_{3}R_{4} + C_{
        Parameters:
                                   : \frac{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4
                   wo: \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4}
                \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_2R_3R_4 + C_3R_2R_3R
                    K-LP: 0
                 K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}
                   \begin{array}{l} \text{K-BP:} \  \  \frac{C_5 R_1 R_2 R_4 R_6}{C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_2 R_1 R_2 R_4 + C_3 R_3 R_4 + C_3 R_2 R_3 R_4 + C_4 R_2 R_3 R_4 - C_5 R_2 R_3 R_4} \\ \text{CONTRACTOR } \end{array} 
                    Wz: None
8.434 X-INVALID-NUMER-434 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4
                                             \frac{-\frac{1}{3}C_{3}R_{1}R_{2}R_{3}R_{4}+C_{6}R_{2}R_{3}+C_{6}R_{2}R_{4}+C_{6}R_{3}R_{4}+c_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_
                                    \underbrace{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}}_{C_{1}R_{1}R_{2}R_{3}+C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3}R_{4}+C_{3}R_{3
                   wo: \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4)\sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1R_2R_3R_4 + C_1R
                   K-LP: \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}
                    K-HP: 0^{\circ}
```

### 9 X-INVALID-ORDER

**9.1** X-INVALID-ORDER-1  $Z(s) = (R_1, R_2, R_3, R_4, R_5, R_6)$ 

$$H(s) = \frac{R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}$$

**9.2** X-INVALID-ORDER-2  $Z(s) = \left(R_1, R_2, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{R_1 R_2 R_4}{s \left( C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5 \right)}$$

**9.3** X-INVALID-ORDER-3  $Z(s) = \left(R_1, R_2, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_6R_1R_2R_4R_6s + R_1R_2R_4}{s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.4** X-INVALID-ORDER-4  $Z(s) = \left(R_1, R_2, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(C_6 R_1 R_4 R_5 R_6 - C_6 R_2 R_3 R_4 R_6 + C_6 R_2 R_3 R_5 R_6 + C_6 R_2 R_4 R_5 R_6 + C_6 R_3 R_4 R_5 R_6\right)}$$

**9.5** X-INVALID-ORDER-5  $Z(s) = \left(R_1, R_2, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{-C_5 R_2 R_3 R_4 s + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4}$$

**9.6** X-INVALID-ORDER-6  $Z(s) = \left(R_1, R_2, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4}{-C_5 C_6 R_2 R_3 R_4 s + C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4}$$

9.7 X-INVALID-ORDER-7  $Z(s) = \left(R_1, R_2, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{-C_5C_6R_2R_3R_4s + C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4}$$

**9.8** X-INVALID-ORDER-8  $Z(s) = \left(R_1, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s \left(C_5 R_1 R_4 R_5 - C_5 R_2 R_3 R_4 + C_5 R_2 R_3 R_5 + C_5 R_2 R_4 R_5 + C_5 R_3 R_4 R_5\right)}$$

**9.9** X-INVALID-ORDER-9  $Z(s) = \left(R_1, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s \left(C_5 C_6 R_1 R_4 R_5 - C_5 C_6 R_2 R_3 R_4 + C_5 C_6 R_2 R_3 R_5 + C_5 C_6 R_2 R_4 R_5 + C_5 C_6 R_3 R_4 R_5\right)}$$

**9.10** X-INVALID-ORDER-10  $Z(s) = \left(R_1, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_5C_6R_1R_4R_5 - C_5C_6R_2R_3R_4 + C_5C_6R_2R_3R_5 + C_5C_6R_2R_4R_5 + C_5C_6R_3R_4R_5\right)}$$

**9.11** X-INVALID-ORDER-11  $Z(s) = \left(R_1, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_5 R_6 s + R_1 R_2 R_4 R_6}{-C_5 R_2 R_3 R_4 R_5 s + R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}$$

**9.12** X-INVALID-ORDER-12  $Z(s) = \left(R_1, R_2, R_3, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_5 s + R_1 R_2 R_4}{-C_5 C_6 R_2 R_3 R_4 R_5 s^2 + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$$

**9.13** X-INVALID-ORDER-13  $Z(s) = \left(R_1, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 C_6 R_1 R_2 R_4 R_5 R_6 s^2 + R_1 R_2 R_4 + s \left(C_5 R_1 R_2 R_4 R_5 + C_6 R_1 R_2 R_4 R_6\right)}{-C_5 C_6 R_2 R_3 R_4 R_5 s^2 + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$$

**9.14** X-INVALID-ORDER-14  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_2 R_6}{C_4 R_2 R_3 R_5 s + R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5}$$

**9.15** X-INVALID-ORDER-15  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{R_1 R_2}{C_4 C_6 R_2 R_3 R_5 s^2 + s \left( C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5 \right)}$$

**9.16** X-INVALID-ORDER-16  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_6 R_1 R_2 R_6 s + R_1 R_2}{C_4 C_6 R_2 R_3 R_5 s^2 + s \left( C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5 \right)}$$

**9.17** X-INVALID-ORDER-17  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s \left(C_4 R_2 R_3 - C_5 R_2 R_3\right)}$$

**9.18** X-INVALID-ORDER-18  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3 + s \left(C_4 C_6 R_2 R_3 - C_5 C_6 R_2 R_3\right)}$$

**9.19** X-INVALID-ORDER-19  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 C_6 R_1 R_2 R_6 s + C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3 + s \left(C_4 C_6 R_2 R_3 - C_5 C_6 R_2 R_3\right)}$$

**9.20** X-INVALID-ORDER-20  $Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_6 s}{C_4 C_5 C_6 R_2 R_3 R_5 R_6 s^3 + R_1 + R_2 + R_3 + s^2 \left( C_4 C_5 R_2 R_3 R_5 + C_4 C_6 R_2 R_3 R_6 + C_5 C_6 R_2 R_3 R_6 + C_5 C_6 R_2 R_5 R_6 + C_5 C_6 R_2 R_3 R_5 R_6 \right) + s \left( C_4 R_2 R_3 + C_5 R_1 R_5 - C_5 R_2 R_3 + C_5 R_2 R_5 + C_5 R_3 R_5 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6 \right)}$$

**9.21** X-INVALID-ORDER-21 
$$Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_5 R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s \left( C_4 R_2 R_3 R_5 - C_5 R_2 R_3 R_5 \right)}$$

9.22 X-INVALID-ORDER-22 
$$Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_2 R_5 s + R_1 R_2}{s^2 \left( C_4 C_6 R_2 R_3 R_5 - C_5 C_6 R_2 R_3 R_5 \right) + s \left( C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5 \right)}$$

**9.23** X-INVALID-ORDER-23 
$$Z(s) = \left(R_1, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 C_6 R_1 R_2 R_5 R_6 s^2 + R_1 R_2 + s \left(C_5 R_1 R_2 R_5 + C_6 R_1 R_2 R_6\right)}{s^2 \left(C_4 C_6 R_2 R_3 R_5 - C_5 C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5\right)}$$

**9.24** X-INVALID-ORDER-24 
$$Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_4 R_1 R_2 R_4 R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s \left( C_4 R_1 R_4 R_5 - C_4 R_2 R_3 R_4 + C_4 R_2 R_3 R_5 + C_4 R_2 R_4 R_5 + C_4 R_3 R_4 R_5 \right)}$$

**9.25** X-INVALID-ORDER-25 
$$Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_4 R_1 R_2 R_4 s + R_1 R_2}{s^2 \left( C_4 C_6 R_1 R_4 R_5 - C_4 C_6 R_2 R_3 R_4 + C_4 C_6 R_2 R_3 R_5 + C_4 C_6 R_2 R_4 R_5 + C_4 C_6 R_3 R_4 R_5 \right) + s \left( C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5 \right)}$$

**9.26** X-INVALID-ORDER-26 
$$Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_4C_6R_1R_2R_4R_6s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_6R_1R_2R_6\right)}{s^2\left(C_4C_6R_1R_4R_5 - C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_4R_5 + C_4C_6R_3R_4R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$$

9.27 X-INVALID-ORDER-27 
$$Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{-C_4C_5C_6R_2R_3R_4R_6s^3 + R_1 + R_2 + R_3 + s^2\left(-C_4C_5R_2R_3R_4 + C_4C_6R_1R_4R_6 + C_4C_6R_2R_3R_6 + C_4C_6R_2R_3R_6\right) + s\left(C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3 + C_6R_1R_6 + C_6R_2R_6\right)}$$

9.28 X-INVALID-ORDER-28  $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^3\left(C_4C_5C_6R_1R_4R_5R_6 - C_4C_5C_6R_2R_3R_4R_6 + C_4C_5C_6R_2R_4R_5R_6 + C_4C_5C_6R_2R_4R_5R_6 + C_4C_5C_6R_2R_4R_5R_6 + C_4C_5R_2R_3R_4 + C_4C_5R_2R_3R_5 + C_4C_5R_2R_4R_5 + C_4C_5R_3R_4R_5 + C_4C_5R_2R_4R_5 + C_4C_5R_4R_5R_5 + C_4C_5R_5R_5R_5 +$$

**9.29** X-INVALID-ORDER-29  $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5R_1R_2R_4R_5s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_5R_1R_2R_5\right)}{-C_4C_5C_6R_2R_3R_4R_5s^3 + s^2\left(C_4C_6R_1R_4R_5 - C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_4R_5 + C_4C_6R_3R_4R_5 - C_5C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$$

**9.30** X-INVALID-ORDER-30 
$$Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_4C_5C_6R_1R_2R_4R_5R_6s^3 + R_1R_2 + s^2\left(C_4C_5R_1R_2R_4R_5 + C_4C_6R_1R_2R_4R_6 + C_5C_6R_1R_2R_5R_6\right) + s\left(C_4R_1R_2R_4 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{-C_4C_5C_6R_2R_3R_4R_5s^3 + s^2\left(C_4C_6R_1R_4R_5 - C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_4R_5 + C_4C_6R_2R_4R_5 + C_4C_6R_2R_4R_5 + C_4C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$$

**9.31** X-INVALID-ORDER-31 
$$Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_6 + s\left(C_4R_1R_2R_4R_6 + C_5R_1R_2R_5R_6\right)}{-C_4C_5C_6R_2R_3R_4R_5R_6s^3 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(-C_4C_5R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_6 + C_4C_6R_2R_3R_4R_5R_6 + C_4C_6R_2R_3R_4R_5R_6 - C_5C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 + C_4C_6R_4R_5 + C_4C_6R_4R_5R_5 + C_4C_6R_4R_5 + C_4C_6R_4R_5 + C_4C_$ 

**9.32** X-INVALID-ORDER-32  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_2 R_4 R_6}{C_4 R_2 R_3 R_4 R_5 s + R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5}$$

**9.33** X-INVALID-ORDER-33  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{R_1 R_2 R_4}{C_4 C_6 R_2 R_3 R_4 R_5 s^2 + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$$

**9.34** X-INVALID-ORDER-34  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_6R_1R_2R_4R_6s + R_1R_2R_4}{C_4C_6R_2R_3R_4R_5s^2 + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.35** X-INVALID-ORDER-35  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s \left(C_4 R_2 R_3 R_4 - C_5 R_2 R_3 R_4\right)}$$

**9.36** X-INVALID-ORDER-36  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s \left( C_4 C_6 R_2 R_3 R_4 - C_5 C_6 R_2 R_3 R_4 \right)}$$

**9.37** X-INVALID-ORDER-37  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 C_6 R_1 R_2 R_4 R_6 s + C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s \left(C_4 C_6 R_2 R_3 R_4 - C_5 C_6 R_2 R_3 R_4\right)}$$

**9.38** X-INVALID-ORDER-38  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$C_5R_1R_2R_4R_6s$$

 $\frac{C_5R_1R_2R_4R_6s}{C_4C_5C_6R_2R_3R_4R_5R_6s^3 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_4C_5R_2R_3R_4R_6 + C_5C_6R_2R_3R_4R_6 + C_5C_6R_2R_3R_4R_5R_6 + C_5C_6R_2R_3R_4R_5 + C_5C_6R_2R_5R_5 + C_5C_6R_5R_5R_5 + C_5C_6R_5R_5R_5 + C_5C_6R_5R_5R_5 + C_5C_6R_5R_5 + C_5C_6R_5$ 

**9.39** X-INVALID-ORDER-39  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_5 R_6 s + R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(C_4 R_2 R_3 R_4 R_5 - C_5 R_2 R_3 R_4 R_5\right)}$$

**9.40** X-INVALID-ORDER-40  $Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5R_1R_2R_4R_5s + R_1R_2R_4}{s^2\left(C_4C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.41** X-INVALID-ORDER-41 
$$Z(s) = \left(R_1, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_1R_2R_4R_5R_6s^2 + R_1R_2R_4 + s\left(C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^2\left(C_4C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.42** X-INVALID-ORDER-42 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s \left(C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5\right)}$$

**9.43** X-INVALID-ORDER-43 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4}{-C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s \left( C_3 C_6 R_1 R_4 R_5 + C_3 C_6 R_2 R_4 R_5 \right)}$$

**9.44** X-INVALID-ORDER-44 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5\right)}$$

**9.45** X-INVALID-ORDER-45 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3 C_5 R_1 R_2 R_4 R_6 s^2}{R_2 + R_4 + s \left(C_3 R_1 R_4 + C_3 R_2 R_4 - C_5 R_2 R_4\right)}$$

**9.46** X-INVALID-ORDER-46 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 C_5 R_1 R_2 R_4 s}{C_6 R_2 + C_6 R_4 + s \left( C_3 C_6 R_1 R_4 + C_3 C_6 R_2 R_4 - C_5 C_6 R_2 R_4 \right)}$$

**9.47** X-INVALID-ORDER-47 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

**9.48** X-INVALID-ORDER-48 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_5R_1R_4R_5 + C_3C_6R_2R_4R_6 + C_5C_6R_2R_4R_6 + C_5C_6R_4R_6 + C_$$

**9.49** X-INVALID-ORDER-49  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s\left(C_3R_1R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5\right)}$$

**9.50** X-INVALID-ORDER-50 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$$

**9.51** X-INVALID-ORDER-51 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$$

**9.52** X-INVALID-ORDER-52 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_6 s}{-R_2 + R_5 + s \left(C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5\right)}$$

**9.53** X-INVALID-ORDER-53 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2}{-C_6 R_2 + C_6 R_5 + s \left(C_3 C_6 R_1 R_5 + C_3 C_6 R_2 R_5 + C_4 C_6 R_2 R_5\right)}$$

**9.54** X-INVALID-ORDER-54 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_1R_2R_6s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s\left(C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5\right)}$$

**9.55** X-INVALID-ORDER-55 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3 C_5 R_1 R_2 R_6 s^2}{s (C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2) + 1}$$

**9.56** X-INVALID-ORDER-56 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 C_5 R_1 R_2 s}{C_6 + s \left( C_3 C_6 R_1 + C_3 C_6 R_2 + C_4 C_6 R_2 - C_5 C_6 R_2 \right)}$$

**9.57** X-INVALID-ORDER-57 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s\left(C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2\right)}$$

9.58 X-INVALID-ORDER-58 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^3\left(C_3C_5C_6R_1R_5R_6 + C_3C_5C_6R_2R_5R_6 + C_4C_5C_6R_2R_5R_6\right) + s^2\left(C_3C_5R_1R_5 + C_3C_5R_2R_5 + C_4C_6R_2R_6 + C_4C_5R_2R_6 + C_5C_6R_2R_6 + C_5C_6R_5R_6\right) + s\left(C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_5R_5 + C_6R_6\right) + 1}$$

**9.59** X-INVALID-ORDER-59 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s\left(C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5 - C_5R_2R_5\right)}$$

**9.60** X-INVALID-ORDER-60 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_5s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s\left(C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5 - C_5C_6R_2R_5\right)}$$

**9.61** X-INVALID-ORDER-61  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_5R_6s^2 + C_3R_1R_2 + s\left(C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s\left(C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5 - C_5C_6R_2R_5\right)}$$

**9.62** X-INVALID-ORDER-62  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_3C_4C_6R_1R_4R_5R_6 + C_3C_4C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_4R_1R_4R_5 + C_3C_4R_2R_4R_5 + C_3C_6R_1R_5R_6 + C_3C_6R_2R_5R_6 - C_4C_6R_2R_4R_6 + C_4C_6R_2R_5R_6 + C_4C_6R_5R_6 +$ 

**9.63** X-INVALID-ORDER-63  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_4 - C_4C_5R_2R_4\right) + s\left(C_3R_1 + C_3R_2 + C_4R_2 + C_4R_4 - C_5R_2\right) + 1}$$

**9.64** X-INVALID-ORDER-64  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{C_6 + s^2\left(C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_4 - C_4C_5C_6R_2R_4\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 + C_4C_6R_4 - C_5C_6R_2\right)}$$

**9.65** X-INVALID-ORDER-65  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{s^3\left(C_3C_4C_6R_1R_4R_6 + C_3C_4C_6R_2R_4R_6 - C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_4 + C_3C_6R_1R_6 + C_3C_6R_2R_6 - C_4C_5R_2R_4 + C_4C_6R_4R_6 - C_5C_6R_2R_6\right) + s\left(C_3R_1 + C_3R_2 + C_4R_4 + C_5R_2 + C_6R_6\right) + 1}$$

**9.66** X-INVALID-ORDER-66  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{s^3\left(C_3C_4C_5R_1R_4R_5 + C_3C_4C_5R_2R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_4 + C_3C_5R_1R_5 + C_3C_5R_2R_5 - C_4C_5R_2R_4 + C_4C_5R_2R_5 + C_4C_5R_4R_5\right) + s\left(C_3R_1 + C_3R_2 + C_4R_2 + C_4R_4 - C_5R_2 + C_5R_5\right) + 1}$$

**9.67** X-INVALID-ORDER-67  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_3C_4C_5C_6R_1R_4R_5 + C_3C_4C_6R_2R_4 + C_3C_5C_6R_1R_5 + C_3C_5C_6R_2R_5 - C_4C_5C_6R_2R_5 + C_4C_5C_6R_5 + C_4C_5C_5C_6R_5 + C_4C_5C_5C_6R_5 + C_4C_5C_5C_6R_5 + C_4C_5C_5C_6R_5 + C_4C_5C_5C_6R_5 + C_4C_5C_$$

**9.68** X-INVALID-ORDER-68  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{C_6 + s^3\left(C_3C_4C_5C_6R_1R_4R_5 + C_3C_4C_5C_6R_2R_4 + C_3C_5C_6R_2R_5 - C_4C_5C_6R_2R_4 + C_4C_5C_6R_2R_5 + C_4C_5C_6R_4R_5\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 + C_4C_6R_4 + C_5C_6R_2\right)}$$

**9.69** X-INVALID-ORDER-69  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_4R_6s^4 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_2R_4R_5R_6 + C_3C_5C_6R_2R_4R_5R_6 + C_3C_5C_6R_2R_4R_6 + C_3C_5C_6R_4R_5R_6 + C_3C_5C_6R_5R_5R_6 + C_3C_5C_6R_5R_5R_6 + C_3C_5C_6R_5R_5R_6 + C_3C_5C_6R_5R_5R_6 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_5R_5R_5 + C_3C_5C$$

**9.70** X-INVALID-ORDER-70  $Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_6 + C_3C_5R_1R_2R_5R_6\right)}{-R_2 + R_5 + s^2\left(C_3C_4R_1R_4R_5 + C_3C_4R_2R_4R_5 - C_4C_5R_2R_4R_5\right) + s\left(C_3R_1R_5 + C_3R_2R_5 - C_4R_2R_4 + C_4R_2R_5 + C_4R_4R_5 - C_5R_2R_5\right)}$$

$$\textbf{9.71} \quad \textbf{X-INVALID-ORDER-71} \ \ Z(s) = \left(R_1, \ R_2, \ \frac{1}{C_3 s}, \ R_4 + \frac{1}{C_4 s}, \ \frac{R_5}{C_5 R_5 s + 1}, \ R_6 + \frac{1}{C_6 s}\right)$$
 
$$H(s) = \frac{C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 s^3 + C_3 R_1 R_2 + s^2 \left(C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_3 C_5 C_6 R_1 R_2 R_5 R_6\right) + s \left(C_3 C_4 R_1 R_2 R_4 + C_3 C_5 R_1 R_2 R_5 + C_3 C_6 R_1 R_2 R_6\right) }{-C_6 R_2 + C_6 R_5 + s^2 \left(C_3 C_4 C_6 R_1 R_4 R_5 + C_3 C_4 C_6 R_2 R_4 R_5 - C_4 C_5 C_6 R_2 R_4 R_5\right) + s \left(C_3 C_6 R_1 R_5 + C_3 C_6 R_2 R_4 + C_4 C_6 R_2 R_5 + C_4 C_6 R_4 R_5 - C_5 C_6 R_2 R_5\right) }$$

**9.72** X-INVALID-ORDER-72 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_6 + C_3C_5R_1R_2R_5R_6\right)}{-R_2 + R_5 + s^3\left(C_3C_4C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6 - C_4C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_4R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_2R_4R_5 - C_4C_6R_2R_4R_6 + C_4C_6R_4R_4R_6 + C_4C_6R_4R_$$

**9.73** X-INVALID-ORDER-73 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s \left(C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5 + C_4 R_2 R_4 R_5\right)}$$

**9.74** X-INVALID-ORDER-74 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4}{-C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s \left(C_3 C_6 R_1 R_4 R_5 + C_3 C_6 R_2 R_4 R_5 + C_4 C_6 R_2 R_4 R_5\right)}$$

**9.75** X-INVALID-ORDER-75 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5\right)}$$

**9.76** X-INVALID-ORDER-76 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3 C_5 R_1 R_2 R_4 R_6 s^2}{R_2 + R_4 + s \left(C_3 R_1 R_4 + C_3 R_2 R_4 + C_4 R_2 R_4 - C_5 R_2 R_4\right)}$$

**9.77** X-INVALID-ORDER-77 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

9.78 X-INVALID-ORDER-78 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_4C_6R_2R_4 - C_5C_6R_2R_4\right)}$$

9.79 X-INVALID-ORDER-79 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_2R_4R_5R_6 + C_4C_5C_6R_2R_4R_5 + C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6 + C_4C_5R_2R_4R_6 + C_5C_6R_2R_4R_6 + C_5C_6R_4R_5R_6 + C_5C_6R_4R_5R_6 + C_5C_6R_4R_5R_6 + C_5C_6R_4R_5R_6 + C_5C_6R_4R_5R_6 + C_5C_6R_4R_5R_6 + C_5C_6R_5R_5R_6 + C_5C_6R_5R_5R_6 + C_5C_6R_5R_5R_6 + C_5C_6R_5R_5R_6 + C_5C_6R_5R_5R_6 + C_5C_6R_5R_5R_6 +$$

9.80 X-INVALID-ORDER-80 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s\left(C_3R_1R_4R_5 + C_3R_2R_4R_5 + C_4R_2R_4R_5 - C_5R_2R_4R_5\right)}$$

**9.81** X-INVALID-ORDER-81 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$$

**9.82** X-INVALID-ORDER-82 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$$

**9.83** X-INVALID-ORDER-83 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s \left(C_3 R_1 R_4 R_5 - C_3 R_2 R_3 R_4 + C_3 R_2 R_3 R_5 + C_3 R_2 R_4 R_5 + C_3 R_3 R_4 R_5\right)}$$

**9.84** X-INVALID-ORDER-84 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_4}{-C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s \left(C_3 C_6 R_1 R_4 R_5 - C_3 C_6 R_2 R_3 R_4 + C_3 C_6 R_2 R_3 R_5 + C_3 C_6 R_2 R_4 R_5 + C_3 C_6 R_3 R_4 R_5\right)}$$

**9.85** X-INVALID-ORDER-85 
$$Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_3R_4R_5\right)}$$

**9.86** X-INVALID-ORDER-86  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{-C_3C_5C_6R_2R_3R_4R_6s^3 + R_2 + R_4 + s^2\left(-C_3C_5R_2R_3R_4 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 - C_5R_2R_4 + C_6R_2R_6 + C_6R_4R_6\right)}{-C_3C_5C_6R_2R_3R_4R_6s^3 + R_2 + R_4 + s^2\left(-C_3C_5R_2R_3R_4 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 + C_5R_2R_4 + C_6R_2R_6 + C_6R_4R_6\right)}$$

9.87 X-INVALID-ORDER-87  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_3C_5C_6R_1R_4R_5R_6 - C_3C_5C_6R_2R_3R_4R_6 + C_3C_5C_6R_2R_3R_5R_6 + C_3C_5C_6R_2R_4R_5R_6 + C_3C_5C_6R_3R_4R_5R_6\right) + s^2\left(C_3C_5R_1R_4R_5 - C_3C_5R_2R_3R_5 + C_3C_5R_2R_4R_5 + C_3C_5R_3R_4R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_$$

**9.88** X-INVALID-ORDER-88  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s$$

$$H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-C_3C_5C_6R_2R_3R_4R_5R_6s^3 - R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(-C_3C_5R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_6 + C_3C_6R_2R_3R_5R_6 + C_3C_6R_2R_4R_5R_6\right) + s\left(C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_2R$$

**9.89** X-INVALID-ORDER-89  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3 R_1 R_2 R_6 s}{C_3 C_4 C_6 R_2 R_3 R_5 R_6 s^3 - R_2 + R_5 + s^2 \left(C_3 C_4 R_2 R_3 R_5 + C_3 C_6 R_1 R_5 R_6 - C_3 C_6 R_2 R_3 R_6 + C_3 C_6 R_2 R_5 R_6 + C_4 C_6 R_2 R_5 R_6\right) + s \left(C_3 R_1 R_5 - C_3 R_2 R_3 + C_3 R_2 R_5 + C_3 R_3 R_5 + C_4 R_2 R_5 - C_6 R_2 R_6 + C_6 R_5 R_6\right)}$$

**9.90** X-INVALID-ORDER-90  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^3\left(C_3C_4C_6R_2R_3R_6 - C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_3C_4R_2R_3 - C_3C_5R_2R_3 + C_3C_6R_1R_6 + C_3C_6R_2R_6 + C_4C_6R_2R_6 - C_5C_6R_2R_6\right) + s\left(C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 - C_5R_2 + C_6R_6\right) + 1}$$

**9.91** X-INVALID-ORDER-91  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{C_3C_4C_5R_2R_3R_5s^3 + s^2\left(C_3C_4R_2R_3 + C_3C_5R_1R_5 - C_3C_5R_2R_3 + C_3C_5R_2R_5 + C_4C_5R_2R_5\right) + s\left(C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 - C_5R_2 + C_5R_5\right) + 1}$$

**9.92** X-INVALID-ORDER-92  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.93** X-INVALID-ORDER-93  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_3C_4C_5C_6R_2R_3R_5s^3 + C_6 + s^2\left(C_3C_4C_6R_2R_3 + C_3C_5C_6R_1R_5 - C_3C_5C_6R_2R_3 + C_3C_5C_6R_2R_5 + C_4C_5C_6R_2R_5\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_2 - C_5C_6R_2 + C_5C_6R_2\right)}$ 

**9.94** X-INVALID-ORDER-94  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{C_3C_4C_5C_6R_2R_3R_5R_6s^4 + s^3\left(C_3C_4C_5R_2R_3R_5 + C_3C_5C_6R_1R_5R_6 - C_3C_5C_6R_2R_3R_6 + C_3C_5C_6R_2R_5R_6 + C_3C_5C_6R_2R_5R_6 + C_3C_5C_6R_2R_3R_5 + C_3C_5R_2R_3 + C_3C_5R_3R_3 + C_3C_5R_3$ 

**9.95** X-INVALID-ORDER-95  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_3C_4C_6R_2R_3R_5R_6 - C_3C_5C_6R_2R_3R_5R_6\right) + s^2\left(C_3C_4R_2R_3R_5 - C_3C_5R_2R_3R_5 + C_3C_6R_1R_5R_6 - C_3C_6R_2R_3R_5 + C_4C_6R_2R_5R_6 + C_4C_6R_2R_5R_6 + C_4C_6R_2R_5R_6\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5 - C_5C_6R_2R_3R_5 + C_4C_6R_2R_5R_6 + C_4C_6R_2R_5R_6 + C_4C_6R_2R_5R_6 + C_4C_6R_2R_5R_6\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5 - C_5C_6R_2R_3R_5 + C_4C_6R_2R_5R_6 + C_4C_6R_2R_5R_6 + C_4C_6R_2R_5R_6 + C_4C_6R_2R_5R_6\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_4R_2R_5 - C_5C_6R_2R_5R_6\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_4R_2R_5 - C_5C_6R_2R_5R_6\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5 + C_4R_2R_5 + C_4R_3R_5\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_3R_5\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_3R_5\right) + s\left(C_3R_1R_5 - C_3R_3R_5 + C_3R_3R_5\right) + s\left(C_3R_1R_5 - C_3R_3R_5 + C_3R_3R_5\right) + s\left(C_3R_1R_5 - C_3R_3R_5\right) + s\left(C_3R_3R_5 - C_3R_5\right) + s\left(C_3R_3R_5\right) + s\left(C_3R_3R_5\right) + s\left(C_3R_3R_5\right) + s\left(C_3R_3R_5\right) + s$ 

**9.96** X-INVALID-ORDER-96  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_3C_4C_6R_1R_4R_5R_6 - C_3C_4C_6R_2R_3R_4R_6 + C_3C_4C_6R_2R_3R_5R_6 + C_3C_4C_6R_2R_3R_4R_5R_6 + C_3C_4C_6R_2R_3R_4R_5 + C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_3R_3R_5 + C_3C_4R_3R_5 + C_3C_4R_5 + C_3C_4R_5 + C_3C_4R_5 + C_3C_4R_5 + C_3C_4R_5 + C_3C_4R_5 + C_3C$ 

**9.97** X-INVALID-ORDER-97  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{-C_3C_4C_5R_2R_3R_4s^3 + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_3 + C_3C_4R_2R_4 + C_3C_4R_3R_4 - C_3C_5R_2R_3 - C_4C_5R_2R_4\right) + s\left(C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 + C_4R_4 - C_5R_2\right) + 1}{c_3C_4C_5R_2R_3R_4s^3 + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_3 + C_3C_4R_3R_4 - C_3C_5R_2R_3 - C_4C_5R_2R_4\right) + s\left(C_3R_1 + C_3R_2 + C_3R_3 + C_4R_4 - C_5R_2\right) + 1}{c_3C_4C_5R_2R_3R_4s^3 + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_3 + C_3C_4R_3R_4 - C_3C_5R_2R_3 - C_4C_5R_2R_4\right) + s\left(C_3R_1 + C_3R_2 + C_3R_3 + C_4R_4 - C_5R_2\right) + 1}{c_3C_4C_5R_2R_3R_4s^3 + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_3 + C_3C_4R_3R_4 - C_3C_5R_2R_3 - C_4C_5R_2R_4\right) + s\left(C_3R_1 + C_3R_2 + C_3R_3 + C_4R_4 - C_5R_2\right) + 1}{c_3C_4R_3R_4c^3R_4c$ 

**9.98** X-INVALID-ORDER-98  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{-C_3C_4C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_3 + C_3C_4C_6R_3R_4 - C_3C_5C_6R_2R_3 - C_4C_5C_6R_2R_4\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_4 - C_5C_6R_2\right)}$ 

**9.99** X-INVALID-ORDER-99  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{-C_3C_4C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_4 + C_3C_4C_6R_3R_4 - C_3C_5C_6R_2R_3 - C_4C_5C_6R_2R_4\right) + s\left(C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_4 - C_5C_6R_2\right)}$ 

**9.100** X-INVALID-ORDER-100  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{-C_3C_4C_5C_6R_2R_3R_4R_6s^4 + s^3\left(-C_3C_4C_5R_2R_3R_4 + C_3C_4C_6R_2R_3R_6 + C_3C_4C_6R_2R_4R_6 + C_3C_4C_6R_2R_4R_6 + C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_3 + C_3C_4R_3R_4 - C_3C_5R_2R_3 + C_3C_6R_2R_4R_6\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_3 + C_3C_4R_3R_4 +$ 

```
9.101 X-INVALID-ORDER-101 Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{s^3\left(C_3C_4C_5R_1R_4R_5 - C_3C_4C_5R_2R_3R_4 + C_3C_4C_5R_2R_3R_5 + C_3C_4C_5R_2R_4R_5 + C_3C_4C_5R_3R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_3 + C_3C_4R_3R_4 + C_3C_5R_1R_5 - C_3C_5R_2R_5 + C_3C_5R_3R_5 - C_4C_5R_2R_4 + C_4C_5R_2R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_2R_4 + C_3C_4R_3R_4 + C_3C_5R_1R_5 - C_3C_5R_2R_5 + C_3C_5R_3R_5 - C_4C_5R_2R_4 + C_4C_5R_2R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_4R_3R_4 + C_3C_5R_3R_5 - C_4C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_4R_3R_4 + C_3C_5R_3R_5 - C_4C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_4R_3R_4 + C_3C_5R_3R_5 - C_4C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_3C_5R_3R_5 - C_4C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_4R_3R_5 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_4 + C_3C_4R_5R_5 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_3R_5 + C_3C_5R_5R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_5R_5 + C_3C_5R_5R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_5R_5 + C_3C_5R_5R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_5R_5 + C_3C_5R_5R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_5R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_5R_5\right) + s^2\left(C_3C_4R_1R_4 + C_3C_4R_5R_5\right) + s^2\left(C_3C_4R_5R_5 + C_3C_5R_5R_5\right) + s
9.102 X-INVALID-ORDER-102 Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_3C_4C_5C_6R_1R_4R_5 - C_3C_4C_5C_6R_2R_3R_4 + C_3C_4C_5C_6R_2R_3R_5 + C_3C_4C_5C_6R_2R_4R_5 + C_3C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_3 + C_3C_4C_6R_2R_3 + C_3C_5C_6R_2R_3 + C_3C_5C_6R_3R_3 + C_3C
9.103 X-INVALID-ORDER-103 Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{C_6 + s^3\left(C_3C_4C_5C_6R_1R_4R_5 - C_3C_4C_5C_6R_2R_3R_4 + C_3C_4C_5C_6R_2R_3R_5 + C_3C_4C_5C_6R_2R_4R_5 + C_3C_4C_5R_3R_4 + C_3C_4C_6R_2R_4 + C_3C_4C_6R_4R_4 
9.104 X-INVALID-ORDER-104 Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                           \overline{s^4 \left( C_3 C_4 C_5 C_6 R_1 R_4 R_5 R_6 - C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_3 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_3 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_3 C_4 C_5 C_6 R_3 R_4 R_5 R_6 \right) \\ + s^3 \left( C_3 C_4 C_5 R_1 R_4 R_5 - C_3 C_4 C_5 R_2 R_3 R_5 + C_3 C_4 C_5 R_2 R_3 R_5 + C_3 C_4 C_5 R_2 R_4 R_5 + C_3 C_4 C_5 R_5 R_5 + C_3 C_5 R_5 R_5 + C_3 C_5 R_5 R_5 + C_5 C_5 R_5 R_5 + C_5 C_5 R_5 R_5 + C_5
9.105 X-INVALID-ORDER-105 Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
          H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_6 + C_3C_5R_1R_2R_5R_6\right)}{-C_3C_4C_5R_2R_3R_4R_5s^3 - R_2 + R_5 + s^2\left(C_3C_4R_1R_4R_5 - C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5 - C_4C_5R_2R_4R_5\right) + s\left(C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 - C_4R_2R_4 + C_4R_2R_5 + C_4R_4R_5 - C_5R_2R_5\right)}
9.106 X-INVALID-ORDER-106 Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5\right)}{-C_3C_4C_5C_6R_2R_3R_4R_5s^3 - C_6R_2 + C_6R_5 + s^2\left(C_3C_4C_6R_1R_4R_5 - C_3C_4C_6R_2R_3R_4 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5\right) + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5\right) + s\left(C_3C_4R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5\right) + s\left(C_3C_4R_1R_2R_4 + C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5\right) + s\left(C_3C_4R_1R_2R_3R_4 + C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5\right) + s\left(C_3C_4R_1R_4R_5 - C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5\right) + s\left(C_3C_4R_1R_4R_5 - C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5\right) + s\left(C_3C_4R_1R_4R_5 - C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_5\right) + s\left(C_3C_4R_1R_3R_5 - C_3C_4R_3R_5\right) + s\left(C_3C_4R_1R_3R_5 - C_3C_4R_3R_5\right) + s\left(C_3C_4R_1R_3R_5 - C_3C_4R_3R_5\right) + s\left(C_3C_4R_1R_5 - C_3C_4R_3R_5\right) + s\left(C_3C_4R_3R_5 - C_3C_4R_3R_5\right) + s\left(C_3C_4R_3R_5 - C_3C_5R_3R_5\right) + s\left(C_3C_4R_3R_5 - C_3C_5R_5R_5\right) + s\left(C_3C_4R_5R_5R_5 - C_3C_5R_5R_5\right) + s\left(C_3C_4R_5R_5R_5R_5 - C_3C_5R_5R_5\right) + s\left(C_3C_4R_5R_5R_5 - C_3C_5R_5R_5\right) + s\left(C_3C_4R_5R_5R_5 - C_3C_5R_5
9.107 X-INVALID-ORDER-107 Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_2R_5R_6\right) + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{-C_3C_4C_5C_6R_2R_3R_4R_5s^3 - C_6R_2 + C_6R_5 + s^2\left(C_3C_4C_6R_1R_4R_5 - C_3C_4C_6R_2R_3R_4 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_4R_4R_5 + C_3C_4C_4R_4R_5 + C_3C_4C_4R_4R_5 + C_3C_4C_4R_4R_5 + C_3C_4C_4R_4R_5 + C_3C_4C_4R_4R_5 + C_3C_4C_
9.108 X-INVALID-ORDER-108 Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_3C_4}{-C_3C_4C_5C_6R_2R_3R_4R_5R_6s^4 - R_2 + R_5 + s^3\left(-C_3C_4C_5R_2R_3R_4R_5 + C_3C_4C_6R_2R_3R_4R_6 + C_3C_4C_6R_2R_3R_5R_6 + C_3C_4C_6R_2R_3R_4R_5R_6 - C_3C_5C_6R_2R_3R_5R_6 - C_4C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_4R_1R_4R_5R_6 - C_3C_4C_6R_2R_3R_4R_5 + C_3C_4C_6R_2R_4R_5R_6 + C_3C_4C_6R_2R_4R_5R_6 - C_3C_5C_6R_2R_3R_5R_6 - C_4C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_4R_1R_4R_5R_6 - C_3C_4C_6R_2R_3R_4R_5 + C_3C_4C_6R_2R_4R_5R_6 - C_3C_4C_6R_2R_4R_5R_6 - C_3C_4C_6R_2R_4R_5R_6 - C_3C_4C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_4R_1R_4R_5R_6 - C_3C_4C_6R_2R_4R_5R_6 - C_3C_4C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_4R_1R_4R_5R_6 - C_3C_4C_6R_2R_4R_5R_6 - C_3C_4C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_4R_1R_4R_5R_6 - C_3C_4C_6R_2R_4R_5R_6\right) + s^2\left(C_3C_4R_4R_5R_6\right) +$ 

**9.109** X-INVALID-ORDER-109  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3R_1R_2R_4R_6s}{C_3C_4C_6R_2R_3R_4R_5R_6s^3 - R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_3C_4R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_6 + C_3C_6R_2R_3R_4R_5R_6 + C_3C_6R_2R_4R_5R_6\right) + s\left(C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3$ 

**9.110** X-INVALID-ORDER-110  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^{-2}}{R_2 + R_4 + s^3\left(C_3C_4C_6R_2R_3R_4R_6 - C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_3C_4R_2R_3R_4 - C_3C_5R_2R_3R_4 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 + C_3R_2R_4 + C_3R_3R_4 + C_3R_2R_4 + C_3R_3R_4 +$ 

**9.111** X-INVALID-ORDER-111  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{C_3C_4C_5R_2R_3R_4R_5s^3 + R_2 + R_4 + s^2\left(C_3C_4R_2R_3R_4 + C_3C_5R_1R_4R_5 - C_3C_5R_2R_3R_4 + C_3C_5R_2R_3R_5 + C_3C_5R_2R_4R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 + C_4R_2R_4 - C_5R_2R_4 + C_5R_2R_5 + C_5R_4R_5\right)}$ 

**9.112** X-INVALID-ORDER-112  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_3C_4C_5C_6R_2R_3R_4R_5s^3 + C_6R_2 + C_6R_4 + s^2\left(C_3C_4C_6R_2R_3R_4 + C_3C_5C_6R_2R_3R_4 + C_3C_5C_6R_2R_3R_5 + C_3C_5C_6R_2R_4R_5\right) + s\left(C_3C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_4R_4 +$ 

**9.113** X-INVALID-ORDER-113  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_3C_4C_5C_6R_2R_3R_4R_5s^3 + C_6R_2 + C_6R_4 + s^2\left(C_3C_4C_6R_2R_3R_4 + C_3C_5C_6R_2R_3R_4 + C_3C_5C_6R_2R_3R_4 + C_3C_5C_6R_2R_4R_5 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_$ 

**9.114** X-INVALID-ORDER-114  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_3C_4C_5C_6R_2R_3R_4R_5R_6s^4 + R_2 + R_4 + s^3\left(C_3C_4C_5R_2R_3R_4R_5 + C_3C_5C_6R_1R_4R_5R_6 - C_3C_5C_6R_2R_3R_4R_6 + C_3C_5C_6R_2R_3R_4R_5 + C_3C_5C_6R_2R_4R_5R_6 + C_3C_5C_6R_2R_4R_5R_5 + C_3C_5C_6R_2R_4R_5R_5 + C_3C_5C_6R_2R_4R_5R_5 + C_3C_5C_6R_2R_4R_5R_5 + C_3C_5C_6R_5R_5R_5R_5 + C_3C_5C_6R_5R_5R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_$ 

**9.115** X-INVALID-ORDER-115  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_3C_4C_6R_2R_3R_4R_5R_6 - C_3C_5C_6R_2R_3R_4R_5 - C_3C_5R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_4R$ 

**9.116** X-INVALID-ORDER-116  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_3 R_4 R_6 s + R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(C_3 R_1 R_3 R_4 R_5 + C_3 R_2 R_3 R_4 R_5\right)}$ 

**9.117** X-INVALID-ORDER-117  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_3 R_4 s + R_1 R_2 R_4}{s^2 \left(C_3 C_6 R_1 R_3 R_4 R_5 + C_3 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$ 

**9.118** X-INVALID-ORDER-118  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_2R_3R_4R_6s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_6R_1R_2R_4R_6\right)}{s^2\left(C_3C_6R_1R_3R_4R_5 + C_3C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$ 

**9.119** X-INVALID-ORDER-119  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s\left(C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4\right)}$$

**9.120** X-INVALID-ORDER-120  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

**9.121** X-INVALID-ORDER-121 
$$Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

**9.122** X-INVALID-ORDER-122  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^3\left(C_3C_5C_6R_1R_3R_4R_5R_6 + C_3C_5R_2R_3R_4R_5 + C_3C_5R_2R_3R_4R_6 + C_3C_6R_2R_3R_4R_6 + C_5C_6R_2R_3R_4R_6 + C_5C_6R_2R_4R_6 + C_5C_6R_2R_4R_5R_6 + C_5C_6R_2R_4R_5R_6 + C_5C_6R_2R_5R_5R_6 + C_5C_6R_5R_5R_5R_6 + C_5C_6R_5R_5R_$$

**9.123** X-INVALID-ORDER-123  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s\left(C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 - C_5R_2R_3R_4R_5\right)}$$

**9.124** X-INVALID-ORDER-124  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5\right)}{s^2\left(C_3C_6R_1R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.125** X-INVALID-ORDER-125  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_4 + s^2\left(C_3C_5R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_6 + C_5C_6R_1R_2R_4R_5R_6\right) + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^2\left(C_3C_6R_1R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_4 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.126** X-INVALID-ORDER-126  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_1 R_2 R_3 R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s \left( C_3 R_1 R_3 R_5 + C_3 R_2 R_3 R_5 + C_4 R_2 R_3 R_5 \right)}$$

**9.127** X-INVALID-ORDER-127  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3R_1R_2R_3s + R_1R_2}{s^2\left(C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$$

**9.128** X-INVALID-ORDER-128  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_1R_2R_3R_6s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_6R_1R_2R_6\right)}{s^2\left(C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$$

**9.129** X-INVALID-ORDER-129  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s\left(C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 - C_5R_2R_3\right)}$$

**9.130** X-INVALID-ORDER-130  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s\left(C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_4C_6R_2R_3 - C_5C_6R_2R_3\right)}$$

**9.131** X-INVALID-ORDER-131  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_5C_6R_1R_2R_6\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s\left(C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_4C_6R_2R_3 - C_5C_6R_2R_3\right)}$$

**9.132** X-INVALID-ORDER-132  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^3\left(C_3C_5C_6R_1R_3R_5R_6 + C_3C_5C_6R_2R_3R_5R_6 + C_4C_5C_6R_2R_3R_5 + C_3C_5R_1R_3R_5 + C_3C_6R_2R_3R_6 + C_5C_6R_2R_3R_6 + C_5C_6R_2R_3R_$ 

**9.133** X-INVALID-ORDER-133  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_5R_6s^2 + R_1R_2R_6 + s\left(C_3R_1R_2R_3R_6 + C_5R_1R_2R_5R_6\right)}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s\left(C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_5 - C_5R_2R_3R_5\right)}$$

**9.134** X-INVALID-ORDER-134  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_5s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_5R_1R_2R_5\right)}{s^2\left(C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 - C_5C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$$

**9.135** X-INVALID-ORDER-135  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_5R_6s^3 + R_1R_2 + s^2\left(C_3C_5R_1R_2R_3R_5 + C_3C_6R_1R_2R_3R_6 + C_5C_6R_1R_2R_5R_6\right) + s\left(C_3R_1R_2R_3 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{s^2\left(C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 - C_5C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$$

**9.136** X-INVALID-ORDER-136  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4R_1R_2R_3R_4s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_4R_1R_2R_4\right)}{s^3\left(C_3C_4C_6R_1R_3R_4R_5 + C_3C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_5 + C$$

**9.137** X-INVALID-ORDER-137  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_6R_1R_2R_3R_4R_6s^3 + R_1R_2 + s^2\left(C_3C_4R_1R_2R_3R_4 + C_3C_6R_1R_2R_3R_6 + C_4C_6R_1R_2R_4R_6\right) + s\left(C_3R_1R_2R_3 + C_4R_1R_2R_4 + C_6R_1R_2R_6\right)}{s^3\left(C_3C_4C_6R_1R_3R_4R_5 + C_3C_4C_6R_2R_3R_4 + C_4C_6R_1R_4R_5 - C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_3R_5 + C_4C_6R_3R_5 + C_4C_6$$

**9.138** X-INVALID-ORDER-138  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_3C_4R_1R_2R_3R_4R_6s^2 + R_1R_2R_6 + s\left(C_3R_1R_2R_3R_6 + C_4R_1R_2R_4R_6\right)}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(C_3C_4C_6R_1R_3R_4R_5R_6 + C_3C_4C_6R_2R_3R_4R_5 + C_3C_4R_2R_3R_4R_5 + C_3C_4R_2R_3R_4R_5 + C_3C_4R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_6 + C_4C_6R_2R_4R_4R_6 + C_4C_6R_4R_4R_4R_6 + C_4C_6R_4R_4R_4R_4 + C_4C_6R_4R_4R_4 + C_4C_6R_4R_4R_4 + C_4C_6R_4R_4R_4 + C_4C_6R_4R_4R_4 + C_4C_6R$$

**9.139** X-INVALID-ORDER-139  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_2R_6s + s^2\left(C_3C_5R_1R_2R_3R_6 + C_4C_5R_1R_2R_4R_6\right)}{R_1 + R_2 + R_3 + s^2\left(C_3C_4R_1R_3R_4 + C_3C_4R_2R_3R_4 - C_4C_5R_2R_3R_4\right) + s\left(C_3R_1R_3 + C_3R_2R_3 + C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3\right)}$$

**9.140** X-INVALID-ORDER-140  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_3R_4 + C_3C_5C_6R_1R_2R_3R_6 + C_4C_5C_6R_1R_2R_4R_6\right) + s\left(C_3C_5R_1R_2R_3 + C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_6\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_3C_4C_6R_1R_3R_4 + C_3C_4C_6R_2R_3R_4 - C_4C_5C_6R_2R_3R_4\right) + s\left(C_3C_6R_1R_3 + C_4C_6R_1R_4 + C_4C_6R_2R_3 + C_4C_6R_2R_4 + C_4C_6R_2R_4 + C_4C_6R_2R_4\right)}$$

```
9.141 X-INVALID-ORDER-141 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_2R_3R_6 + s^2\left(C_3C_5R_1R_2R_3R_6 + C_4C_5R_1R_2R_4R_6\right)}{R_1 + R_2 + R_3 + s^3\left(C_3C_4C_6R_1R_3R_4R_6 + C_3C_4C_6R_2R_3R_4R_6 - C_4C_5C_6R_2R_3R_4 + C_3C_4R_1R_3R_4 + C_3C_4R_1R_3R_4 + C_4C_6R_1R_4R_6 + C_4C_6R_2R_3R_6 + C_4C_6R_3R_4R_6 + C_4C_6R_4R_4R_6 + C_4C_6R_4R_4R_6 + C_4C_6R_4R_4R_6 + C_4C_6R_4R_4R_6 + C_4C_6R_4R_4R_6 + C_4C_6R_4R_4R_6 + C_4C_6R_4R_
9.142 X-INVALID-ORDER-142 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                           \frac{C_3C_4C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_2R_6s + s^2\left(C_3C_5R_1R_2R_3R_6 + C_4C_5R_1R_2R_4R_6\right)}{R_1 + R_2 + R_3 + s^3\left(C_3C_4C_5R_1R_3R_4R_5 + C_3C_4C_5R_2R_3R_4 + C_3C_4R_2R_3R_4 + C_3C_5R_1R_3R_5 + C_4C_5R_2R_3R_4 + C_4C_5R_2R_3R_5 + C_4C_5R_3R_3R_5 + C_4C_5R_3R_5 + C_4C_5R_5R_5 + C_4C_5R_5 + C_4C_5R_5 + C_4C_5R_5 + C_4C_5R_5 + C_4C_5R_5 + C_4C_
9.143 X-INVALID-ORDER-143 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_4C_5R_1R_2R_3 + C_4C_5R_1R_2R_4\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_3C_4C_5C_6R_1R_3R_4 + C_3C_4C_5C_6R_2R_3R_4 + C_3C_5C_6R_1R_3R_5 + C_4C_5C_6R_2R_3R_4 + C_4C_5C_6R_3R_4 + C_4C_5C$ 

**9.144** X-INVALID-ORDER-144  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_3R_4 + C_3C_5C_6R_1R_2R_3R_6 + C_4C_5C_6R_1R_2R_4R_6\right) + s\left(C_3C_5R_1R_2R_3 + C_4C_5R_1R_2R_3R_4 + C_3C_5C_6R_1R_3R_4 + C_3C_5C_6R_3R_4R_5 +$ 

**9.145** X-INVALID-ORDER-145  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{1}{R_1 + R_2 + R_3 + s^4 \left( C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_3 C_4 C_6 R_2 R_3 R_4 R_6 + C_3 C_5 C_6 R_2 R_3 R_4 R_5 + C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_4 C_5 C_6$ 

**9.146** X-INVALID-ORDER-146  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_6 + s^2\left(C_3C_4R_1R_2R_3R_4R_6 + C_3C_5R_1R_2R_3R_5R_6 + C_4C_5R_1R_2R_4R_5R_6\right) + s\left(C_3R_1R_2R_3R_6 + C_4R_1R_2R_4R_6 + C_5R_1R_2R_5R_6\right)}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_3C_4R_1R_3R_4R_5 + C_3C_4R_2R_3R_4R_5 - C_4C_5R_2R_3R_4R_5\right) + s\left(C_3R_1R_3R_5 + C_4R_1R_4R_5 - C_4R_2R_3R_4 + C_4R_2R_3R_5 + C_4R_3R_3R_5 + C_4R$ 

**9.147** X-INVALID-ORDER-147  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_5s^3 + R_1R_2 + s^2\left(C_3C_4R_1R_2R_3R_4 + C_3C_5R_1R_2R_3R_5 + C_4C_5R_1R_2R_3 + C_4R_1R_2R_4 + C_5R_1R_2R_3 + C_4R_1R_2R_4 + C_5R_1R_2R_5\right)}{s^3\left(C_3C_4C_6R_1R_3R_4R_5 + C_3C_4C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 +$ 

**9.148** X-INVALID-ORDER-148  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_2 + s^3\left(C_3C_4C_5R_1R_2R_3R_4R_5 + C_3C_4C_6R_1R_2R_3R_4R_6 + C_3C_5C_6R_1R_2R_3R_5R_6 + C_4C_5C_6R_1R_2R_3R_4 + C_3C_5R_1R_2R_3R_5 + C_3C_6R_1R_2R_3R_6 + C_4C_5R_1R_2R_3R_6 + C_4C_5R_1R_2R_3R_6 + C_4C_6R_1R_2R_3R_6 + C_4C_5R_1R_2R_3R_6 + C_4C_5R_1R_$ 

**9.149** X-INVALID-ORDER-149  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_6 + s^2\left(C_3C_4R_1R_2R_3R_4R_6 + C_3C_5R_1R_2R_3R_5R_6 + C_4C_5R_2R_3R_4R_5 + C_3C_4R_2R_3R_4R_5 + C_3C_4R_3R_4R_5 + C_3C_$ 

**9.150** X-INVALID-ORDER-150  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s\left(C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 + C_4R_2R_3R_4R_5\right)}$$

**9.151** X-INVALID-ORDER-151 
$$Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_1 R_2 R_3 R_4 s + R_1 R_2 R_4}{s^2 \left(C_3 C_6 R_1 R_3 R_4 R_5 + C_3 C_6 R_2 R_3 R_4 R_5 + C_4 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$$

**9.152** X-INVALID-ORDER-152  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_6R_1R_2R_3R_4R_6s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_6R_1R_2R_4R_6\right)}{s^2\left(C_3C_6R_1R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.153** X-INVALID-ORDER-153  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s\left(C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4\right)}$$

**9.154** X-INVALID-ORDER-154  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

**9.155** X-INVALID-ORDER-155  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

**9.156** X-INVALID-ORDER-156  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5C_5R_1R_2R_3R_4R_6s^2 + C_5R_2R_3R_4R_6s^2 + C_5R_3R_4R_5R_6s^2 + C_5R_3R_4R_5R_6s^2 + C_5R_3R_4R_5R_6s^2 + C_5R_3R$$

**9.157** X-INVALID-ORDER-157  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + s\left(C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 + C_4R_2R_3R_4R_5 - C_5R_2R_3R_4R_5\right)}$$

**9.158** X-INVALID-ORDER-158  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5\right)}{s^2\left(C_3C_6R_1R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.159** X-INVALID-ORDER-159  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_4 + s^2\left(C_3C_5R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_6 + C_5C_6R_1R_2R_4R_5R_6\right) + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^2\left(C_3C_6R_1R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.160** X-INVALID-ORDER-160  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s \left(C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5\right)}$$

**9.161** X-INVALID-ORDER-161 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{R_1 R_4}{s^2 \left( C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 \right) + s \left( -C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5 \right)}$$

**9.162** X-INVALID-ORDER-162 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_6 R_1 R_4 R_6 s + R_1 R_4}{s^2 \left(C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$$

**9.163** X-INVALID-ORDER-163 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s \left(C_2 R_1 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4\right)}$$

**9.164** X-INVALID-ORDER-164 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s \left(C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 - C_5 C_6 R_3 R_4\right)}$$

**9.165** X-INVALID-ORDER-165 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 C_6 R_1 R_4 R_6 s + C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s \left(C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 - C_5 C_6 R_3 R_4\right)}$$

**9.166** X-INVALID-ORDER-166 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^3 \left(C_2 C_5 C_6 R_1 R_4 R_5 R_6 + C_2 C_5 C_6 R_3 R_4 R_5 R_6\right) + s^2 \left(C_2 C_5 R_1 R_4 R_5 + C_2 C_6 R_1 R_4 R_6 + C_2 C_6 R_3 R_4 R_6 + C_5 C_6 R_5 R_$$

**9.167** X-INVALID-ORDER-167  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_4 R_5 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s \left(C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 - C_5 R_3 R_4 R_5\right)}$$

**9.168** X-INVALID-ORDER-168  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_4 R_5 s + R_1 R_4}{s^2 \left(C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 - C_5 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$$

**9.169** X-INVALID-ORDER-169  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5C_6R_1R_4R_5R_6s^2 + R_1R_4 + s\left(C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{s^2\left(C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 - C_5C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$$

**9.170** X-INVALID-ORDER-170  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_6}{-R_3 + R_5 + s \left(C_2 R_1 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5\right)}$$

**9.171** X-INVALID-ORDER-171 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{R_1}{s^2 \left( C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 + C_4 C_6 R_3 R_5 \right) + s \left( -C_6 R_3 + C_6 R_5 \right)}$$

**9.172** X-INVALID-ORDER-172 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_6 R_1 R_6 s + R_1}{s^2 \left( C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 + C_4 C_6 R_3 R_5 \right) + s \left( -C_6 R_3 + C_6 R_5 \right)}$$

**9.173** X-INVALID-ORDER-173 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_6 s}{s (C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3) + 1}$$

**9.174** X-INVALID-ORDER-174 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1}{C_6 + s \left(C_2 C_6 R_1 + C_2 C_6 R_3 + C_4 C_6 R_3 - C_5 C_6 R_3\right)}$$

**9.175** X-INVALID-ORDER-175 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 C_6 R_1 R_6 s + C_5 R_1}{C_6 + s \left(C_2 C_6 R_1 + C_2 C_6 R_3 + C_4 C_6 R_3 - C_5 C_6 R_3\right)}$$

**9.176** X-INVALID-ORDER-176 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_1 R_6 s}{s^3 \left(C_2 C_5 C_6 R_1 R_5 R_6 + C_2 C_5 C_6 R_3 R_5 R_6 + C_4 C_5 C_6 R_3 R_5 R_6\right) + s^2 \left(C_2 C_5 R_1 R_5 + C_2 C_5 R_3 R_5 + C_2 C_6 R_1 R_6 + C_4 C_5 R_3 R_6 + C_4 C_5 R_3 R_6 + C_5 C_6 R_5 R_6 + C_$$

9.177 X-INVALID-ORDER-177 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_5 R_6 s + R_1 R_6}{-R_3 + R_5 + s \left(C_2 R_1 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5 - C_5 R_3 R_5\right)}$$

**9.178** X-INVALID-ORDER-178 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_5 s + R_1}{s^2 \left( C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 + C_4 C_6 R_3 R_5 - C_5 C_6 R_3 R_5 \right) + s \left( -C_6 R_3 + C_6 R_5 \right)}$$

**9.179** X-INVALID-ORDER-179 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_1R_5R_6s^2 + R_1 + s\left(C_5R_1R_5 + C_6R_1R_6\right)}{s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_4C_6R_3R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$$

**9.180** X-INVALID-ORDER-180 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_4 R_1 R_4 s + R_1}{s^3 \left(C_2 C_4 C_6 R_1 R_4 R_5 + C_2 C_4 C_6 R_3 R_4 R_5\right) + s^2 \left(C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 - C_4 C_6 R_3 R_4 + C_4 C_6 R_3 R_5 + C_4 C_6 R_4 R_5\right) + s \left(-C_6 R_3 + C_6 R_5\right)}$$

**9.181** X-INVALID-ORDER-181  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_6R_1R_4R_6s^2 + R_1 + s\left(C_4R_1R_4 + C_6R_1R_6\right)}{s^3\left(C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 - C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_4R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$$

**9.182** X-INVALID-ORDER-182  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_4 R_1 R_4 R_6 s + R_1 R_6}{-R_3 + R_5 + s^3 \left(C_2 C_4 C_6 R_1 R_4 R_5 R_6 + C_2 C_4 C_6 R_3 R_4 R_5 + C_2 C_4 R_3 R_4 R_5 + C_2 C_4 R_3 R_4 R_5 + C_2 C_6 R_1 R_5 R_6 + C_2 C_6 R_3 R_5 R_6 + C_4 C_6 R_5 R$ 

**9.183** X-INVALID-ORDER-183  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4R_6s^2 + C_5R_1R_6s}{s^3\left(C_2C_4C_6R_1R_4R_6 + C_2C_4C_6R_3R_4R_6 - C_4C_5C_6R_3R_4R_6\right) + s^2\left(C_2C_4R_1R_4 + C_2C_4R_3R_4 + C_2C_6R_1R_6 + C_2C_6R_3R_6 - C_4C_5R_3R_6 + C_4C_6R_3R_6 + C_4C_6R_3R_6\right) + s\left(C_2R_1 + C_2R_3 + C_4R_3 + C_4R_4 - C_5R_3 + C_6R_6\right) + 1}$ 

**9.184** X-INVALID-ORDER-184  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4R_6s^2 + C_5R_1R_6s}{s^3\left(C_2C_4C_5R_1R_4R_5 + C_2C_4C_5R_3R_4R_5\right) + s^2\left(C_2C_4R_1R_4 + C_2C_4R_3R_4 + C_2C_5R_1R_5 + C_2C_5R_3R_5 - C_4C_5R_3R_5 + C_4C_5R_3R_5 + C_4C_5R_4R_5\right) + s\left(C_2R_1 + C_2R_3 + C_4R_3 + C_4R_4 - C_5R_3 + C_5R_5\right) + 1}$ 

**9.185** X-INVALID-ORDER-185  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4s + C_5R_1}{C_6 + s^3\left(C_2C_4C_5C_6R_1R_4R_5 + C_2C_4C_5C_6R_3R_4 + C_2C_4C_6R_3R_4 + C_2C_5C_6R_3R_5 + C_4C_5C_6R_3R_5 + C_4C_5C_6R_5R_5 + C_4C_5C_6R_5 + C_4C_$ 

**9.186** X-INVALID-ORDER-186  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5C_6R_1R_4R_6s^2 + C_5R_1 + s\left(C_4C_5R_1R_4 + C_5C_6R_1R_6\right)}{C_6 + s^3\left(C_2C_4C_5C_6R_1R_4R_5 + C_2C_4C_5C_6R_3R_4 + C_2C_5C_6R_3R_5 + C_4C_5C_6R_3R_5 + C_4C_5C_6R_5 + C_4C_5C_5C_6R_5 + C_4C_5C_6R_5 + C_4C_5C_6R_5 + C_4C_5C_6R_5 + C_4C_5C$ 

9.187 X-INVALID-ORDER-187  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4R_6s^2 + C_5R_1R_4R_6s^2 + C_5R_1R_4R_6s^2$ 

**9.188** X-INVALID-ORDER-188  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4R_5s^2 + R_1 + s\left(C_4R_1R_4 + C_5R_1R_5\right)}{s^3\left(C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_3R_4R_5 - C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 - C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_4R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$ 

**9.189** X-INVALID-ORDER-189  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5C_6R_1R_4R_5R_6s^3 + R_1 + s^2\left(C_4C_5R_1R_4R_5 + C_4C_6R_1R_4R_6 + C_5C_6R_1R_5R_6\right) + s\left(C_4R_1R_4 + C_5R_1R_5 + C_6R_1R_6\right)}{s^3\left(C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_3R_4R_5 - C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 - C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_4R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$ 

**9.190** X-INVALID-ORDER-190  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4R_5R_6s^2 + R_1R_6 + s\left(C_4R_1R_4R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^3\left(C_2C_4C_6R_1R_4R_5R_6 + C_2C_4C_6R_3R_4R_5R_6 - C_4C_5C_6R_3R_4R_5R_6\right) + s\left(C_2C_4R_1R_4R_5 + C_2C_4R_3R_4R_5 + C_2C_6R_3R_5R_6 - C_4C_5R_3R_4R_5 - C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6\right) + s\left(C_2R_1R_5 + C_2C_4R_3R_4R_5 + C_2C_4R_3R_4R_5 + C_2C_4R_3R_4R_5 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6\right) + s\left(C_2R_1R_5 + C_2C_4R_3R_4R_5 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6\right) + s\left(C_2R_1R_5 + C_2C_4R_3R_4R_5 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6\right) + s\left(C_2R_1R_5 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6\right) + s\left(C_2R_1R_5 + C_4C_6R_5R_5R_5\right) + s\left(C_2R_1R_5 + C_4C_6R_5R_5R_5\right) + s\left(C_2R_1R_5 + C_4C_5R_5R_5\right) + s\left(C_2R_1R_5 + C_4C_5R_5R_5\right) + s\left(C_2R_1R_5 + C_4C_5R_5R_5\right) + s\left(C_2R_1R_5 + C_4C_5R_5R_5\right) + s$ 

**9.191** X-INVALID-ORDER-191 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s \left(C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 + C_4 R_3 R_4 R_5\right)}$$

**9.192** X-INVALID-ORDER-192 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{R_1 R_4}{s^2 \left( C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 + C_4 C_6 R_3 R_4 R_5 \right) + s \left( -C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5 \right)}$$

**9.193** X-INVALID-ORDER-193 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_6 R_1 R_4 R_6 s + R_1 R_4}{s^2 \left( C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 + C_4 C_6 R_3 R_4 R_5 \right) + s \left( -C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5 \right)}$$

**9.194** X-INVALID-ORDER-194 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s \left( C_2 R_1 R_4 + C_2 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4 \right)}$$

**9.195** X-INVALID-ORDER-195 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s \left(C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 + C_4 C_6 R_3 R_4 - C_5 C_6 R_3 R_4\right)}$$

**9.196** X-INVALID-ORDER-196 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 C_6 R_1 R_4 R_6 s + C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s \left(C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 + C_4 C_6 R_3 R_4 - C_5 C_6 R_3 R_4\right)}$$

**9.197** X-INVALID-ORDER-197 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^3 \left(C_2 C_5 C_6 R_1 R_4 R_5 R_6 + C_2 C_5 C_6 R_3 R_4 R_5 R_6 + C_4 C_5 C_6 R_3 R_4 R_5 + C_2 C_5 R_3 R_4 R_5 + C_2 C_6 R_3 R_4 R_6 + C_4 C_6 R_3 R_4 R_6 + C_5 C_6 R_5 R_6$$

**9.198** X-INVALID-ORDER-198  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_4 R_5 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s \left(C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 + C_4 R_3 R_4 R_5 - C_5 R_3 R_4 R_5\right)}$$

**9.199** X-INVALID-ORDER-199  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_4 R_5 s + R_1 R_4}{s^2 \left(C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 + C_4 C_6 R_3 R_4 R_5 - C_5 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$$

**9.200** X-INVALID-ORDER-200 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_1R_4R_5R_6s^2 + R_1R_4 + s\left(C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{s^2\left(C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 - C_5C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$$

**9.201** X-INVALID-ORDER-201 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_1 R_4 R_6 s}{C_2 C_3 C_6 R_1 R_4 R_5 R_6 s^3 - R_4 + R_5 + s^2 \left(C_2 C_3 R_1 R_4 R_5 + C_2 C_6 R_4 R_5 R_6 + C_3 C_6 R_4 R_5 R_6\right) + s \left(C_2 R_4 R_5 + C_3 R_4 R_5 - C_6 R_4 R_6 + C_6 R_5 R_6\right)}$$

**9.202** X-INVALID-ORDER-202  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{C_2C_3C_6R_1R_4R_6s^3 + s^2\left(C_2C_3R_1R_4 + C_2C_6R_4R_6 + C_3C_6R_4R_6 - C_5C_6R_4R_6\right) + s\left(C_2R_4 + C_3R_4 - C_5R_4 + C_6R_6\right) + 1}$$

**9.203** X-INVALID-ORDER-203  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{C_2C_3C_5R_1R_4R_5s^3 + s^2\left(C_2C_3R_1R_4 + C_2C_5R_4R_5 + C_3C_5R_4R_5\right) + s\left(C_2R_4 + C_3R_4 - C_5R_4 + C_5R_5\right) + 1}$$

**9.204** X-INVALID-ORDER-204  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4s}{C_2C_3C_5C_6R_1R_4R_5s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_4R_5\right) + s\left(C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4 + C_5C_6R_5\right)}$$

**9.205** X-INVALID-ORDER-205  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_2C_3C_5C_6R_1R_4R_5s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_4R_5\right) + s\left(C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4 + C_5C_6R_5\right)}$$

**9.206** X-INVALID-ORDER-206  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{C_2C_3C_5C_6R_1R_4R_5R_6s^4 + s^3\left(C_2C_3C_5R_1R_4R_5 + C_2C_3C_6R_1R_4R_6 + C_2C_5C_6R_4R_5R_6 + c_3C_5C_6R_4R_5 + c_2C_6R_4R_5 + c_3C_5R_4R_5 + c_3C_6R_4R_6 + c_3C_5R_4R_6 + c_3C_5R_4$$

**9.207** X-INVALID-ORDER-207  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{C_2C_3C_6R_1R_4R_5R_6s^3 - R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 + C_2C_6R_4R_5R_6 + C_3C_6R_4R_5R_6 - C_5C_6R_4R_5R_6\right) + s\left(C_2R_4R_5 + C_3R_4R_5 - C_5R_4R_5 - C_6R_4R_6 + C_6R_5R_6\right)}$$

**9.208** X-INVALID-ORDER-208  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3 R_1 R_6 s}{C_2 C_3 C_6 R_1 R_5 R_6 s^3 + s^2 \left(C_2 C_3 R_1 R_5 + C_2 C_6 R_5 R_6 + C_3 C_6 R_5 R_6 + C_4 C_6 R_5 R_6\right) + s \left(C_2 R_5 + C_3 R_5 + C_4 R_5 - C_6 R_6\right) - 1}$$

**9.209** X-INVALID-ORDER-209  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3 C_5 R_1 R_6 s}{C_2 C_3 R_1 s + C_2 + C_3 + C_4 - C_5}$$

**9.210** X-INVALID-ORDER-210  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 C_5 R_1}{C_2 C_3 C_6 R_1 s + C_2 C_6 + C_3 C_6 + C_4 C_6 - C_5 C_6}$$

**9.211** X-INVALID-ORDER-211  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_6s + C_3C_5R_1}{C_2C_3C_6R_1s + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6}$$

**9.212** X-INVALID-ORDER-212  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_6s}{C_2C_3C_5C_6R_1R_5R_6s^3 + C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_5R_1R_5 + C_2C_3C_6R_1R_6 + C_3C_5C_6R_5R_6 + C_4C_5C_6R_5R_6\right) + s\left(C_2C_3R_1 + C_2C_5R_5 + C_2C_6R_6 + C_3C_5R_5 + C_3C_6R_6 + C_4C_5R_5 + C_4C_6R_6 - C_5C_6R_6\right)}$ 

**9.213** X-INVALID-ORDER-213  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_5R_6s^2 + C_3R_1R_6s}{C_2C_3C_6R_1R_5R_6s^3 + s^2\left(C_2C_3R_1R_5 + C_2C_6R_5R_6 + C_3C_6R_5R_6 + C_4C_6R_5R_6 - C_5C_6R_5R_6\right) + s\left(C_2R_5 + C_3R_5 + C_4R_5 - C_5R_5 - C_6R_6\right) - 1}$$

**9.214** X-INVALID-ORDER-214  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3C_4R_1R_4R_6s^2 + C_3R_1R_6s}{C_2C_3C_4R_1R_4R_5s^3 + s^2\left(C_2C_3R_1R_5 + C_2C_4R_4R_5 + C_3C_4R_4R_5\right) + s\left(C_2R_5 + C_3R_5 - C_4R_4 + C_4R_5\right) - 1}$$

**9.215** X-INVALID-ORDER-215  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4R_1R_4s + C_3R_1}{C_2C_3C_4C_6R_1R_4R_5s^3 - C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_4C_6R_4R_5 + C_3C_4C_6R_4R_5\right) + s\left(C_2C_6R_5 + C_3C_6R_5 - C_4C_6R_4 + C_4C_6R_5\right)}$$

**9.216** X-INVALID-ORDER-216  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_6R_1R_4R_6s^2 + C_3R_1 + s\left(C_3C_4R_1R_4 + C_3C_6R_1R_6\right)}{C_2C_3C_4C_6R_1R_4R_5s^3 - C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_4C_6R_4R_5 + C_3C_4C_6R_4R_5\right) + s\left(C_2C_6R_5 + C_3C_6R_5 - C_4C_6R_4 + C_4C_6R_5\right)}$$

**9.217** X-INVALID-ORDER-217  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_4R_1R_4R_6s^2 + C_3R_1R_6s}{C_2C_3C_4C_6R_1R_4R_5R_6s^4 + s^3\left(C_2C_3C_4R_1R_4R_5 + C_2C_3C_6R_1R_5R_6 + C_3C_4C_6R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_5 + C_2C_4R_4R_5 + C_2C_6R_5R_6 + C_3C_4R_4R_5 + C_3C_6R_5R_6 + C_4C_6R_4R_6 + C_4C_6R_5R_6\right) + s\left(C_2R_5 + C_3R_5 - C_4R_4 + C_4R_5 - C_6R_6\right) - 1}{c_2C_3C_4C_6R_1R_4R_5R_6s^4 + s^3\left(C_2C_3C_4R_1R_4R_5 + C_2C_3C_6R_1R_5R_6 + C_3C_4C_6R_4R_5 + C_3C_4R_4R_5 + C_3C_6R_5R_6 + C_3C_4R_4R_5 + C_3C_6R_5R_6 + C_3C_4R_4R_5 + C_3C_6R_5R_6\right) + s\left(C_2R_5 + C_3R_5 - C_4R_4 + C_4R_5 - C_6R_5\right) - 1}{c_2C_3C_4C_6R_1R_4R_5R_6s^4 + s^3\left(C_2C_3C_4R_1R_4R_5 + C_2C_3C_6R_1R_5R_6 + C_3C_4C_6R_4R_5R_6\right) + s\left(C_2C_3R_1R_5 + C_3C_4R_4R_5 + C_3C_4R_5 +$$

**9.218** X-INVALID-ORDER-218  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2C_3C_4C_6R_1R_4R_6s^3 + C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_4R_1R_4 + C_2C_3C_6R_1R_6 + C_3C_4C_6R_4R_6 - C_4C_5C_6R_4R_6\right) + s\left(C_2C_3R_1 + C_2C_4R_4 + C_2C_6R_6 + C_3C_4R_4 + C_3C_6R_6 - C_4C_5R_4 + C_4C_6R_6 - C_5C_6R_6\right)}$$

**9.219** X-INVALID-ORDER-219  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2C_3C_4C_5R_1R_4R_5s^3 + C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_4R_1R_4 + C_2C_3C_5R_1R_5 + C_2C_4C_5R_4R_5\right) + s\left(C_2C_3R_1 + C_2C_4R_4 + C_2C_5R_5 + C_3C_4R_4 + C_3C_5R_5 - C_4C_5R_4 + C_4C_5R_5\right)}{c_3C_4C_5R_1R_4R_5s^3 + C_2 + C_3 + C_4C_5R_4 + C_4C_5R_5 + C_3C_4C_5R_4R_5 + C_3C_4R_4 + C_3C_5R_5 + C_3C_4R_5 + C_3C_5R_5 + C_$$

**9.220** X-INVALID-ORDER-220  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_4s + C_3C_5R_1}{C_2C_3C_4C_5C_6R_1R_4R_5s^3 + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_1R_4 + C_2C_3C_5C_6R_1R_5 + C_2C_4C_5C_6R_4R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_4C_6R_4 + C_2C_5C_6R_5 + C_3C_4C_6R_4 + C_3C_5C_6R_5 + C_3C_4C_6R_4 + C_4C_5C_6R_5\right)}$$

**9.221** X-INVALID-ORDER-221  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_4R_6s^2 + C_3C_5R_1 + s\left(C_3C_4C_5R_1R_4 + C_3C_5C_6R_1R_6\right)}{C_2C_3C_4C_5C_6R_1R_4R_5s^3 + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_1R_4 + C_2C_3C_5C_6R_1R_5 + C_3C_4C_5C_6R_4R_5\right) + s\left(C_2C_3C_4C_6R_4 + C_2C_5C_6R_5 + C_3C_4C_6R_4 + C_3C_5C_6R_5 + C_3C_4C_5C_6R_4 + C_4C_5C_6R_5\right)}$ 

**9.222** X-INVALID-ORDER-222  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2C_3C_4C_5R_1R_4R_5R_6s^4 + C_2 + C_3 + C_4 - C_5 + s^3\left(C_2C_3C_4C_5R_1R_4R_5 + C_2C_3C_5C_6R_1R_5R_6 + C_2C_4C_5R_4R_5R_6\right) + s^2\left(C_2C_3C_4R_1R_4 + C_2C_3C_5R_1R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_5R_5 + C_2C_4C_5R_5R_5 + C_2C_4C_5R_5R_5 + C_2C_4C_5R_5R_5 + C_2C$ 

**9.223** X-INVALID-ORDER-223  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_4R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_3C_4R_1R_4R_6 + C_3C_5R_1R_5R_6\right)}{C_2C_3C_4R_1R_4R_5s^3 + s^2\left(C_2C_3R_1R_5 + C_2C_4R_4R_5 + C_3C_4R_4R_5 - C_4C_5R_4R_5\right) + s\left(C_2R_5 + C_3R_5 - C_4R_4 + C_4R_5 - C_5R_5\right) - 1}$$

**9.224** X-INVALID-ORDER-224  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_1R_4R_5s^2 + C_3R_1 + s\left(C_3C_4R_1R_4 + C_3C_5R_1R_5\right)}{C_2C_3C_4C_6R_1R_4R_5s^3 - C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_4C_6R_4R_5 + C_3C_4C_6R_4R_5 - C_4C_5C_6R_4R_5\right) + s\left(C_2C_6R_5 + C_3C_6R_5 - C_4C_6R_4 + C_4C_6R_5 - C_5C_6R_5\right)}$$

**9.225** X-INVALID-ORDER-225  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_1R_4R_5R_6s^3 + C_3R_1 + s^2\left(C_3C_4C_5R_1R_4R_5 + C_3C_4C_6R_1R_4R_6 + C_3C_5C_6R_1R_5R_6\right) + s\left(C_3C_4R_1R_4 + C_3C_5R_1R_5 + C_3C_6R_1R_6\right)}{C_2C_3C_4C_6R_1R_4R_5s^3 - C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_4C_6R_4R_5 + C_3C_4C_6R_4R_5 - C_4C_5C_6R_4R_5\right) + s\left(C_2C_6R_5 + C_3C_6R_5 - C_4C_6R_4 + C_4C_6R_5 - C_5C_6R_5\right)}$$

**9.226** X-INVALID-ORDER-226  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$C_3C_4C_5R_1R_4R_5R_6s^3 + C_3R_1R_6s + s^2(C_3C_4R_1R_4R_6 + C_3C_5R_1R_5R_6)$$

 $H(s) = \frac{C_3C_4C_5R_1R_4R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_3C_4R_1R_4R_6 + C_3C_5R_1R_5R_6\right)}{C_2C_3C_4C_6R_1R_4R_5R_6s^4 + s^3\left(C_2C_3C_4R_1R_4R_5 + C_2C_3C_6R_1R_5R_6 + C_3C_4C_6R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_5 + C_2C_4R_4R_5 + C_3C_6R_5R_6 + C_3C_4R_4R_5 + C_3C_6R_5R_6 - C_4C_5R_4R_5 + C_3C_6R_5R_6\right) + s^2\left(C_3C_4R_1R_4R_5 + C_3C_6R_5R_6 + C_3C_6R_$ 

**9.227** X-INVALID-ORDER-227  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3 R_1 R_4 R_6 s}{C_2 C_3 C_6 R_1 R_4 R_5 R_6 s^3 - R_4 + R_5 + s^2 \left(C_2 C_3 R_1 R_4 R_5 + C_2 C_6 R_4 R_5 R_6 + C_3 C_6 R_4 R_5 R_6 + C_4 C_6 R_4 R_5 R_6\right) + s \left(C_2 R_4 R_5 + C_3 R_4 R_5 + C_4 R_4 R_5 - C_6 R_4 R_6 + C_6 R_5 R_6\right)}{C_3 R_1 R_4 R_5 R_6 s^3 - R_4 + R_5 + s^2 \left(C_2 C_3 R_1 R_4 R_5 + C_2 C_6 R_4 R_5 R_6 + C_4 C_6 R_4 R_5 R_6\right) + s \left(C_2 R_4 R_5 + C_3 R_4 R_5 + C_4 R_4 R_5 - C_6 R_4 R_6 + C_6 R_5 R_6\right)}$$

**9.228** X-INVALID-ORDER-228  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{C_2C_3C_6R_1R_4R_6s^3 + s^2\left(C_2C_3R_1R_4 + C_2C_6R_4R_6 + C_3C_6R_4R_6 + C_4C_6R_4R_6 - C_5C_6R_4R_6\right) + s\left(C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4 + C_6R_6\right) + 1}$$

**9.229** X-INVALID-ORDER-229  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4R_6s^2}{C_2C_3C_5R_1R_4R_5s^3 + s^2\left(C_2C_3R_1R_4 + C_2C_5R_4R_5 + C_3C_5R_4R_5 + C_4C_5R_4R_5\right) + s\left(C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4 + C_5R_5\right) + 1}$$

**9.230** X-INVALID-ORDER-230  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_4s}{C_2C_3C_5C_6R_1R_4R_5s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_4R_5 + C_4C_5C_6R_4R_5\right) + s\left(C_2C_6R_4 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4 + C_5C_6R_5\right)}$$

**9.231** X-INVALID-ORDER-231  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_2C_3C_5C_6R_1R_4R_5s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_4R_5 + C_4C_5C_6R_4R_5\right) + s\left(C_2C_6R_4 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4 + C_5C_6R_5\right)}$ **9.232** X-INVALID-ORDER-232  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{C_2C_3C_5C_6R_1R_4R_5R_6s^4 + s^3\left(C_2C_3C_5R_1R_4R_5 + C_2C_3C_6R_4R_5R_6 + C_3C_5C_6R_4R_5R_6 + C_4C_5C_6R_4R_5 + C_4C_5R_4R_5 + C_4C_5R_4$ **9.233** X-INVALID-ORDER-233  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{C_2C_3C_6R_1R_4R_5R_6s^3 - R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 + C_2C_6R_4R_5R_6 + C_3C_6R_4R_5R_6 + C_4C_6R_4R_5R_6\right) + s\left(C_2R_4R_5 + C_3R_4R_5 + C_4R_4R_5 - C_5R_4R_5 - C_6R_4R_6 + C_6R_5R_6\right)}$ **9.234** X-INVALID-ORDER-234  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_3 R_1 R_4 R_6 s}{-R_4 + R_5 + s^3 \left(C_2 C_3 C_6 R_1 R_4 R_5 R_6 + C_2 C_3 C_6 R_3 R_4 R_5 R_6\right) + s^2 \left(C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 + C_2 C_6 R_4 R_5 R_6 - C_3 C_6 R_3 R_4 R_6 + C_3 C_6 R_3 R_5 R_6 + C_3 C_6 R_4 R_5 R_6\right) + s \left(C_2 R_4 R_5 - C_3 R_3 R_4 + C_3 R_3 R_5 + C_3 R_4 R_5 - C_6 R_4 R_6 + C_6 R_5 R_6\right)}$ **9.235** X-INVALID-ORDER-235  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_6R_1R_4R_6 + C_2C_3C_6R_3R_4R_6 - C_3C_5C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_3R_4 + C_2C_6R_4R_6 - C_3C_5R_3R_4 + C_3C_6R_4R_6 - C_5C_6R_4R_6\right) + s\left(C_2R_4 + C_3R_3 + C_3R_4 + C_5R_4 + C_6R_6\right) + 1}$ **9.236** X-INVALID-ORDER-236  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_5R_1R_4R_5 + C_2C_3C_5R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_3R_4 + C_2C_5R_4R_5 - C_3C_5R_3R_4 + C_3C_5R_3R_5 + C_3C_5R_4R_5\right) + s\left(C_2R_4 + C_3R_3 + C_3R_4 + C_5R_4 + C_5R_5\right) + 1}$ 

9.237 X-INVALID-ORDER-237  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4s}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_3R_4R_5\right) + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_3R_4 + C_2C_5C_6R_4R_5 - C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_5 + C_3C_5C_6R_4R_5\right) + s\left(C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 + C_5C_6R_4 + C_5C_6R_4 + C_5C_6R_5\right)}$ 

**9.238** X-INVALID-ORDER-238  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_3R_4 + C_2C_3C_6R_3R_4 + C_2C_5C_6R_4R_5 - C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_5 + C_3C_5C_6R_4R_5\right) + s\left(C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 + C_5C_6R_4 + C_5C_6R_4$ 

**9.239** X-INVALID-ORDER-239  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.240** X-INVALID-ORDER-240  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_5s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_3R_4R_5R_6 - C_3C_5C_6R_3R_4R_5R_6 + C_2C_3R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_3R_5R_6 + C_3C_6R_4R_5R_6 - C_3C_6R_4R_5R_6 + C_3C_6R_4R_5R_6$ 

**9.241** X-INVALID-ORDER-241  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_6 s}{s^3 \left(C_2 C_3 C_6 R_1 R_5 R_6 + C_2 C_3 C_6 R_3 R_5 R_6 + C_3 C_4 C_6 R_3 R_5 R_6\right) + s^2 \left(C_2 C_3 R_1 R_5 + C_2 C_3 R_3 R_5 + C_2 C_6 R_5 R_6 + C_3 C_4 R_3 R_5 - C_3 C_6 R_3 R_6 + C_4 C_6 R_5 R_6\right) + s \left(C_2 R_5 - C_3 R_3 + C_3 R_5 + C_4 R_5 - C_6 R_6\right) - 1}$ 

**9.242** X-INVALID-ORDER-242  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s\left(C_2C_3R_1 + C_2C_3R_3 + C_3C_4R_3 - C_3C_5R_3\right)}$$

**9.243** X-INVALID-ORDER-243  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_3C_4C_6R_3 - C_3C_5C_6R_3\right)}$$

**9.244** X-INVALID-ORDER-244  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_6s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_3C_4C_6R_3 - C_3C_5C_6R_3\right)}$$

**9.245** X-INVALID-ORDER-245  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_2C_3C_5C_6R_1R_5R_6 + C_2C_3C_5C_6R_3R_5R_6 + C_3C_4C_5R_3R_5 + C_2C_3C_5R_3R_5 + C_2C_3C_6R_3R_6 + C_2C_3C_6R_3R_6 + C_3C_5C_6R_3R_6 + C_3C_5C_6R_3R_5R_6 + C_3C_5C_6R_3R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_5C_6R_5R_5 + C_3C_5C_5C_6R_5R_5 + C_3C_5C_5C_5R_5R_5 + C_3C_5C_5C_5R_5R_5 + C_3C_$$

**9.246** X-INVALID-ORDER-246  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_5R_6s^2 + C_3R_1R_6s}{s^3\left(C_2C_3C_6R_1R_5R_6 + C_2C_3C_6R_3R_5R_6 + C_3C_4C_6R_3R_5R_6 - C_3C_5C_6R_3R_5R_6\right) + s^2\left(C_2C_3R_1R_5 + C_2C_3R_3R_5 + C_2C_6R_5R_6 + C_3C_4R_3R_5 - C_3C_6R_3R_6 + C_3C_6R_5R_6 + C_4C_6R_5R_6 - C_5C_6R_5R_6\right) + s\left(C_2R_5 - C_3R_3 + C_3R_5 + C_4R_5 - C_5R_5 - C_6R_6\right)}$$

**9.247** X-INVALID-ORDER-247  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3C_4R_1R_4R_6s^2 + C_3R_1R_6s}{s^3\left(C_2C_3C_4R_1R_4R_5 + C_2C_3C_4R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_5 + C_2C_3R_3R_5 + C_2C_4R_4R_5 - C_3C_4R_3R_4 + C_3C_4R_3R_5 + C_3C_4R_4R_5\right) + s\left(C_2R_5 - C_3R_3 + C_3R_5 - C_4R_4 + C_4R_5\right) - 1}$$

**9.248** X-INVALID-ORDER-248  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4R_1R_4s + C_3R_1}{-C_6 + s^3\left(C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_2C_4C_6R_4R_5 - C_3C_4C_6R_3R_4 + C_3C_4C_6R_3R_5 + C_3C_4C_6R_4R_5\right) + s\left(C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 - C_4C_6R_4 + C_4C_6R_5\right)}$$

**9.249** X-INVALID-ORDER-249  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_6R_1R_4R_6s^2 + C_3R_1 + s\left(C_3C_4R_1R_4 + C_3C_6R_1R_6\right)}{-C_6 + s^3\left(C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_2C_4C_6R_4R_5 - C_3C_4C_6R_3R_4 + C_3C_4C_6R_3R_5 + C_3C_4C_6R_5 +$$

9.250 X-INVALID-ORDER-250  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

```
9.251 X-INVALID-ORDER-251 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_2C_3C_4C_6R_1R_4R_6 + C_2C_3C_4C_6R_3R_4R_6 - C_3C_4C_5R_3R_4 + C_2C_3C_6R_3R_6 + C_2C_4C_6R_3R_6 + C_3C_4C_6R_3R_6 + C_3C_4C_6R_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s
9.252 X-INVALID-ORDER-252 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_2 + C_3 + C_4 + C_5 + s^3\left(C_2C_3C_4C_5R_1R_4R_5 + C_2C_3C_4C_5R_3R_4 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_3R_5 + C_2C_4C_5R_3R_5 + C_3C_4C_5R_3R_5 + C_3C_4C_5R_5R_5 + C_3C_5C_5R_5 + C_3C_5C_5C_5R_5 + C_3C_5C_5C_5C_5R_5 + C_3C_5C_5C_
9.253 X-INVALID-ORDER-253 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
9.254 X-INVALID-ORDER-254 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
9.255 X-INVALID-ORDER-255 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.256 X-INVALID-ORDER-256 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                           H(s) = \frac{C_3C_4C_5R_1R_4R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_3C_4R_1R_4R_6 + C_3C_5R_1R_5R_6\right)}{s^3\left(C_2C_3C_4R_1R_4R_5 + C_2C_3C_4R_3R_4R_5 - C_3C_4R_3R_4R_5 + C_2C_3R_3R_5 + C_2C_4R_4R_5 - C_3C_4R_3R_4 + C_3C_4R_3R_5 + C_3C_4R_4R_5 + C_3C_5R_3R_5 - C_4C_5R_4R_5\right) + s\left(C_2R_5 - C_3R_3 + C_3R_5 - C_4R_4 + C_4R_5 - C_5R_5\right) - 1}
9.257 X-INVALID-ORDER-257 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5R_1R_4R_5s^2 + C_3R_1 + s\left(C_3C_4R_1R_4 + C_3C_5R_1R_5\right)}{-C_6 + s^3\left(C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_2C_4C_6R_4R_5 - C_3C_4C_6R_3R_5 + C_3C_4C_6R_5 + C_3C_4C_5C_6R_5 + C_3C_4C_5C_6R_5 + C_3C_4C_5C_6R_5 + C_3C_5C_6R_5 + C_3C_5C_6R_5 + C_3C_5C_6R_5 + C_3C_
9.258 X-INVALID-ORDER-258 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_4C_5C_6R_1R_4R_5R_6s^3 + C_3R_1 + s^2\left(C_3C_4C_5R_1R_4R_5 + C_3C_4C_6R_1R_4R_6 + C_3C_5C_6R_1R_5R_6\right) + s\left(C_3C_4R_1R_4 + C_3C_5R_1R_5 + C_3C_4R_1R_6\right)}{-C_6 + s^3\left(C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_3C_6R_1R_5 + C_2C_4C_6R_4R_5 - C_3C_4C_6R_3R_4 + C_3C_4C_6R_3R_5 + C_3C_4C_6R_5 + C_3C_4C_6R_5 + C_3C_4C_6R_5 + C_3C_4C_6R_5 + C_3C_4C_6R_5 + C_3C_4C_6R_5 + C_3C_4C_5C_6R_5 + C_3C_4C_5C_6R_5 + C_3C_5C_6R_5 + C_3C_5C_6R_5 + C_3C_5C_6R_5 + C_3C_5C_6R_5 + C_3C$ 

**9.259** X-INVALID-ORDER-259  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4R_5R_6}{s^4\left(C_2C_3C_4C_6R_1R_4R_5R_6 + C_2C_3C_4C_6R_3R_4R_5R_6 - C_3C_4C_5C_6R_3R_4R_5R_6 + C_2C_3C_4R_3R_4R_5 + C_2C_3C_6R_3R_5R_6 + C_2C_3C_6R_3R_5R_6 + C_2C_3C_6R_3R_5R_6 + C_2C_3C_6R_3R_4R_5 - C_3C_4C_6R_3R_4R_5 - C_3C_4C_6R_4R_5R_5 - C_3C_4C_6R_4R_5 - C_3C_4C_6R_4R_5 - C_3C_4C_6R_4R_5 - C_3$ 

**9.260** X-INVALID-ORDER-260  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_3R_4R_5R_6 + C_3C_4C_6R_3R_4R_5R_6 + C_3C_6R_4R_5R_6 + C_3C_6R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C$ 

```
9.261 X-INVALID-ORDER-261 Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_6R_1R_4R_6 + C_2C_3C_6R_3R_4R_6 + C_3C_4C_6R_3R_4R_6 - C_3C_5C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_3R_4 + C_2C_6R_4R_6 + C_3C_6R_3R_6 + C_3C_6R_4R_6 + C_4C_6R_4R_6 - C_5C_6R_4R_6\right) + s\left(C_2R_4 + C_3R_3 + C_4R_4 + C_4R_4 - C_5R_4 + C_6R_4R_6\right) + s\left(C_2R_4 + C_3R_3 + C_4R_4 + C_4R_4 - C_5R_4 + C_4R_4 + C_4R_4 - C_5R_4 + C_4R_4 + C$ 

**9.262** X-INVALID-ORDER-262  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_5R_1R_4R_5 + C_2C_3C_5R_3R_4R_5 + C_3C_4C_5R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_3R_4 + C_2C_5R_4R_5 + C_3C_5R_3R_4 + C_3C_5R_3R_5 + C_3C_5R_4R_5 + C_4C_5R_4R_5\right) + s\left(C_2R_4 + C_3R_3 + C_3R_4 + C_4R_4 - C_5R_4 + C_5R_5\right) + 1}$ 

**9.263** X-INVALID-ORDER-263  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.264** X-INVALID-ORDER-264  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_3R_4R_5 + C_3C_4C_5C_6R_3R_4 + C_2C_3C_6R_3R_4 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_4R_5 + C_3C_5C_6R_5R_5 + C_3C_5C_6R_5R_5 + C_3C_5C_6R_5 + C_3C_5C_6R_$ 

9.265 X-INVALID-ORDER-265  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_2 C_3 C_5 C_6 R_1 R_4 R_5 R_6 + C_2 C_3 C_5 C_6 R_3 R_4 R_5 R_6 + C_3 C_4 C_5 C_6 R_3 R_4 R_5 R_6 + C_3 C_5 C_6 R_3 R_4 R_5 + C_2 C_3 C_5 R_3 R_4 R_5 + C_2 C_3 C_5 R_3 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_6 + C_2 C_3 C_6 R_3 R_4 R_5 + C_3 C_4 C_5 R_3 R_4 R_5 + C_3 C_5 C_6 R_5 R_5 + C_3 C_5 C_6 R_5 R_5 + C_3 C_5 C_6 R_5 R_5 + C_5$ 

**9.266** X-INVALID-ORDER-266  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_5s}{-R_4 + R_5 + s^3\left(C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_3R_4R_5R_6 + C_3C_4C_6R_3R_4R_5R_6 + C_3C_6R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_5R_5 + C$ 

**9.267** X-INVALID-ORDER-267  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_3 R_4 s + R_1 R_4}{C_2 C_3 C_6 R_1 R_3 R_4 R_5 s^3 + s^2 \left(C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 + C_3 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$ 

**9.268** X-INVALID-ORDER-268  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_3R_4R_6s^2 + R_1R_4 + s\left(C_3R_1R_3R_4 + C_6R_1R_4R_6\right)}{C_2C_3C_6R_1R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$ 

**9.269** X-INVALID-ORDER-269  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_3 R_4 R_6 s + R_1 R_4 R_6}{C_2 C_3 C_6 R_1 R_3 R_4 R_5 R_6 s^3 - R_3 R_4 + R_3 R_5 + R_4 R_5 + s^2 \left(C_2 C_3 R_1 R_3 R_4 R_5 R_6 + C_2 C_6 R_3 R_4 R_5 R_6 + C_3 C_6 R_3 R_4 R_5 R_6\right) + s \left(C_2 R_1 R_4 R_5 + C_2 R_3 R_4 R_5 + C_3 R_3 R_4 R_5 - C_6 R_3 R_4 R_6 + C_6 R_3 R_5 R_6 + C_6 R_4 R_5 R_6\right)}$ 

9.270 X-INVALID-ORDER-270  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_3C_6R_1R_3R_4R_6s^3 + R_3 + R_4 + s^2\left(C_2C_3R_1R_3R_4 + C_2C_6R_1R_4R_6 + C_2C_6R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4 + C_2R_3R_4 + C_3R_3R_4 + C_5R_3R_4 + C_6R_3R_6 + C_6R_4R_6\right)}$ 

**9.271** X-INVALID-ORDER-271  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_3C_5R_1R_3R_4R_5s^3 + R_3 + R_4 + s^2\left(C_2C_3R_1R_3R_4 + C_2C_5R_1R_4R_5 + C_2C_5R_3R_4R_5 + C_3C_5R_3R_4R_5\right) + s\left(C_2R_1R_4 + C_2R_3R_4 + C_3R_3R_4 - C_5R_3R_4 + C_5R_3R_5 + C_5R_4R_5\right)}$$

**9.272** X-INVALID-ORDER-272  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_4s + C_5R_1R_4}{C_2C_3C_5C_6R_1R_3R_4R_5s^3 + C_6R_3 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_3R_4 + C_2C_5C_6R_1R_4R_5 + C_2C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3$$

**9.273** X-INVALID-ORDER-273  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_3R_4R_6s^2 + C_5R_1R_4 + s\left(C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_2C_3C_5C_6R_1R_3R_4R_5s^3 + C_6R_3 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_3R_4 + C_2C_5C_6R_1R_4R_5 + C_2C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_$$

9.274 X-INVALID-ORDER-274  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_3C_5C_6R_1R_3R_4R_5R_6s^4 + R_3 + R_4 + s^3\left(C_2C_3C_5R_1R_3R_4R_5 + C_2C_5C_6R_1R_4R_5R_6 + C_2C_5C_6R_3R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_3R_4 + C_2C_5R_1R_4R_5 + C_2C_5R_3R_4R_5 + C_2C_6R_3R_4R_5 + C_2C_6R_3R_4R$$

**9.275** X-INVALID-ORDER-275  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_4R_5s^2 + R_1R_4 + s\left(C_3R_1R_3R_4 + C_5R_1R_4R_5\right)}{C_2C_3C_6R_1R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 - C_5C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$$

9.276 X-INVALID-ORDER-276  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_3R_4R_5R_6s^3 + R_1R_4 + s^2\left(C_3C_5R_1R_3R_4R_5 + C_3C_6R_1R_3R_4R_6 + C_5C_6R_1R_4R_5R_6\right) + s\left(C_3R_1R_3R_4 + C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{C_2C_3C_6R_1R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 - C_5C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$$

**9.277** X-INVALID-ORDER-277  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_6 + C_5R_1R_4R_5R_6\right)}{C_2C_3C_6R_1R_3R_4R_5R_6s^3 - R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_6R_1R_4R_5R_6 + C_3C_6R_3R_4R_5R_6 + C_5C_6R_3R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5 + C_3R_3R_4R_5$$

**9.278** X-INVALID-ORDER-278  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_1 R_3 s + R_1}{C_2 C_3 C_6 R_1 R_3 R_5 s^3 + s^2 \left(C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 + C_3 C_6 R_3 R_5 + C_4 C_6 R_3 R_5\right) + s \left(-C_6 R_3 + C_6 R_5\right)}$$

9.279 X-INVALID-ORDER-279  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_1R_3R_6s^2 + R_1 + s\left(C_3R_1R_3 + C_6R_1R_6\right)}{C_2C_3C_6R_1R_3R_5s^3 + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$$

**9.280** X-INVALID-ORDER-280  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3R_1R_3R_6s + R_1R_6}{C_2C_3C_6R_1R_3R_5R_6s^3 - R_3 + R_5 + s^2\left(C_2C_3R_1R_3R_5 + C_2C_6R_1R_5R_6 + C_2C_6R_3R_5R_6 + C_4C_6R_3R_5R_6\right) + s\left(C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5 - C_6R_3R_6 + C_6R_5R_6\right)}$$

**9.281** X-INVALID-ORDER-281  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_6s^2 + C_5R_1R_6s}{C_2C_3C_6R_1R_3R_6s^3 + s^2\left(C_2C_3R_1R_3 + C_2C_6R_1R_6 + C_2C_6R_3R_6 + C_3C_6R_3R_6 + C_4C_6R_3R_6 - C_5C_6R_3R_6\right) + s\left(C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3 + C_6R_6\right) + 1}$$

**9.282** X-INVALID-ORDER-282  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_6s^2 + C_5R_1R_6s}{C_2C_3C_5R_1R_3R_5s^3 + s^2\left(C_2C_3R_1R_3 + C_2C_5R_1R_5 + C_2C_5R_3R_5 + C_3C_5R_3R_5 + C_4C_5R_3R_5\right) + s\left(C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3 + C_5R_5\right) + 1}$$

**9.283** X-INVALID-ORDER-283  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3s + C_5R_1}{C_2C_3C_5C_6R_1R_3R_5s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_3 + C_2C_5C_6R_1R_5 + C_2C_5C_6R_3R_5 + C_4C_5C_6R_3R_5\right) + s\left(C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 - C_5C_6R_3 + C_5C_6R_3\right)}$$

**9.284** X-INVALID-ORDER-284  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_3R_6s^2 + C_5R_1 + s\left(C_3C_5R_1R_3 + C_5C_6R_1R_6\right)}{C_2C_3C_5C_6R_1R_3R_5s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_3 + C_2C_5C_6R_1R_5 + C_2C_5C_6R_3R_5 + C_3C_5C_6R_3R_5 + C_4C_5C_6R_3R_5\right) + s\left(C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 - C_5C_6R_3 + C_5C_6R_5\right)}$$

**9.285** X-INVALID-ORDER-285  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_6s^2 + C_5R_1R_6s}{C_2C_3C_5C_6R_1R_3R_5R_6s^4 + s^3\left(C_2C_3C_5R_1R_3R_5 + C_2C_5C_6R_1R_3R_6 + C_2C_5C_6R_3R_5R_6 + C_4C_5C_6R_3R_5R_6\right) + s^2\left(C_2C_3R_1R_3 + C_2C_5R_1R_5 + C_2C_6R_3R_6 + C_3C_5R_3R_5 + C_3C_6R_3R_6 + C_4C_5R_3R_5 + C_4C_5R_5R_5 + C$$

**9.286** X-INVALID-ORDER-286  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_5s^2 + R_1 + s\left(C_3R_1R_3 + C_5R_1R_5\right)}{C_2C_3C_6R_1R_3R_5s^3 + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$$

9.287 X-INVALID-ORDER-287  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_3R_5R_6s^3 + R_1 + s^2\left(C_3C_5R_1R_3R_5 + C_3C_6R_1R_3R_6 + C_5C_6R_1R_5R_6\right) + s\left(C_3R_1R_3 + C_5R_1R_5 + C_6R_1R_6\right)}{C_2C_3C_6R_1R_3R_5s^3 + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$$

**9.288** X-INVALID-ORDER-288  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_5R_6s^2 + R_1R_6 + s\left(C_3R_1R_3R_6 + C_5R_1R_5R_6\right)}{C_2C_3C_6R_1R_3R_5R_6s^3 - R_3 + R_5 + s^2\left(C_2C_3R_1R_3R_5 + C_2C_6R_1R_5R_6 + C_3C_6R_3R_5R_6 + C_4C_6R_3R_5R_6 + C_4C_6R_3R_5R_6\right) + s\left(C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5 - C_5R_3R_5 - C_6R_3R_6 + C_6R_5R_6\right)}$$

**9.289** X-INVALID-ORDER-289  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3C_4R_1R_3R_4R_6s^2 + R_1R_6 + s\left(C_3R_1R_3R_6 + C_4R_1R_4R_6\right)}{C_2C_3C_4R_1R_3R_4R_5s^3 - R_3 + R_5 + s^2\left(C_2C_3R_1R_3R_5 + C_2C_4R_1R_4R_5 + C_2C_4R_3R_4R_5 + C_3C_4R_3R_4R_5\right) + s\left(C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 - C_4R_3R_4 + C_4R_3R_5 + C_4R_4R_5\right)}$$

**9.290** X-INVALID-ORDER-290  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4R_1R_3R_4s^2 + R_1 + s\left(C_3R_1R_3 + C_4R_1R_4\right)}{C_2C_3C_4C_6R_1R_3R_4R_5s^4 + s^3\left(C_2C_3C_6R_1R_3R_5 + C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5\right) + s^2\left(C_3C_4C_6R_1R_3R_4R_5s^4 + s^3\left(C_2C_3C_6R_1R_3R_5 + C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5\right) + s^2\left(C_3C_6R_1R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5\right) + s^2\left(C_3C_6R_1R_5 + C_4C_6R_3R_5 + C_4C_6R_5 +$$

```
9.291 X-INVALID-ORDER-291 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                    H(s) = \frac{C_3C_4C_6R_1R_3R_4R_6s^3 + R_1 + s^2\left(C_3C_4R_1R_3R_4 + C_3C_6R_1R_3R_6 + C_4C_6R_1R_4R_6\right) + s\left(C_3R_1R_3 + C_4R_1R_4 + C_6R_1R_6\right)}{C_2C_3C_4C_6R_1R_3R_4R_5s^4 + s^3\left(C_2C_3C_6R_1R_3R_5 + C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5\right) + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5\right)}
9.292 X-INVALID-ORDER-292 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_3C_4R_1R_3R_4R_6s^2 + R_1R_6 + s\left(C_3R_1R_3R_6 + C_4R_1R_4R_6\right)}{C_2C_3C_4C_6R_1R_3R_4R_5R_6s^4 - R_3 + R_5 + s^3\left(C_2C_3C_4R_1R_3R_4R_5 + C_2C_4C_6R_1R_4R_5R_6 + C_2C_4C_6R_3R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_3R_5 + C_2C_4R_3R_4R_5 + C_2
9.293 X-INVALID-ORDER-293 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                H(s) = \frac{C_3C_4C_5R_1R_3R_4R_6s^3 + C_5R_1R_6s + s^2\left(C_3C_5R_1R_3R_6 + C_4C_5R_1R_4R_6\right)}{C_2C_3C_4R_1R_3R_4s^3 + s^2\left(C_2C_3R_1R_3 + C_2C_4R_1R_4 + C_2C_4R_3R_4 + C_3C_4R_3R_4 - C_4C_5R_3R_4\right) + s\left(C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3 + C_4R_4 - C_5R_3\right) + 1}
9.294 X-INVALID-ORDER-294 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                 H(s) = \frac{C_3C_4C_5R_1R_3R_4s^2 + C_5R_1 + s\left(C_3C_5R_1R_3 + C_4C_5R_1R_4\right)}{C_2C_3C_4C_6R_1R_3R_4s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_3 + C_2C_4C_6R_1R_4 + C_2C_4C_6R_3R_4 + C_3C_4C_6R_3R_4 - C_4C_5C_6R_3R_4\right) + s\left(C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 + C_4C_6R_4 - C_5C_6R_3\right)}
9.295 X-INVALID-ORDER-295 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                H(s) = \frac{C_3C_4C_5C_6R_1R_3R_4R_6s^3 + C_5R_1 + s^2\left(C_3C_4C_5R_1R_3R_4 + C_3C_5C_6R_1R_3R_6 + C_4C_5C_6R_1R_4R_6\right) + s\left(C_3C_5R_1R_3 + C_4C_5R_1R_4 + C_5C_6R_1R_6\right)}{C_2C_3C_4C_6R_1R_3R_4s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_3 + C_2C_4C_6R_1R_4 + C_2C_4C_6R_3R_4 + C_3C_4C_6R_3R_4 - C_4C_5C_6R_3R_4\right) + s\left(C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 + C_4C_6R_3 + C_4C_6R_3\right)}
9.296 X-INVALID-ORDER-296 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
                               \frac{C_3C_4C_5R_1R_3R_4R_6s^3 + C_5R_1R_6s + s^2\left(C_3C_5R_1R_3R_6 + C_4C_5R_1R_4R_6\right)}{C_2C_3C_4C_6R_1R_3R_4R_6s^4 + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_4C_6R_1R_4R_6 + C_2C_4C_6R_3R_4R_6 + C_3C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_1R_3 + C_2C_4R_1R_4 + C_2C_4R_3R_4 + C_2C_6R_3R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_4 + C_3C
9.297 X-INVALID-ORDER-297 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_4C_5R_1R_3R_4R_6s^3 + C_5R_1R_3R_4 + s^2\left(C_3C_5R_1R_3R_6 + C_4C_5R_1R_4R_6\right)}{C_2C_3C_4C_5R_1R_3R_4R_5s^4 + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_5 + C_2C_4C_5R_1R_4R_5 + C_2C_4C_5R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_3 + C_2C_4R_1R_4 + C_2C_5R_1R_5 + C_2C_5R_3R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 - C_4C_5R_3R_4 + C_4C_5R_3R_5 + C_4C_5R_5R_5 + C_4C_5R_5R_5 + C_4C_5R_5R_5 + C_4C_5R_5R_5 + C_4C_5R_5R
```

**9.298** X-INVALID-ORDER-298  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_3R_4s^2 + C_5R_1 + s\left(C_3C_5R_1R_3 + C_4C_5R_1R_4\right)}{C_2C_3C_4C_5C_6R_1R_3R_4R_5s^4 + C_6 + s^3\left(C_2C_3C_4C_6R_1R_3R_4 + C_2C_3C_5C_6R_1R_3R_4 + C_2C_4C_5C_6R_1R_3R_4 + C_2C_4C_5C_6R_1R_3 + C_2C$ 

**9.299** X-INVALID-ORDER-299  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_3R_4R_6s^3 + C_5R_1 + s^2\left(C_3C_4C_5R_1R_3R_4 + C_3C_5C_6R_1R_3R_6 + C_4C_5C_6R_1R_4R_6\right) + s\left(C_3C_5R_1R_3 + C_4C_5R_1R_4 + C_5C_6R_1R_4R_6\right) + s\left(C_3C_5R_1R_3R_4 + C_5C_5C_6R_1R_4R_6\right) + s\left(C_3C_5R_1R_3R_4 + C_5C_5C_6R_1R_4R_6\right) + s\left(C_3C_5R_1R_3R_4 + C_5C_5C_6R_1R_4R_6\right) + s\left(C_3C_5R_1R_4R_6\right) + s\left(C_3C_5R_1R_$ 

**9.300** X-INVALID-ORDER-300  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{1}{C_2C_3C_4C_5C_6R_1R_3R_4R_5R_6s^5 + s^4\left(C_2C_3C_4C_5R_1R_3R_4R_5 + C_2C_3C_5C_6R_1R_3R_5R_6 + C_2C_4C_5C_6R_1R_4R_5R_6 + C_2C_4C_5C_6R_3R_4R_5R_6\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_4R_5 + C_2C_4C_5C_6R_1R_4R_5R_6 + C_2C_4C_5C_6R_3R_4R_5R_6\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_4R_5 + C_2C_4C_5C_6R_1R_3R_4R_5R_6\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_4R_5 + C_2C_4C_5C_6R_1R_3R_4R_5R_6\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_4R_5 + C_2C_4C_5C_6R_1R_3R_4R_5\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_4R_5 + C_2C_4C_5C_6R_1R_4R_5R_6\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_4R_5 + C_2C_4C_5C_6R_1R_4R_5R_6\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_4 + C_2C_3C_5R_1R_3R_5\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_5 + C_2C_4C_5R_1R_3R_5\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_5\right) + s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_3C_5R_1R_3R_5\right) + s^3\left(C_2C_3C_4R_1R_3R_5 + C_2C_3C_5R_1R_3R_5\right) + s^3\left(C_2C_3C_4R_1R_3R_5\right) + s^3\left(C_2C_3C_4R_1R_3R_5\right) + s^3\left(C_2C_3C_4R_1R_3R_5\right) + s^3\left(C_2C$ 

**9.301** X-INVALID-ORDER-301  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$  $H(s) = \frac{C_3C_4C_5R_1R_3R_4R_5R_6s^3 + R_1R_6 + s^2\left(C_3C_4R_1R_3R_4R_6 + C_3C_5R_1R_3R_5R_6 + C_4C_5R_1R_4R_5R_6\right) + s\left(C_3R_1R_3R_6 + C_4R_1R_4R_6 + C_5R_1R_5R_6\right)}{C_2C_3C_4R_1R_3R_4R_5s^3 - R_3 + R_5 + s^2\left(C_2C_3R_1R_3R_5 + C_2C_4R_1R_4R_5 + C_3C_4R_3R_4R_5 + C_3C_4R_3R_4R_5\right) + s\left(C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 - C_4R_3R_4 + C_4R_3R_5 + C_4R_4R_5 - C_5R_3R_5\right)}$ **9.302** X-INVALID-ORDER-302  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$  $\frac{C_3C_4C_5R_1R_3R_4R_5s^3 + R_1 + s^2\left(C_3C_4R_1R_3R_4 + C_3C_5R_1R_3R_5 + C_4C_5R_1R_4R_5\right) + s\left(C_3R_1R_3 + C_4R_1R_4 + C_5R_1R_5\right)}{C_2C_3C_4C_6R_1R_3R_4R_5s^4 + s^3\left(C_2C_3C_6R_1R_3R_5 + C_2C_4C_6R_1R_4R_5 + C_3C_4C_6R_3R_4R_5 - C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5\right) + s\left(C_3C_4C_6R_1R_3R_4R_5s^4 + s^3\left(C_2C_3C_6R_1R_3R_5 + C_2C_4C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right) + s\left(C_3C_4R_1R_3R_4 + C_3C_5R_1R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3$ **9.303** X-INVALID-ORDER-303  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_4C_5C_6R_1R_3R_4R_5R_6s^4 + R_1 + s^3\left(C_3C_4C_5R_1R_3R_4R_5 + C_3C_4C_6R_1R_3R_4R_6 + C_3C_5C_6R_1R_3R_5R_6 + C_4C_5C_6R_1R_3R_5 + C_3C_6R_1R_3R_6 + C_4C_5R_1R_4R_5 + C_4C_6R_1R_4R_6 + C_5C_6R_1R_5R_6\right) + s\left(C_3R_1R_3 + C_4R_1R_4 + C_5C_6R_1R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4$ **9.304** X-INVALID-ORDER-304  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$  $\frac{C_3C_4C_5R_1R_3R_4R_5R_6s^3 + R_1R_6 + s^2\left(C_3C_4R_1R_3R_4R_6 + C_3C_5R_1R_3R_5R_6 + C_4C_5R_1R_4R_5R_6s^3 + R_1R_6 + s^2\left(C_3C_4R_1R_3R_4R_5 + c_2C_4C_6R_1R_3R_4R_5R_6 + C_4C_5R_1R_4R_5R_6 + c_3C_4C_6R_3R_4R_5R_6 + c_3C_4C_6R_3R_4R_5R_6 + c_3C_4C_6R_3R_4R_5R_6 + c_3C_4C_6R_3R_4R_5R_6 + c_3C_4C_6R_3R_4R_5R_6 + c_3C_4R_1R_3R_4R_5 + c_3C_4R_1R_4R_5 + c_3C_4R_1R$ **9.305** X-INVALID-ORDER-305  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3 R_1 R_3 R_4 s + R_1 R_4}{C_2 C_3 C_6 R_1 R_3 R_4 R_5 s^3 + s^2 \left(C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 + C_3 C_6 R_3 R_4 R_5 + C_4 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$ **9.306** X-INVALID-ORDER-306  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_6R_1R_3R_4R_6s^2 + R_1R_4 + s\left(C_3R_1R_3R_4 + C_6R_1R_4R_6\right)}{C_2C_3C_6R_1R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$ **9.307** X-INVALID-ORDER-307  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_3R_1R_3R_4R_6s + R_1R_4R_6}{C_2C_3C_6R_1R_3R_4R_5R_6s^3 - R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_6R_1R_4R_5R_6 + C_3C_6R_3R_4R_5R_6\right) + s\left(C_2R_1R_4R_5 + C_2R_3R_4R_5 + C_4R_3R_4R_5 + C_4R_3R_4R_5 + C_6R_3R_4R_5 + C_6R_3R_5R_5 + C_6R_5R_5R_5 +$ **9.308** X-INVALID-ORDER-308  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$  $H(s) = \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_3C_6R_1R_3R_4R_6s^3 + R_3 + R_4 + s^2\left(C_2C_3R_1R_3R_4 + C_2C_6R_1R_4R_6 + C_3C_6R_3R_4R_6 + C_4C_6R_3R_4R_6\right) + s\left(C_2R_1R_4 + C_2R_3R_4 + C_3R_3R_4 + C_4R_3R_4 - C_5R_3R_4 + C_6R_3R_6 + C_6R_4R_6\right)}$ **9.309** X-INVALID-ORDER-309  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_3R_4s + C_5R_1R_4}{C_2C_3C_5C_6R_1R_3R_4R_5s^3 + C_6R_3 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_3R_4 + C_2C_5C_6R_1R_4R_5 + C_2C_5C_6R_3R_4R_5 + C_4C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_4C_6R_3R_4 + C_5C_6R_3R_4 + C_5$ 

**9.310** X-INVALID-ORDER-310  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_3C_5R_1R_3R_4R_5s^3 + R_3 + R_4 + s^2\left(C_2C_3R_1R_3R_4 + C_2C_5R_1R_4R_5 + C_2C_5R_3R_4R_5 + C_4C_5R_3R_4R_5\right) + s\left(C_2R_1R_4 + C_2R_3R_4 + C_3R_3R_4 + C_5R_3R_4 + C_5R_3R_5 + C_5R_4R_5\right)}$ 

```
9.311 X-INVALID-ORDER-311 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                    H(s) = \frac{C_3C_5C_6R_1R_3R_4R_6s^2 + C_5R_1R_4 + s\left(C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_2C_3C_5C_6R_1R_3R_4R_5s^3 + C_6R_3 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_3R_4 + C_2C_5C_6R_1R_4R_5 + C_2C_5C_6R_3R_4R_5 + C_4C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_1R_4 + C_4C_6R_3R_4 + C_4C_6R_3R_4 + C_5C_6R_3R_4 +
9.312 X-INVALID-ORDER-312 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
                                 \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_3C_5C_6R_1R_3R_4R_5R_6s^4 + R_3 + R_4 + s^3\left(C_2C_3C_5R_1R_3R_4R_5 + C_2C_5C_6R_1R_4R_5R_6 + C_2C_5C_6R_3R_4R_5R_6 + C_4C_5C_6R_3R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_3R_4 + C_2C_5R_1R_4R_5 + C_2C_5R_1R_4R_
9.313 X-INVALID-ORDER-313 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                            H(s) = \frac{C_3C_5R_1R_3R_4R_5s^2 + R_1R_4 + s\left(C_3R_1R_3R_4 + C_5R_1R_4R_5\right)}{C_2C_3C_6R_1R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}
9.314 X-INVALID-ORDER-314 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                            H(s) = \frac{C_3C_5C_6R_1R_3R_4R_5R_6s^3 + R_1R_4 + s^2\left(C_3C_5R_1R_3R_4R_5 + C_3C_6R_1R_3R_4R_6 + C_5C_6R_1R_4R_5R_6\right) + s\left(C_3R_1R_3R_4 + C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{C_2C_3C_6R_1R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 - C_5C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}
9.315 X-INVALID-ORDER-315 Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)
H(s) = \frac{C_3C_5R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_6 + C_5R_1R_4R_5R_6\right)}{C_2C_3C_6R_1R_3R_4R_5R_6s^3 - R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_6R_1R_4R_5R_6 + C_3C_6R_3R_4R_5R_6 + C_4C_6R_3R_4R_5R_6\right) + s\left(C_2R_1R_4R_5 + C_2R_3R_4R_5 + C_4R_3R_4R_5 + C_5R_3R_4R_5 + C_5R_5R_5R_5 + C_5R_5R_5R_5 + C_5R_5R_5R_5 + C_5R_5R_5R_5 + C_5R_5R_5R_5 + C_5R_
9.316 X-INVALID-ORDER-316 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                      H(s) = \frac{C_2 R_1 R_2 R_4 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s \left(C_2 R_1 R_4 R_5 - C_2 R_2 R_3 R_4 + C_2 R_2 R_3 R_5 + C_2 R_2 R_4 R_5 + C_2 R_3 R_4 R_5\right)}
```

**9.317** X-INVALID-ORDER-317  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2 R_1 R_2 R_4 s + R_1 R_4}{s^2 \left(C_2 C_6 R_1 R_4 R_5 - C_2 C_6 R_2 R_3 R_4 + C_2 C_6 R_2 R_3 R_5 + C_2 C_6 R_2 R_4 R_5 + C_2 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$$

**9.318** X-INVALID-ORDER-318  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_6R_1R_2R_4R_6s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_6R_1R_4R_6\right)}{s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$$

**9.319** X-INVALID-ORDER-319  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{-C_2C_5C_6R_2R_3R_4R_6s^3 + R_3 + R_4 + s^2\left(-C_2C_5R_2R_3R_4 + C_2C_6R_2R_3R_6 + C_2C_6R_2R_4R_6 + C_2C_6R_3R_4R_6\right) + s\left(C_2R_1R_4 + C_2R_2R_3 + C_2R_2R_4 + C_2R_3R_4 - C_5R_3R_4 + C_6R_3R_6 + C_6R_4R_6\right)}$$

**9.320** X-INVALID-ORDER-320  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{R_3 + R_4 + s^3\left(C_2C_5C_6R_1R_4R_5R_6 - C_2C_5C_6R_2R_3R_4R_6 + C_2C_5C_6R_2R_4R_5R_6 + C_2C_5C_6R_2R_4R_5R_5R_5 + C_2C_5C_6R_2R_4R_5R_5R_5 + C_2C_5C_6R_2R_4R_5R_5R_5 + C_2C_5C_6R_2R_4R_5R_5R_5 + C_2C_5C_6R_2R_4R_5R_5 + C_2C_5C_6R_2R_4R_5R_5 + C_2C_5C_6R_2R_4R_5R_5 + C_2C_5C_6R_2R_4R_5R_5 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_2R_5R_5 + C_2C_5C_6R_5R_5R_5 + C_2C_5C_6R_5R_5R_5 + C_2C_5C_6R_5R_5R_5 + C_2C_5C_6R_5R_5R_5 + C_2C_5C_6R_5R_5R_5 + C_2C_5C_6R_$$

**9.321** X-INVALID-ORDER-321  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_5R_1R_2R_4R_5s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_5R_1R_4R_5\right)}{-C_2C_5C_6R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$$

**9.322** X-INVALID-ORDER-322  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_5C_6R_1R_2R_4R_5R_6s^3 + R_1R_4 + s^2\left(C_2C_5R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_6 + C_5C_6R_1R_4R_5R_6\right) + s\left(C_2R_1R_2R_4 + C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{-C_2C_5C_6R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5 - C_5C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$$

**9.323** X-INVALID-ORDER-323  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$C_2C_5R_1R_2R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_5R_1R_4R_5R_6\right)$$

 $H(s) = \frac{C_2C_5R_1R_2R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_5R_1R_4R_5R_6\right)}{-C_2C_5C_6R_2R_3R_4R_5R_6s^3 - R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(-C_2C_5R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_6 + C_2C_6R_2R_3R_4R_5R_6 + C_2C_6R_3R_4R_5R_6 + C_2C_6R_3R_4R_5 + C_2C_6R_5R_5R_5 + C_2C_6R_5R_5R_5 + C_2C_6R_5R_5R_5 + C_2C_6R_5R_5R_5 + C_2C_6R_5R_5R_5 + C_2C_6R_5R_5R_5 + C_2C_5R_5R_5 + C_2C_5R_5R_5 + C_2C_5R_$ 

**9.324** X-INVALID-ORDER-324  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2 R_1 R_2 s + R_1}{C_2 C_4 C_6 R_2 R_3 R_5 s^3 + s^2 \left( C_2 C_6 R_1 R_5 - C_2 C_6 R_2 R_3 + C_2 C_6 R_2 R_5 + C_2 C_6 R_3 R_5 + C_4 C_6 R_3 R_5 \right) + s \left( -C_6 R_3 + C_6 R_5 \right)}$$

**9.325** X-INVALID-ORDER-325  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_6R_1R_2R_6s^2 + R_1 + s\left(C_2R_1R_2 + C_6R_1R_6\right)}{C_2C_4C_6R_2R_3R_5s^3 + s^2\left(C_2C_6R_1R_5 - C_2C_6R_2R_3 + C_2C_6R_2R_5 + C_2C_6R_3R_5 + C_4C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$$

**9.326** X-INVALID-ORDER-326  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2 R_1 R_2 R_6 s + R_1 R_6}{C_2 C_4 C_6 R_2 R_3 R_5 R_6 s^3 - R_3 + R_5 + s^2 \left(C_2 C_4 R_2 R_3 R_5 + C_2 C_6 R_1 R_5 R_6 - C_2 C_6 R_2 R_3 R_6 + C_2 C_6 R_2 R_5 R_6 + C_2 C_6 R_3 R_5 R_6 + C_4 C_6 R_3 R_5 R_6 \right) + s \left(C_2 R_1 R_5 - C_2 R_2 R_3 + C_2 R_2 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5 - C_6 R_3 R_6 + C_6 R_5 R_6 \right)}$$

**9.327** X-INVALID-ORDER-327  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s}{s^3\left(C_2C_4C_6R_2R_3R_6 - C_2C_5C_6R_2R_3R_6\right) + s^2\left(C_2C_4R_2R_3 - C_2C_5R_2R_3 + C_2C_6R_1R_6 + C_2C_6R_2R_6 + C_2C_6R_3R_6 - C_5C_6R_3R_6\right) + s\left(C_2R_1 + C_2R_2 + C_2R_3 + C_4R_3 - C_5R_3 + C_6R_6\right) + 1}$$

**9.328** X-INVALID-ORDER-328  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s}{C_2C_4C_5R_2R_3R_5s^3 + s^2\left(C_2C_4R_2R_3 + C_2C_5R_1R_5 - C_2C_5R_2R_3 + C_2C_5R_2R_5 + C_2C_5R_3R_5 + C_4C_5R_3R_5\right) + s\left(C_2R_1 + C_2R_2 + C_2R_3 + C_4R_3 - C_5R_3 + C_5R_5\right) + 1}$$

**9.329** X-INVALID-ORDER-329  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_5R_1R_2s + C_5R_1}{C_2C_4C_5C_6R_2R_3R_5s^3 + C_6 + s^2\left(C_2C_4C_6R_2R_3 + C_2C_5C_6R_1R_5 - C_2C_5C_6R_2R_3 + C_2C_5C_6R_2R_5 + C_2C_5C_6R_3R_5\right) + s\left(C_2C_6R_1 + C_2C_6R_2 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3 + C_4C_6R_3\right)}$$

**9.330** X-INVALID-ORDER-330  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_5C_6R_1R_2R_6s^2 + C_5R_1 + s\left(C_2C_5R_1R_2 + C_5C_6R_1R_6\right)}{C_2C_4C_5C_6R_2R_3R_5s^3 + C_6 + s^2\left(C_2C_4C_6R_2R_3 + C_2C_5C_6R_1R_5 - C_2C_5C_6R_2R_3 + C_2C_5C_6R_2R_5 + C_2C_5C_6R_3R_5 + C_4C_5C_6R_3R_5\right) + s\left(C_2C_6R_1 + C_2C_6R_2 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3 + C_5C_6R_3\right)}$$

```
9.331 X-INVALID-ORDER-331 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s
H(s) = \frac{C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s}{C_2C_4C_5C_6R_2R_3R_5R_6s^4 + s^3\left(C_2C_4C_5R_2R_3R_5 + C_2C_5C_6R_1R_5R_6 - C_2C_5C_6R_2R_3R_6 + C_2C_5C_6R_2R_3R_5 + C_2C_5R_3R_5 + C_2C_5R_2R_3 + C_2C_5R_3R_3 + C_2C_5R_
9.332 X-INVALID-ORDER-332 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                             H(s) = \frac{C_2C_5R_1R_2R_5s^2 + R_1 + s\left(C_2R_1R_2 + C_5R_1R_5\right)}{s^3\left(C_2C_4C_6R_2R_3R_5 - C_2C_5C_6R_2R_3R_5\right) + s^2\left(C_2C_6R_1R_5 - C_2C_6R_2R_3 + C_2C_6R_2R_5 + C_2C_6R_3R_5 + C_4C_6R_3R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}
9.333 X-INVALID-ORDER-333 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                           H(s) = \frac{C_2C_5C_6R_1R_2R_5R_6s^3 + R_1 + s^2\left(C_2C_5R_1R_2R_5 + C_2C_6R_1R_2R_6 + C_5C_6R_1R_5R_6\right) + s\left(C_2R_1R_2 + C_5R_1R_5 + C_6R_1R_6\right)}{s^3\left(C_2C_4C_6R_2R_3R_5 - C_2C_5C_6R_2R_3R_5\right) + s^2\left(C_2C_6R_1R_5 - C_2C_6R_2R_3 + C_2C_6R_2R_5 + C_2C_6R_3R_5 + C_4C_6R_3R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}
9.334 X-INVALID-ORDER-334 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_5R_1R_2R_5R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^3\left(C_2C_4C_6R_2R_3R_5R_6 - C_2C_5C_6R_2R_3R_5R_6\right) + s^2\left(C_2C_4R_2R_3R_5 - C_2C_5R_2R_3R_5 + C_2C_6R_1R_5R_6 - C_2C_6R_2R_3R_5R_6 + C_2C_6R_3R_5R_6 + C_2C_6R_3R_5R_6\right) + s\left(C_2R_1R_5 - C_2R_2R_3 + C_2R_2R_5 + C_2R_3R_5 + C_2
9.335 X-INVALID-ORDER-335 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                  H(s) = \frac{C_2C_4R_1R_2R_4s^2 + R_1 + s\left(C_2R_1R_2 + C_4R_1R_4\right)}{s^3\left(C_2C_4C_6R_1R_4R_5 - C_2C_4C_6R_2R_3R_4 + C_2C_4C_6R_2R_3R_5 + C_2C_4C_6R_2R_4R_5 + C_2C_4C_6R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_5 - C_2C_6R_2R_3 + C_2C_6R_3R_5 - C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_4R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}
9.336 X-INVALID-ORDER-336 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                H(s) = \frac{C_2C_4C_6R_1R_2R_4R_6s^3 + R_1 + s^2\left(C_2C_4R_1R_2R_4 + C_2C_6R_1R_2R_6 + C_4C_6R_1R_4R_6\right) + s\left(C_2R_1R_2 + C_4R_1R_4 + C_6R_1R_6\right)}{s^3\left(C_2C_4C_6R_1R_4R_5 - C_2C_4C_6R_2R_3R_4 + C_2C_4C_6R_2R_3R_5 + C_2C_4C_6R_2R_3R_5 + C_2C_6R_2R_3 + C_2C_6R_2R_3 + C_2C_6R_2R_3 + C_2C_6R_3R_5 + C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_5R_5 + C_4C_6R_5R_5
9.337 X-INVALID-ORDER-337 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_4R_1R_2R_4R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_4R_1R_4R_6\right)}{-R_3 + R_5 + s^3\left(C_2C_4C_6R_1R_4R_5R_6 - C_2C_4C_6R_2R_3R_4R_6 + C_2C_4C_6R_2R_3R_5R_6 + C_2C_4C_6R_2R_3R_4R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_5 + C_2C_4R_3R_4R_5 + C_2C_4R_3R_5 + C_2C_4R_5R_5 + C_2C_4R_5R_5 + C_2C_4R_5R_5 + C_2C_4R_5R_5 + C_2C_4R_5R_5 + 
9.338 X-INVALID-ORDER-338 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                           H(s) = \frac{C_2C_4C_5R_1R_2R_4R_6s^3 + C_5R_1R_6s + s^2\left(C_2C_5R_1R_2R_6 + C_4C_5R_1R_4R_6\right)}{-C_2C_4C_5R_2R_3R_4s^3 + s^2\left(C_2C_4R_1R_4 + C_2C_4R_2R_3 + C_2C_4R_2R_4 + C_2C_4R_3R_4 - C_2C_5R_2R_3 - C_4C_5R_3R_4\right) + s\left(C_2R_1 + C_2R_2 + C_2R_3 + C_4R_3 + C_4R_4 - C_5R_3\right) + 1}
9.339 X-INVALID-ORDER-339 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                            H(s) = \frac{C_2C_4C_5R_1R_2R_4s^2 + C_5R_1 + s\left(C_2C_5R_1R_2 + C_4C_5R_1R_4\right)}{-C_2C_4C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_2C_4C_6R_1R_4 + C_2C_4C_6R_2R_4 + C_2C_4C_6R_3R_4 - C_2C_5C_6R_2R_3 - C_4C_5C_6R_3R_4\right) + s\left(C_2C_6R_1 + C_2C_6R_3 + C_4C_6R_3 + C_4C_6R_3
```

1

 $H(s) = \frac{C_2C_4C_5C_6R_1R_2R_4R_6s^3 + C_5R_1 + s^2\left(C_2C_4C_5R_1R_2R_4 + C_2C_5C_6R_1R_2R_6 + C_4C_5C_6R_1R_4R_6\right) + s\left(C_2C_5R_1R_2 + C_4C_5R_1R_4 + C_5C_6R_1R_6\right)}{-C_2C_4C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_2C_4C_6R_1R_4 + C_2C_4C_6R_2R_4 + C_2C_4C_6R_3R_4 - C_2C_5C_6R_2R_3 - C_4C_5C_6R_3R_4\right) + s\left(C_2C_6R_1 + C_2C_6R_2 + C_2C_6R_3 + C_4C_6R_3 + C_4C_6R_4 - C_5C_6R_3\right)}$ 

**9.340** X-INVALID-ORDER-340  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

**9.344** X-INVALID-ORDER-344  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_4C_5C_6R_1R_2R_4R_6s^3 + C_5R_1 + s^2\left(C_2C_4C_5R_1R_2R_4 + C_2C_5C_6R_1R_2R_6 + C_4C_5C_6R_1R_4R_6\right) + s\left(C_2C_5R_1R_2 + C_4C_5R_1R_4 + C_5C_6R_1R_4\right) + s\left(C_2C_5R_1R_2 + C_4C_5R_1R_4 + C_5C_6R_1R_4\right) + s\left(C_2C_5R_1R_4 + C_5C_6R_1R_4 + C_5C_6R_1R_4\right) + s\left(C_2C_5R_1R_4 + C_5C_6R_1R_4 + C_5C_6R_1R_4\right) + s\left(C_2C_5R_1R_4 + C_2C_4C_5C_6R_2R_4\right) + s\left(C_2C_4C_5R_1R_4 + C_2C_4C_5R_4R_4\right) + s\left(C_2C_4C_5R_1R_4 + C_2C_4C_5R_4R_4\right) + s\left(C_2C_4C_5R_1R_4 + C_2C_4C_5R_4R_4\right) + s\left(C_2C_4C_5R_4R_4 + C_2C_4C_5R_4R_4\right) + s\left(C_2$ 

**9.345** X-INVALID-ORDER-345  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_2 C_4 C_5 C_6 R_1 R_4 R_5 R_6 - C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_2 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_2 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_2 C_4 C_5 C_6 R_3 R_4 R_5 R_6 + C_2 C_4 C_5 R_3 R_4 R_5 R_6 + C_2 C_4 C_5 R_2 R_3 R_4 + C_2 C_4 C_5 R_2 R_3 R_5 + C_2 C_4 C_5 R_2 R_3 R_4 R_5 R_5 + C_2 C_4 C_5 R_2 R_4 R_5 R_5 + C_2 C_4 C_5 R_5 R_5 R_5 + C_2 C$ 

**9.346** X-INVALID-ORDER-346  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_4C_5R_1R_2R_4R_5R_6s^3 + R_1R_6 + s^2\left(C_2C_4R_1R_2R_4R_6 + C_2C_5R_1R_2R_5R_6 + C_4C_5R_1R_4R_5R_6\right) + s\left(C_2R_1R_2R_6 + C_4R_1R_4R_6 + C_5R_1R_5R_6\right)}{-C_2C_4C_5R_2R_3R_4R_5s^3 - R_3 + R_5 + s^2\left(C_2C_4R_1R_4R_5 - C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_3R_3R_5 + C_2C_4R_3R_5 + C_2C_$ 

**9.347** X-INVALID-ORDER-347  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_4C_5R_1R_2R_4R_5s^3 + R_1 + s^2\left(C_2C_4R_1R_2R_4 + C_2C_5R_1R_2R_5 + C_4C_5R_1R_4R_5\right) + s\left(C_2R_1R_2 + C_4R_1R_4 + C_5R_1R_5\right)}{-C_2C_4C_5C_6R_2R_3R_4R_5s^4 + s^3\left(C_2C_4C_6R_1R_4R_5 - C_2C_4C_6R_2R_3R_4 + C_2C_4C_6R_2R_3R_5 + C_2C_4C_6R_2R_3R_5 - C_4C_5C_6R_2R_3R_5 - C_4C_5C_6R_2R_3R_5 - C_4C_6R_2R_3 + C_2C_6R_2R_3 + C_2C_6R_2R_3 + C_2C_6R_2R_3 + C_2C_6R_3R_5 - C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_5R_5 +$ 

**9.348** X-INVALID-ORDER-348  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_4C_5C_6R_1R_2R_4R_5R_6s^4 + R_1 + s^3\left(C_2C_4C_5R_1R_2R_4R_5 + C_2C_4C_6R_1R_2R_4R_6 + C_2C_5C_6R_1R_2R_5R_6 + C_4C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_2C_4R_1R_2R_4 + C_2C_5R_1R_2R_5 + C_2C_6R_1R_2R_6 + C_4C_5R_1R_4R_5 + C_4C_6R_1R_4R_6 + C_5C_6R_1R_5R_6\right) + s\left(C_2R_1R_2R_4 + C_2C_5R_1R_2R_5 + C_2C_6R_1R_2R_5 + C_2C_6R_1R_2R_5 + C_4C_6R_1R_4R_5 + C_4C_6R_1R_4R_$ 

**9.349** X-INVALID-ORDER-349  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_6 + C_2C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_6 + C_2C_4C_5R_2R_3R_4R_5R_6s^2 + R_1R_6 + C_2C_4C_5R_2R_3R_4R_5R_6s^2 + R_1R_6 + C_2C_4C_5R_2R_3R_4R_5R_6s^2 + R_1R_6 + C_2C_4C_5R_3R_4R_5R_6s^2 + C_2C_4C_5R_3R_4R_5R_6s^2 + R_1R_6 + C_2C_4C_5R_3R_4R_5R_6s^2 + R_1R_6 + C_2C_4C_5R_3R_4R_5R_6s^2 + C_2C_4C_5R_3R_4R_5R_5R_5s^2 + C_2C_4C_5R_3R_4R_5R_5R_5s^2 + C_2C_4C_5R_3R_4R_5R_5s^2 + C_2C_4C_5R_5R_5R_5s^2 + C_2C_4C_5R_5R_5R_5s^2 + C_2C_4C_5R_5R_5R_5s^2 + C_2C_4C_5R_5R_5R_5s^2 + C_2C_4C_5R$ 

**9.350** X-INVALID-ORDER-350  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2R_1R_2R_4s + R_1R_4}{C_2C_4C_6R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$ 

```
9.351 X-INVALID-ORDER-351 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                         H(s) = \frac{C_2C_6R_1R_2R_4R_6s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_6R_1R_4R_6\right)}{C_2C_4C_6R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}
9.352 X-INVALID-ORDER-352 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                     \frac{C_{2}R_{1}R_{2}R_{4}R_{6}s+R_{1}R_{4}R_{6}}{C_{2}C_{4}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}s^{3}-R_{3}R_{4}+R_{3}R_{5}+R_{4}R_{5}+s^{2}\left(C_{2}C_{4}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{3}+
9.353 X-INVALID-ORDER-353 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{R_3 + R_4 + s^3\left(C_2C_4C_6R_2R_3R_4R_6 - C_2C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_2C_4R_2R_3R_4 - C_2C_5R_2R_3R_4 + C_2C_6R_1R_4R_6 + C_2C_6R_2R_3R_4 + C_4C_6R_3R_4R_6 + C_4C_6R_3R_4R_6\right) + s\left(C_2R_1R_4 + C_2R_2R_3 + C_2R_3R_4 +
9.354 X-INVALID-ORDER-354 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                   \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{C_2C_4C_5R_2R_3R_4R_5s^3 + R_3 + R_4 + s^2\left(C_2C_4R_2R_3R_4 + C_2C_5R_2R_3R_4 + C_2C_5R_2R_3R_5 + C_2C_5R_2R_3R_4 + C_2C_5R_2R_3R_4 + C_2C_5R_2R_3R_4 + C_2C_5R_2R_3R_4 + C_2C_5R_2R_3R_4 + C_2C_5R_2R_3R_4 + C_2C_5R_3R_4 + C_2C_5R_3R_4
9.355 X-INVALID-ORDER-355 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_5R_1R_2R_4s + C_5R_1R_4}{C_2C_4C_5C_6R_2R_3R_4R_5s^3 + C_6R_3 + C_6R_4 + s^2\left(C_2C_4C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_5 + C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R_4 +
9.356 X-INVALID-ORDER-356 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_5C_6R_1R_4R_6\right)}{C_2C_4C_5C_6R_2R_3R_4R_5s^3 + C_6R_3 + C_6R_4 + s^2\left(C_2C_4C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_2R_4 
9.357 X-INVALID-ORDER-357 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_2C_4C_5C_6R_2R_3R_4R_5R_6s^4 + R_3 + R_4 + s^3\left(C_2C_4C_5R_2R_3R_4R_5 + C_2C_4C_6R_2R_3R_4R_6 + C_2C_5C_6R_2R_3R_4R_6 + C_2C_5C_6R_2R_3R_4R_5R_6 + C_2C_5C_6R_2R_3R_4R_5R_6 + C_2C_5C_6R_3R_4R_5R_6 + C_2C_5C_6R_3R_4R_5R_5 + C_2C_5C_6R_3R_4R_5R_5 + C_2C_5C_6R_5R_5R_5R_5 + C_2C_5C_6R_5R_5R_5R_5 + C_2C_5C_6R_5R_5R_5R_5 + C_2C_5C_6R_5R_5R_5R_5 + C_2C_5C_6R_5R_5R_5 + C_2C_
9.358 X-INVALID-ORDER-358 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                           H(s) = \frac{C_2C_5R_1R_2R_4R_5s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_5R_1R_4R_5\right)}{s^3\left(C_2C_4C_6R_2R_3R_4R_5 - C_2C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 - C_5C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}
9.359 X-INVALID-ORDER-359 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                           H(s) = \frac{C_2C_5C_6R_1R_2R_4R_5R_6s^3 + R_1R_4 + s^2\left(C_2C_5R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_6 + C_5C_6R_1R_4R_5R_6\right) + s\left(C_2R_1R_2R_4 + C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{s^3\left(C_2C_4C_6R_2R_3R_4R_5 - C_2C_5C_6R_2R_3R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 - C_5C_6R_3R_4R_5\right) + s\left(C_2R_1R_2R_4 + C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}
```

 $\frac{C_2C_5R_1R_2R_4R_5R_6S + R_4R_5 + s^3\left(C_2C_4C_6R_2R_3R_4R_5R_6 - C_2C_5C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_3R_4R_5 + C_2C_6R_$ 

 $C_2C_5R_1R_2R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_5R_1R_4R_5R_6\right)$ 

**9.360** X-INVALID-ORDER-360  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.361** X-INVALID-ORDER-361  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 - C_2C_6R_2R_4R_6 + C_2C_6R_2R_5R_6 + C_2C_6R_4R_5R_6\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 + C_3R_4R_5 - C_6R_4R_6 + C_6R_5R_6\right)}$ 

**9.362** X-INVALID-ORDER-362  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 - C_2C_5R_2R_4\right) + s\left(C_2R_2 + C_2R_4 + C_3R_4 - C_5R_4\right) + 1}$ 

**9.363** X-INVALID-ORDER-363  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 - C_2C_5C_6R_2R_4\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4\right)}$ 

**9.364** X-INVALID-ORDER-364  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_6R_1R_4R_6 + C_2C_3C_6R_2R_4R_6 - C_2C_5C_6R_2R_4R_6\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 - C_2C_5R_2R_4 + C_2C_6R_2R_6 + C_2C_6R_4R_6 + C_3C_6R_4R_6\right) + s\left(C_2R_2 + C_2R_4 + C_3R_4 - C_5R_4 + C_6R_6\right) + 1}$ 

**9.365** X-INVALID-ORDER-365  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_5R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 - C_2C_5R_2R_4 + C_2C_5R_2R_5 + C_2C_5R_4R_5 + C_3C_5R_4R_5\right) + s\left(C_2R_2 + C_2R_4 + C_3R_4 - C_5R_4 + C_5R_5\right) + 1}$ 

**9.366** X-INVALID-ORDER-366  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_2R_4R_5\right) + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_2C_5C_6R_2R_5 + C_2C_5C_6R_4R_5\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_4 + C_5C_6R_4 + C_5C_6R_5\right)}$ 

**9.367** X-INVALID-ORDER-367  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_2C_5C_6R_4R_5\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_4 + C_5C_6R_4\right)}$ 

**9.368** X-INVALID-ORDER-368  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^4\left(C_2C_3C_5C_6R_1R_4R_5R_6 + C_2C_3C_5C_6R_2R_4R_5 + C_2C_3C_5R_1R_4R_5 + C_2C_3C_5R_2R_4R_5 + C_2C_3C_6R_2R_4R_6 + C_2C_5C_6R_2R_4R_6 + C_2C_5C_6R_2R_4R_6 + C_2C_5C_6R_4R_5R_6 + C_2C_5C_6R_4R_5R_5 + C_2C_5C_6R_4R_5R_5 + C_2C_5C_6R_5R_5R_5 + C_2C_5C_6R_5R_5R_5 + C_2C_5C_5R_5R_5R_5 + C_2C_5C_5R_5R_5R_5 + C_2C_5C_5R_5R_5R_5 + C_2C_5C_5R_5R_5R_5 + C_2C_5C_5R_5R_5R_5 + C_2C_5C_5R_5R_5R_5 +$ 

**9.369** X-INVALID-ORDER-369  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_4R_6s + s^2\left(C_2C_3R_1R_2R_4R_6 + C_3C_5R_1R_4R_5R_6\right)}{-R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 - C_2C_5R_2R_4R_5\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 + C_3R_4R_5 - C_5R_4R_5\right)}$ 

**9.370** X-INVALID-ORDER-370  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 - C_2C_5C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 - C_5C_6R_4R_5\right)}$ 

```
9.371 X-INVALID-ORDER-371 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_4R_6s + s^2\left(C_2C_3R_1R_2R_4R_6 + C_3C_5R_1R_4R_5R_6\right)}{-R_4 + R_5 + s^3\left(C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 - C_2C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 - C_2C_5R_2R_4R_5 - C_2C_6R_2R_4R_5 + C_2C_6R_2R_4R_5R_6 + C_2C_6R_4R_5R_6\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 + C_2C_3R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5R_6 - C_2C_5R_4R_5R_6 + C_2C_6R_4R_5R_6 + C_2C_6R_4R_5R_6\right) + s\left(-C_2R_2R_4 + C_2R_4R_5 + C_2C_3R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5 + C_2C_3R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5R_$ 

**9.372** X-INVALID-ORDER-372  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_6s^2 + C_3R_1R_6s}{s^3\left(C_2C_3C_6R_1R_5R_6 + C_2C_3C_6R_2R_5R_6 + C_2C_4C_6R_2R_5R_6\right) + s^2\left(C_2C_3R_1R_5 + C_2C_3R_2R_5 + C_2C_4R_2R_5 - C_2C_6R_2R_6 + C_2C_6R_5R_6 + C_3C_6R_5R_6 + C_4C_6R_5R_6\right) + s\left(-C_2R_2 + C_2R_5 + C_3R_5 + C_4R_5 - C_6R_6\right) - 1}$ 

**9.373** X-INVALID-ORDER-373  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_4R_2 - C_2C_5R_2\right)}$$

**9.374** X-INVALID-ORDER-374  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_1R_2s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_4C_6R_2 - C_2C_5C_6R_2\right)}$$

**9.375** X-INVALID-ORDER-375  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_4C_6R_2 - C_2C_5C_6R_2\right)}$$

**9.376** X-INVALID-ORDER-376  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 + C_5 + s^3\left(C_2C_3C_5C_6R_1R_5R_6 + C_2C_3C_5C_6R_2R_5R_6 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_1R_6 + C_2C_3C_6R_1R_6 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_4 + C_2C_3C_6R_4 + C_2C_3C_6R_4 + C_2C_3C_6R_4 + C_$$

**9.377** X-INVALID-ORDER-377  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_5R_1R_5R_6\right)}{s^2\left(C_2C_3R_1R_5 + C_2C_3R_2R_5 + C_2C_4R_2R_5 - C_2C_5R_2R_5\right) + s\left(-C_2R_2 + C_2R_5 + C_3R_5 + C_4R_5 - C_5R_5\right) - 1}$$

**9.378** X-INVALID-ORDER-378  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5C_6R_1R_2R_5R_6s^3 + C_3R_1 + s^2\left(C_2C_3C_5R_1R_2R_5 + C_2C_3C_6R_1R_2R_6 + C_3C_5C_6R_1R_5R_6\right) + s\left(C_2C_3R_1R_2 + C_3C_5R_1R_5 + C_3C_6R_1R_6\right)}{-C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 - C_2C_5C_6R_2R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5\right)}$$

9.379 X-INVALID-ORDER-379  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_5R_1R_5R_6\right)$$

 $H(s) = \frac{C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_5R_1R_5R_6\right)}{s^3\left(C_2C_3C_6R_1R_5R_6 + C_2C_3C_6R_2R_5R_6 + C_2C_4C_6R_2R_5R_6 - C_2C_5C_6R_2R_5R_6\right) + s^2\left(C_2C_3R_1R_5 + C_2C_4R_2R_5 - C_2C_5R_2R_5 - C_2C_6R_2R_6 + C_3C_6R_5R_6 + C_3C_6R_5R_6 + C_3C_6R_5R_6 + C_3C_6R_5R_6 + C_3C_6R_5R_6 + C_3C_6R_5R_6\right) + s\left(-C_2R_2 + C_2R_5 + C_3R_5 +$ 

**9.380** X-INVALID-ORDER-380  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_2C_3C_4R_1R_2R_4R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_4R_1R_4R_6\right)}{s^3\left(C_2C_3C_4R_1R_4R_5 + C_2C_3C_4R_2R_4R_5\right) + s^2\left(C_2C_3R_1R_5 + C_2C_3R_2R_5 - C_2C_4R_2R_4 + C_2C_4R_2R_5 + C_2C_4R_4R_5\right) + s\left(-C_2R_2 + C_2R_5 + C_3R_5 - C_4R_4 + C_4R_5\right) - 1}$$

```
9.381 X-INVALID-ORDER-381 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                     H(s) = \frac{C_2C_3C_4R_1R_2R_4s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_4R_1R_4\right)}{-C_6 + s^3\left(C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_2R_4 + C_2C_3C_6R_2R_5 - C_2C_4C_6R_2R_4 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_4R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 + C_3C_6R_5 - C_4C_6R_4 + C_4C_6R_5\right)}
9.382 X-INVALID-ORDER-382 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                     H(s) = \frac{C_2C_3C_4C_6R_1R_2R_4R_6s^3 + C_3R_1 + s^2\left(C_2C_3C_4R_1R_2R_4 + C_2C_3C_6R_1R_2R_6 + C_3C_4C_6R_1R_4R_6\right) + s\left(C_2C_3R_1R_2 + C_3C_4R_1R_4 + C_3C_6R_1R_6\right)}{-C_6 + s^3\left(C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_2R_5 + C_2C_4C_6R_2R_4 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_4R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 + C_3C_6R_5 - C_4C_6R_4 + C_4C_6R_5\right)}
9.383 X-INVALID-ORDER-383 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_2C_3C_4R_1R_2R_4R_6s^3 + C_3R_1R_6s + s^2(C_2C_3R_1R_2R_6 + C_3C_4R_1R_4R_6)
H(s) = \frac{C_2C_3C_4R_1R_2R_4R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_4R_1R_4R_6\right)}{s^4\left(C_2C_3C_4C_6R_1R_4R_5R_6 + C_2C_3C_4R_2R_4R_5 + C_2C_3C_4R_1R_4R_5 + C_2C_3C_4R
9.384 X-INVALID-ORDER-384 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                   H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_6s + s^2\left(C_2C_3C_5R_1R_2R_6 + C_3C_4C_5R_1R_4R_6\right)}{C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_4R_1R_4 + C_2C_3C_4R_2R_4 - C_2C_4C_5R_2R_4\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_4R_4 + C_2C_5R_2 + C_3C_4R_4 - C_4C_5R_4\right)}
9.385 X-INVALID-ORDER-385 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                         H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1 + s^2\left(C_2C_3C_4C_5R_1R_2R_4 + C_2C_3C_5C_6R_1R_2R_6 + C_3C_4C_5R_1R_4R_6\right) + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_2R_4 - C_2C_4C_5R_2R_4\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_4C_6R_2 + C_2C_4C_6R_4 - C_2C_5C_6R_4 + C_3C_4C_5R_4\right)}
9.386 X-INVALID-ORDER-386 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6 + s^2\left(C_2C_3C_5R_1R_2R_6 + C_3C_4C_5R_1R_4R_6\right)}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_2C_3C_4C_6R_1R_4R_6 + C_2C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_2C_3C_4R_1R_4 + C_2C_3C_6R_1R_6 + C_2C_4C_5R_2R_6 + C_2C_4C_6R_2R_6 + C_2C_4C_6R_2R_6 + C_3C_4C_6R_4R_6\right) + s^2\left(C_2C_3C_4R_1R_4 + C_2C_3C_4R_1R_4 + C_2C_3C_6R_1R_6 + C_2C_4C_6R_2R_6 + C_2C_4C_6R_2R_6 + C_2C_4C_6R_2R_6 + C_3C_4C_6R_4R_6 - C_4C_5C_6R_4R_6\right)}
9.387 X-INVALID-ORDER-387 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s + s^2\left(C_2C_3C_5R_1R_2R_6 + C_3C_4C_5R_1R_4R_6\right)}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_2C_3C_4C_5R_1R_4R_5 + C_2C_3C_4C_5R_2R_4 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_1R_5 + C_2C_4C_5R_2R_4 + C_2C_4C_5R_2R_5 + C_2C_4C_5R_4R_5\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_4R_4 + C_2C_3C_5R_1R_5 + C_2C_4C_5R_2R_4 + C_2C_4C_5R_2R_5 + C_2C_4C_5R_4R_5 + C_3C_4C_5R_4R_5\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_4R_4 + C_2C_3C_5R_1R_5 + C_2C_4C_5R_2R_4 + C_2C_4C_5R_4R_5 + C_3C_4C_5R_4R_5\right) + s\left(C_2C_3R_1 + C_2C_3R_4 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_4R_5\right) + s\left(C_2C_3R_4R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_4R_5\right) + s\left(C_2C_3R_4R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_4R_5\right) + s\left(C_2C_3R_4R_5 + C_2C_3C_4R_4R_5 + C_2C_3C_4R_4R_5 + C_2C_4C_5R_4R_5\right) + s\left(C_2C_3R_4R_5 + C_2C_3C_4R_4R_5 + C_2C_3C_4R_5R_5 + C_2C_4C_5R_4R_5\right) + s\left(C_2C_3R_4R_5 + C_2C_4R_5R_5 + C_2C_4C_5R_5R_5\right) + s\left(C_2C_3R_4R_5 + C_2C_4R_5R_5 + C_2C_4C_5R_5R_5\right) + s\left(C_2C_3R_4R_5 + C_2C_4R_5R_5 + C_2C_4C_5R_5R_5\right) + s\left(C_2C_3R_5R_5 + C_2C_4R_5R_5 + C_2C_4C_5R_5R_5\right) + s\left(C_2C_3R_5R_5 + C_2C_4R_5R_5 + C_2C_4C_5R_5R_5\right) + s\left(C_2C_3R_5R_5 + C_2C_4R_5R_5\right) + s\left(C_2C_3R_5R_5 + C_2C_4R_5\right) + s\left(C_2C_3R_5R_5 +
```

**9.388** X-INVALID-ORDER-388  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_2C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4\right)$  $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3\left(C_2C_3C_4C_5C_6R_2R_4 + C_2C_3C_4C_5C_6R_2R_4 + C_2C_3C_5C_6R_1R_5 + C_2C_4C_5C_6R_2R_4 + C_2C_4C_5C_6R_2R_5 + C_2C_4C_5C_6R_2R_5 + C_2C_4C_5C_6R_4R_5 + s\left(C_2C_3C_4C_5R_4R_5 + C_3C_4C_5C_6R_4R_5 + c_3C_4C_5C_6R_4R$ 

**9.389** X-INVALID-ORDER-389  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1 + s^2\left(C_2C_3C_4C_5R_1R_2R_4 + C_2C_3C_5C_6R_1R_2R_6 + C_3C_4C_5C_6R_1R_4R_6\right) + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4 + C_2C_3C_5C_6R_1R_4R_6\right) + s\left(C_2C_3C_4C_5R_1R_4R_5 + C_2C_4C_5C_6R_4R_4 + C_2C_3C_5C_6R_1R_4R_5 + C_2C_4C_5C_6R_4R_5\right) + s\left(C_2C_3C_4C_5R_4R_5 + C_2C_4C_5C_6R_4R_5 + C_2C_4C_5C_6R_4R_5\right) + s\left(C_2C_3C_4C_5R_4R_5 + C_2C_4C_5C_6R_4R_5 + C_2C_4C_5C_6R_4R_5 + C_2C_4C_5C_6R_4R_5\right) + s\left(C_2C_3C_4C_5R_4R_5 + C_2C_4C_5C_6R_4R_5\right) + s\left(C_2C_3C_4C_5R_4R_5\right) + s\left(C_2C_3C_$ 

**9.390** X-INVALID-ORDER-390  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

```
9.391 X-INVALID-ORDER-391 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_2 C_3 C_4 C_5 R_1 R_2 R_4 R_5 R_6 s^4 + C_3 R_1 R_6 s^4 + C_3 R_1 R_6 s^4 + C_2 C_3 C_5 R_1 R_2 R_5 R_6 + C_3 C_4 C_5 R_1 R_4 R_5 R_6) + s^2 (C_2 C_3 R_1 R_2 R_6 + C_3 C_4 R_1 R_4 R_6 + C_3 C_5 R_1 R_2 R_6 + C_3 C_4 R_1 R_4 R_5 R_6) + s^2 (C_2 C_3 R_1 R_2 R_6 + C_3 C_4 R_1 R_4 R_6 + C_3 C_5 R_1 R_5 R_6)}{s^3 (C_2 C_3 C_4 R_1 R_4 R_5 + C_2 C_3 C_4 R_2 R_4 R_5) + s^2 (C_2 C_3 R_1 R_2 R_5 + C_2 C_4 R_2 R_4 + C_2 C_4 R_2 R_5 + C_2 C_4 R_4 R_5 - C_2 C_5 R_2 R_5 + C_3 C_4 R_4 R_5) + s (C_2 R_2 + C_2 R_5 + C_3 R_5 - C_4 R_4 + C_4 R_5 - C_5 R_5) - 1}
9.392 X-INVALID-ORDER-392 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2 C_3 C_4 C_5 R_1 R_2 R_4 R_5 s^3 + C_3 R_1 + s^2 (C_2 C_3 C_4 R_1 R_2 R_4 + C_2 C_3 C_5 R_1 R_2 R_5 + C_3 C_4 C_5 R_1 R_4 R_5) + s (C_2 C_3 R_1 R_2 + C_3 C_4 R_1 R_4 + C_3 C_5 R_1 R_2 R_5 + C_3 C_4 C_5 R_1 R_4 R_5) + s (C_2 C_3 R_1 R_2 + C_3 C_4 R_1 R_4 + C_3 C_5 R_1 R_2 R_5 + C_3 C_4 C_5 R_1 R_4 R_5) + s (C_2 C_3 R_1 R_2 + C_3 C_4 R_1 R_4 + C_3 C_5 R_1 R_4 R_5) + s (C_2 C_3 R_1 R_4 R_5 + C_3 C_4 C_5 R_4 R_5) + s (C_2 C_3 R_1 R_4 R_5 + C_3 C_4 C_5 R_4 R_5) + s (C_2 C_3 R_1 R_4 R_5 + C_3 C_4 C_5 R_4 R_5) + s (C_2 C_3 R_1 R_4 R_5 + C_3 C_4 C_5 R_4 R_5) + s (C_2 C_3 R_1 R_4 R_5 + C_3 C_4 C_5 R_4 R_5) + s (C_2 C_3 R_1 R_4 R_5 + C_3 C_4 C_5 R_4 R_5) + s (C_2 C_3 R_1 R_4 R_5 + C_3 C_4 C_5 R_4 R_5) + s (C_2 C_3 R_1 R_4 R_5 + C_2 C_3 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_2 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_2 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_2 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_2 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_3 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_3 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_3 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_3 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_3 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_3 C_4 C_6 R_4 R_5) + s (C_2 C_3 R_4 R_5 + C_3 C_
```

- **9.393** X-INVALID-ORDER-393  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_1 + s^3\left(C_2C_3C_4C_5R_1R_2R_4R_5 + C_2C_3C_4C_6R_1R_2R_4R_6 + C_2C_3C_5C_6R_1R_2R_5R_6 + C_3C_4C_5R_1R_4R_5R_6\right) + s^2\left(C_2C_3C_4R_1R_2R_4 + C_2C_3C_5R_1R_2R_5 + C_2C_3C_6R_1R_2R_6 + C_3C_4C_5R_1R_4R_5 + C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_4R_5 + C_3C_4C_6R_4R$
- **9.394** X-INVALID-ORDER-394  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_5R_6s^4 + C_3R_1R_6s + s^3\left(C_2C_3C_4R_1R_2R_4R_5R_6s^4 + C_3R_1R_6s + s^3\left(C_2C_3C_4R_1R_2R_4R_5R_6s^4 + C_3R_4R_5R_6s^4 + C_3R_4R_5R_6s^4$
- 9.395 X-INVALID-ORDER-395  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + C_2C_4C_6R_2R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_4R_2R_4R_5 + C_2C_6R_2R_4R_5R_6 + C_2C_6R_4R_5R_6 + C_4C_6R_4R_5R_6\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5R_6\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5R_6 + C_2C_6R_2R_4R_5R_6 + C_2C_6R_2R_4R_5R_6 + C_2C_6R_4R_5R_6\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5R_6 + C_2C_6R_2R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5R_6 + C_2C_6R_2R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5R_6 + C_2C_6R_2R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5R_6\right) + s\left(-C_2R_2R_4R_5$
- **9.396** X-INVALID-ORDER-396  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 + C_2C_4R_2R_4 - C_2C_5R_2R_4\right) + s\left(C_2R_2 + C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4\right) + 1}$$

**9.397** X-INVALID-ORDER-397  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_2C_4C_6R_2R_4 - C_2C_5C_6R_2R_4\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$$

- **9.398** X-INVALID-ORDER-398  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_6R_1R_4R_6 + C_2C_3C_6R_2R_4R_6 + C_2C_5C_6R_2R_4R_6\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 + C_2C_5R_2R_4 + C_2C_6R_2R_6 + C_2C_6R_4R_6 + C_3C_6R_4R_6 + C_3C_6R_4R_6\right) + s\left(C_2R_2 + C_2R_4 + C_3R_4 + C_4R_4 + C_5R_4 + C_4R_4R_6\right) + s\left(C_2R_2 + C_2R_4 + C_3R_4 + C_4R_4 + C_4R$
- **9.399** X-INVALID-ORDER-399  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_5R_1R_4R_5 + C_2C_3C_5R_2R_4R_5 + C_2C_4C_5R_2R_4R_5\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 + C_2C_5R_2R_4 + C_2C_5R_2R_5 + C_2C_5R_4R_5 + C_4C_5R_4R_5\right) + s\left(C_2R_2 + C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4 + C_5R_5\right) + 1}$$

**9.400** X-INVALID-ORDER-400  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_2R_4R_5 + C_2C_4C_5C_6R_2R_4 + C_2C_3C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_4R_5 + C_4C_5C_6R_4R_5 + C_4C_5C_$$

```
9.401 X-INVALID-ORDER-401 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_2R_4 + C_2C_4C_5C_6R_2R_4 + C_2C_3C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_2C_5C_6R_2R_5 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_4R_5 + C_3C_5C_6R
9.402 X-INVALID-ORDER-402 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_{1}}{s^{4} \left(C_{2} C_{3} C_{5} C_{6} R_{1} R_{4} R_{5} R_{6} + C_{2} C_{3} C_{5} C_{6} R_{2} R_{4} R_{5} R_{6} + C_{2} C_{3} C_{5} R_{1} R_{4} R_{5} + C_{2} C_{3} C_{5} R_{2} R_{4} R_{5} + C_{2} C_{3} C_{5} R_
9.403 X-INVALID-ORDER-403 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                                      H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_4R_6s + s^2\left(C_2C_3R_1R_2R_4R_6 + C_3C_5R_1R_4R_5R_6\right)}{-R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_4R_2R_4R_5 - C_2C_5R_2R_4R_5\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 + C_3R_4R_5 + C_4R_4R_5 - C_5R_4R_5\right)}
9.404 X-INVALID-ORDER-404 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                         H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_5C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.405 X-INVALID-ORDER-405 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_4R_6s + s^2\left(C_2C_3R_1R_2R_4R_6 + C_3C_5R_1R_4R_5R_6\right)}{-R_4 + R_5 + s^3\left(C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 - C_2C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_4R_5 + C_2C_4R_2R_4R_5 - C_2C_5R_2R_4R_5 - C_2C_5R_2R_4R_5 - C_2C_6R_2R_4R_5R_6 + C_2C_6R_2R_4R_5R_6 + C_3C_6R_4R_5R_6 + C_
9.406 X-INVALID-ORDER-406 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_2C_3C_6R_1R_4R_5R_6 - C_2C_3C_6R_2R_3R_4R_6 + C_2C_3C_6R_2R_3R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + C_2C_3R_2R_3R_4 + C_2C_3R_2R_3R_5 + C_2C_3R_2R_3R_4 + C_2C_3R_2R_3R_5 + C_2C_3R_2R_4R_5 + C_2C
9.407 X-INVALID-ORDER-407 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{-C_2C_3C_5R_2R_3R_4s^3 + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_3 + C_2C_3R_2R_4 + C_2C_3R_3R_4 - C_2C_5R_2R_4 - C_3C_5R_3R_4\right) + s\left(C_2R_2 + C_2R_4 + C_3R_3 + C_3R_4 - C_5R_4\right) + 1}
9.408 X-INVALID-ORDER-408 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                 H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s}{-C_2C_3C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_3 + C_2C_3C_6R_2R_4 + C_2C_3C_6R_3R_4 - C_2C_5C_6R_2R_4 - C_3C_5C_6R_3R_4\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 - C_5C_6R_4\right)}
9.409 X-INVALID-ORDER-409 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                 H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{-C_2C_3C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_2C_3C_6R_3R_4 - C_2C_5C_6R_2R_4 - C_3C_5C_6R_3R_4\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 - C_5C_6R_4\right)}
```

**9.410** X-INVALID-ORDER-410  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{-C_2C_3C_5R_2R_3R_4R_6s^4 + s^3\left(-C_2C_3C_5R_2R_3R_4 + C_2C_3C_6R_2R_4R_6 + C_2C_3C_6R_2R_4R_6 - C_2C_5C_6R_2R_4R_6 - C_3C_5C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_3 + C_2C_3R_2R_4 + C_2C_3R_3R_4 + C_2C_3R_2R_4 + C_2C_3R_3R_4 + C_2C_3R_3R_4$ 

```
9.411 X-INVALID-ORDER-411 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_5R_1R_4R_5 - C_2C_3C_5R_2R_3R_4 + C_2C_3C_5R_2R_3R_5 + C_2C_3C_5R_2R_4R_5 + C_2C_3C_5R_3R_4 + C_2C_3R_2R_4 + C_2C_3R_2R_4 + C_2C_5R_2R_5 + C_2C_5R_4R_5 - C_3C_5R_3R_4 + C_3C_5R_3R_5 + C_3C_5R_4R_5 \right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 + C_2C_3R_2R_4 + C_2C_5R_2R_5 + C_2C_5R_4R_5 - C_3C_5R_3R_4 + C_3C_5R_3R_5 + C_3C_5R_4R_5 \right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 + C_2C_5R_2R_4 + C_2C_5R_2R_5 + C_2C_5R_4R_5 - C_3C_5R_3R_4 + C_3C_5R_3R_5 + C_3C_5R_4R_5 \right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_4 + C_2C_5R_2R_4 + C_2C_5R_2R_5 + C_2C_5R_3R_4 + C_3C_5R_3R_4 + C_3C_5R_3R_5 + C_3C_5R_3R_4 + C_3C_5R_3R_4
9.412 X-INVALID-ORDER-412 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_2C_3C_5C_6R_2R_3R_4 + C_2C_3C_5C_6R_2R_3R_5 + C_2C_3C_5C_6R_2R_4R_5 + C_2C_3C_5C_6R_2R_4 + C_2C_3C_6R_2R_4 + C_2C_3C_6R_4R_4 +
9.413 X-INVALID-ORDER-413 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_4R_5 - C_2C_3C_5C_6R_2R_3R_4 + C_2C_3C_5C_6R_2R_3R_4 + C_2C_3C_5C_6R_2R_4R_5 + C_2C_3C_5C_6R_2R_4R_5 + C_2C_3C_5C_6R_2R_4 + C_2C_3C_6R_2R_4 + C_2C_3C_6R_4 + C_2C_3C_6R_4 + C_2C_3C_6R_4 + C_2C_3C_6R_4 + C_2C_3C_6R_4 + C_2C_3C_6R_4 + C_2C_3C_5C_6R_4 + C_2C_3C_5C_6R_4 + C_2C_3C
```

**9.414** X-INVALID-ORDER-414  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.415** X-INVALID-ORDER-415  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$  $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_4R_6s + s^2\left(C_2C_3R_1R_2R_4R_6 + C_3C_5R_1R_4R_5R_6\right)}{-C_2C_3C_5R_2R_3R_4R_5s^3 - R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 - C_2C_3R_2R_3R_4 + C_2C_3R_2R_3R_4 + C_2C_3R_2R_4R_5 + C_2C_3R_2R_4R_5 - C_2C_5R_2R_4R_5 - C_3C_5R_2R_4R_5\right) + s\left(-C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 - C_3R_3R_4 + C_3R_3R_5 + C_3R_4R_5 - C_5R_4R_5\right)}$ 

**9.416** X-INVALID-ORDER-416  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5\right)}{-C_2C_3C_5C_6R_2R_3R_4R_5s^3 - C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 - C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 - C_2C_5C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6$ 

**9.417** X-INVALID-ORDER-417  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_6R_1R_4R_5R_6\right) + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_2C_3C_5C_6R_2R_3R_4R_5s^3 - C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 - C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 - C_3C_5C_6R_3R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_4 + C_2C_6R_4R_4 + C_$ 

**9.418** X-INVALID-ORDER-418  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.419** X-INVALID-ORDER-419  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_6s^2 + C_3R_1R_6s}{C_2C_3C_4R_2R_3R_5s^3 + s^2\left(C_2C_3R_1R_5 - C_2C_3R_2R_3 + C_2C_3R_2R_5 + C_2C_3R_3R_5 + C_2C_4R_2R_5 + C_3C_4R_3R_5\right) + s\left(-C_2R_2 + C_2R_5 - C_3R_3 + C_3R_5 + C_4R_5\right) - 1}$ 

**9.420** X-INVALID-ORDER-420  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2s + C_3R_1}{C_2C_3C_4C_6R_2R_3R_5s^3 - C_6 + s^2\left(C_2C_3C_6R_1R_5 - C_2C_3C_6R_2R_3 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_3R_5 + C_2C_4C_6R_2R_5 + C_3C_4C_6R_3R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 + C_4C_6R_5\right)}{c_2C_3C_4C_6R_2R_5s^3 - C_6 + s^2\left(C_2C_3C_6R_1R_5 - C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_3R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 + C_4C_6R_5\right)}$ 

**9.421** X-INVALID-ORDER-421  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_6R_1R_2R_6s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_6R_1R_6\right)}{C_2C_3C_4C_6R_2R_3R_5s^3 - C_6 + s^2\left(C_2C_3C_6R_1R_5 - C_2C_3C_6R_2R_3 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_3R_5 + C_2C_4C_6R_2R_5 + C_3C_4C_6R_3R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 + C_4C_6R_5\right)}$ **9.422** X-INVALID-ORDER-422  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_2C_3R_1R_2R_6s^2 + C_3R_1R_6s}{C_2C_3C_4C_6R_2R_3R_5R_6s^4 + s^3\left(C_2C_3C_4R_2R_3R_5 + C_2C_3C_6R_2R_3R_6 + C_2C_3C_6R_2R_3R_6 + C_2C_3C_6R_2R_5R_6 + C_2C_4C_6R_2R_5R_6 + C_2C_4C_6R_2R_5R_6 + C_2C_3C_6R_2R_3R_5 + C_2C_3R_2R_3 + C_2C_3R_3R_3 + C_2C_$ **9.423** X-INVALID-ORDER-423  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 + C_5 + s^3\left(C_2C_3C_4C_6R_2R_3R_6 - C_2C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_2C_3C_4R_2R_3 - C_2C_3C_5R_2R_3 + C_2C_3C_6R_1R_6 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6 + C_3C_4C_6R_3R_6 - C_3C_5C_6R_3R_6\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6 + C_3C_5C_6R_3R_6\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6 + C_3C_5C_6R_3R_6\right) + s\left(C_2C_3R_1 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6\right) + s\left(C_2C_3R_1 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6\right) + s\left(C_2C_3R_1 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6\right) + s\left(C_2C_3R_1 + C_2C_3C_6R_2R_6 + C_2C_3C_6R_2R_6\right) + s\left(C_2C_3R_1 + C_2C_3$ **9.424** X-INVALID-ORDER-424  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2C_3C_4C_5R_2R_3R_5s^3 + C_2 + C_3 + C_4 - C_5 + s^2\left(C_2C_3C_4R_2R_3 + C_2C_3C_5R_2R_3 + C_2C_3C_5R_2R_5 + C_2C_3C_5R_3R_5 + C_2C_4C_5R_2R_5 + C_2C_3R_3 + C_2C_3R_3 + C_2C_4R_2 - C_2C_5R_2 + C_2C_5R_5 + C_3C_4R_3 - C_3C_5R_3 + C_2C_3C_5R_3 + C_2C_3C_5R_$ **9.425** X-INVALID-ORDER-425  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5R_1R_2s + C_3C_5R_1}{C_2C_3C_4C_5C_6R_2R_3R_5s^3 + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_2R_3 + C_2C_3C_5C_6R_2R_3 + C_2C_3C_5C_6R_2R_5 + C_2C_3C_5C_6R_2R_5 + C_2C_3C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_3C_6R_3 + C_2C_4C_6R_2 + C_2C_3C_6R_3 + C_2C_3C_6$ **9.426** X-INVALID-ORDER-426  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6\right)}{C_2C_3C_4C_5C_6R_2R_3R_5s^3 + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_2R_3 + C_2C_3C_5C_6R_2R_3 + C_2C_3C_5C_6R_2R_5 + C_2C_3C_5C_6R_2R_5 + C_2C_4C_5C_6R_2R_5 + C_3C_4C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_3C_6R_3 + C_2C_4C_5C_6R_2R_5 + C_2C_4C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_3C_6R_3 + C_2C_4C_5C_6R_2R_5 + C_2C_4C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_2C_4C_6R_3 + C_2C_4C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_2C_4C_6R_3R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_2C_4C_6R_3\right) + s\left(C_2C_3C_6R_3 + C_2C_4C_6R_3\right) +$ **9.427** X-INVALID-ORDER-427  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.428** X-INVALID-ORDER-428  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_5R_1R_5R_6\right)}{s^3\left(C_2C_3C_4R_2R_3R_5 - C_2C_3C_5R_2R_3R_5\right) + s^2\left(C_2C_3R_1R_5 - C_2C_3R_2R_3 + C_2C_3R_2R_5 + C_2C_4R_2R_5 - C_2C_5R_2R_5 + C_3C_4R_3R_5 - C_3C_5R_3R_5\right) + s\left(-C_2R_2 + C_2R_5 - C_3R_3 + C_3R_5 + C_4R_5 - C_5R_5\right) - 1}$ 

**9.429** X-INVALID-ORDER-429  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_5s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_5R_1R_5\right)}{-C_6 + s^3\left(C_2C_3C_4C_6R_2R_3R_5 - C_2C_3C_5C_6R_2R_3 + C_2C_3C_6R_2R_3 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_3R_5 + C_2C_3C_6R_3R_5 + C_2C_3C_6R_3R_5 + C_2C_3C_6R_3R_5 + C_2C_3C_6R_3R_5 + C_3C_5C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6$ 

**9.430** X-INVALID-ORDER-430  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_5R_6s^3 + C_3R_1 + s^2\left(C_2C_3C_5R_1R_2R_5 + C_2C_3C_6R_1R_2R_6 + C_3C_5C_6R_1R_5R_6\right) + s\left(C_2C_3R_1R_2 + C_3C_5R_1R_5 + C_3C_6R_1R_6\right)}{-C_6 + s^3\left(C_2C_3C_4C_6R_2R_3R_5 - C_2C_3C_6R_2R_3 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_3R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_3R_5\right) + s\left(-C_2C_6R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5\right) + s\left(-C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5\right) + s\left(-C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_5R_5\right) + s\left(-C_3C_6R_3R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5\right) + s\left(-C_3C_6R_3R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5\right) + s\left(-C_3C_6R_5R_5 + C_3C_6R_5 + C_3C_6R_5\right) + s\left(-C_3C_6R_5R_5 + C_3C_6R_5 + C_3C_6R_5\right) + s\left(-C_3C_6R_5R_5 + C_3C_6R_5 + C_3C_6R_5\right) + s\left(-C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5\right) + s\left(-C_3C_6R_5 + C_3C_6R_5\right) + s\left(-C_3C_6R_5\right) + s\left($ 

```
9.431 X-INVALID-ORDER-431 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_1R_6s + s^2$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_1R_6s + s^2}{s^4\left(C_2C_3C_4C_6R_2R_3R_5R_6 - C_2C_3C_5C_6R_2R_3R_5R_6 - C_2C_3C_5R_2R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_3C_5R_3R_5 +$ 

**9.432** X-INVALID-ORDER-432  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_4R_1R_2R_4R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_4R_1R_4R_6\right)}{s^3\left(C_2C_3C_4R_1R_4R_5 - C_2C_3C_4R_2R_3R_4 + C_2C_3C_4R_2R_3R_5 + C_2C_3R_4R_3R_4 + C_2C_3R_2R_5 + C_2C_3R_2R_5 + C_2C_3R_2R_5 + C_2C_4R_2R_4 + C_2C_4R_2R_5 + C_2C_4R_2R_4 + C_3C_4R_3R_4 + C_3C_4R_3R_5 + C_3C_4R_3R_5 + C_3C_4R_3R_4 + C_3C_4R_3R_5 + C_3C_4R$ 

**9.433** X-INVALID-ORDER-433  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $C_2C_3C_4R_1R_2R_4s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_4R_1R_4\right)$  $H(s) = \frac{C_2C_3C_4R_1R_2R_4s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_4R_1R_4\right)}{-C_6 + s^3\left(C_2C_3C_4C_6R_2R_3R_4 + C_2C_3C_4C_6R_2R_3R_5 + C_2C_3C_4C_6R_2R_4R_5 + C_2C_3C_6R_2R_3 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_3R_5 - C_2C_4C_6R_2R_4 + C_2C_4C_6R_4R_4 + C_2C_4C_6R_4$ 

**9.434** X-INVALID-ORDER-434  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

**9.435** X-INVALID-ORDER-435  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_2 C_3 C_4 C_6 R_1 R_4 R_5 R_6 - C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 + C_2 C_3 C_4 C_6 R_2 R_3 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 R_2 R_3 R_4 + C_2 C_3 C_4 R_2 R_3 R_5 + C_2 C_3 C_4 R_2 R_4 R_5 + C_2 C_3 C_4 R_4 R_5 R_5 + C_2 C_3 C_4 R_5 R_5 + C_2$ 

**9.436** X-INVALID-ORDER-436  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6 + s^2\left(C_2C_3C_5R_1R_2R_6 + C_3C_4C_5R_1R_4R_6\right)}{-C_2C_3C_4C_5R_2R_3R_4s^3 + C_2 + C_3 + C_4 + C_5 + s^2\left(C_2C_3C_4R_1R_4 + C_2C_3C_4R_2R_4 + C_2C_3C_4R_3R_4 - C_2C_3C_5R_2R_3 - C_2C_4C_5R_2R_4 + C_3C_4C_5R_3R_4\right) + s\left(C_2C_3R_1 + C_2C_3R_2 + C_2C_4R_4 + C_2C_5R_2 + C_3C_4R_3 + C_2C_4R_4 - C_2C_5R_4 + C_3C_4R_4 + C_2C_3C_4R_3R_4 - C_2C_3C_4R_3R_4 -$ 

**9.437** X-INVALID-ORDER-437  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_2C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1 + s(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4)$ 

**9.438** X-INVALID-ORDER-438  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_4 + C_2C_3C_5C_6R_1R_2R_4 + C_2C_3C_5C_6R_1R_4R_6) + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4 + C_3C_5C_6R_1R_6\right)}{-C_2C_3C_4C_5C_6R_2R_3R_4s^3 + C_2C_6C_6R_2R_3 + C_2C_3C_4C_6R_2R_4 + C_2C_3C_4C_6R_2R_4 + C_2C_3C_4C_6R_2R_4 - C_2C_3C_4C_5C_6R_2R_4 - C_3C_4C_5C_6R_3R_4\right) + s\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_1R_4 + C_2C_3C_4C_6R_2R_4 + C_2C_3C_4C_6R_2R_4 - C_2C_3C_4C_5C_6R_2R_4 - C_3C_4C_5C_6R_3R_4\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_3C_6R_3 + C_2C_4C_5C_6R_3R_4\right) + s\left(C_2C_3C_4C_5R_3R_4 + C_2C_3C_4C_6R_3R_4 + C_2C_3C_4C_6R_3R_4 + C_2C_3C_4C_5R_3R_4\right) + s\left(C_2C_3C_4C_6R_3R_4 + C_2C_3C_4C_6R_3R_4 + C_2C_3C_4C_6R_3R_4\right) + s\left(C_2C_3C_4C_5R_3R_4 + C_2C_3C_4C_6R_3R_4 + C_2C_3C_4C_6R_3R_4 + C_2C_3C_4C_6R_3R_4\right) + s\left(C_2C_3C_4C_6R_3R_4 + C_2C_3C_4C_6R_3R_4\right) + s\left(C_2C_3C_4C_6R_3R_4\right) + s\left(C_2C_3C_4$ 

**9.439** X-INVALID-ORDER-439  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.440** X-INVALID-ORDER-440  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_6s + s$  $H(s) = \frac{C_2 C_3 C_4 C_5 R_1 R_4 C_5 C_3 C_4 C_5 R_1 R_4 R_5 - C_2 C_3 C_4 C_5 R_2 R_3 R_4 + C_2 C_3 C_4 C_5 R_2 R_3 R_5 + C_2 C_3 C_4 C_5 R_2 R_4 R_5 + C_2 C_3 C_4 C_5 R_4 R_5 + C_2 C_3 C_4 R_4 R_5 + C_2 C_3 C_5 R_5 R_5 + C_2 C_5 C_5 R_5 R_5 + C_2 C$ 

```
9.441 X-INVALID-ORDER-441 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3 + c_2C_3C_4C_5C_6R_1R_4R_5 - c_2C_3C_4C_5C_6R_2R_3R_4 + c_2C_3C_4C_5C_6R_2R_3R_5 + c_2C_3C_4C_5C_6R_2R_4R_5 + c_2C_3C_4C_5C_6R_3R_4R_5 + s^2 + c_2C_3C_4C_6R_2R_3 + c_2C_3C_4C_6R_2R_4 + c_2C_3C_4C_6R_4 + c_2C_3C_4C$ 

**9.442** X-INVALID-ORDER-442 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $C_2C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_6$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_2C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_2C_3C_4C_5C_6R_2R_3R_4 + C_2C_3C_4C_5C_6R_2R_3R_5 + C_2C_3C_4C_5C_6R_2R_3R_5 + C_2C_3C_4C_5C_6R_2R_4R_5 + C_2C_3C_4C_5C_6R_4R_5 + C_2C_3C_4C_5C_6R_4R_5 + C_2C_3C_4C_5C_6R_4R_5 + C_2C_3C$ 

**9.443** X-INVALID-ORDER-443 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

**9.444** X-INVALID-ORDER-444 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $\frac{C_2C_3C_4C_5R_1R_2R_4R_5R_6s^4 + C_3R_1R_6s + s^3\left(C_2C_3C_4R_1R_2R_4R_6 + C_2C_3C_5R_1R_2R_5R_6 + C_3C_4C_5R_1R_4R_5R_6\right) + s^2\left(C_2C_3C_4C_5R_2R_3R_4R_5s^4 + s^3\left(C_2C_3C_4R_1R_4R_5 - C_2C_3C_4R_2R_3R_4 + C_2C_3C_4R_2R_3R_5 + C_2C_3C_$ 

**9.445** X-INVALID-ORDER-445  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $C_2C_3C_4C_5R_1R_2R_4R_5s^3 + C_3R_1 + s^2(C_2C_3C_4R_1R_2R_4 + C_2C_3C_5R_1R_2$  $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_5s^3 + C_3R_1 + s^2\left(C_2C_3C_4R_1R_2R_4 + C_2C_3C_5R_1R_2\right)}{-C_2C_3C_4C_5C_6R_2R_3R_4R_5s^4 - C_6 + s^3\left(C_2C_3C_4C_6R_2R_3R_4 + C_2C_3C_4C_6R_2R_3R_5 + C_2C_3C_4C_6R_2R_3R_5 - C_2C_4C_5C_6R_2R_4R_5 - C_3C_4C_5C_6R_2R_4R_5 - C_2C_3C_4C_6R_2R_4R_5 - C_2C_3C_4C$ 

**9.446** X-INVALID-ORDER-446  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_1 + s^3\left(C_2C_3C_4C_5R_1R_2R_4R_5 + C_2C_3C_4C_6R_1R_2R_4R_6 + C_2C_3C_5C_6R_1R_2R_5R_6 + C_3C_4C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4C_6R_2R_3R_4R_5 - C_2C_3C_4C_6R_2R_3R_4R_5 - C_2C_3C_4C_6R_2R_4R_5 - C_2C_3C_4C_6R_4R_4R_5 - C_2C_3C_4C_6R_4R_4R_5 - C_2C_3C_4C_6R_4R_4R_5 - C_2C_3C_4C_6R_4R$ 

**9.447** X-INVALID-ORDER-447  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.448** X-INVALID-ORDER-448  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{C_2C_3C_4R_2R_3R_4R_5s^3 - R_4 + R_5 + s^2\left(C_2C_3R_1R_4R_5 - C_2C_3R_2R_3R_4 + C_2C_3R_2R_3R_5 + C_2C_3R_2R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_4R_2R_4R_5 + C_2C_4R_4R_5 +$ 

**9.449** X-INVALID-ORDER-449  $Z(s) = \left(R_1, \ R_2 + \frac{1}{C_2 s}, \ R_3 + \frac{1}{C_3 s}, \ \frac{R_4}{C_4 R_4 s + 1}, \ R_5, \ \frac{1}{C_6 s}\right)$ 

 $C_2C_3R_1R_2R_4s + C_3R_1R_4$  $H(s) = \frac{C_2C_3R_1R_2R_4s + C_3R_1R_4}{C_2C_3C_4C_6R_2R_3R_4R_5s^3 - C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 - C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_4C_6R_2R_4R_5 + C_2C_4C_6R_2R_4R_5 + C_2C_6R_2R_4 + C_2C_6R_4R_4 + C_2C_6R_4R_$ 

**9.450** X-INVALID-ORDER-450  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_6\right)$  $\frac{C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_6\right)}{C_2C_3C_4C_6R_2R_3R_4R_5s^3 - C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 - C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4 + C_2C_3C_6R_2R_$ 

```
9.451 X-INVALID-ORDER-451 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{1}{C_2C_3C_4C_6R_2R_3R_4R_5R_6s^4 - R_4 + R_5 + s^3\left(C_2C_3C_4R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_6 + C_2C_3C_6R_2R_3R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + C_2C_3C_6R_4R_4R_5R_6 + C_2C_3C_6R_$ 

**9.452** X-INVALID-ORDER-452  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^3\left(C_2C_3C_4R_2R_3R_4 - C_2C_3C_5R_2R_3R_4\right) + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_3 + C_2C_3R_2R_4 + C_2C_4R_2R_4 - C_2C_5R_2R_4 + C_3C_4R_3R_4 - C_3C_5R_3R_4\right) + s\left(C_2R_2 + C_2R_4 + C_3R_3 + C_4R_4 - C_5R_4\right) + 1}$ 

**9.453** X-INVALID-ORDER-453  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_2C_3C_4C_6R_2R_3R_4 - C_2C_3C_5C_6R_2R_3R_4\right) + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_3 + C_2C_3C_6R_2R_4 + C_2C_3C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_3C_5C_6R_3R_4\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$ 

**9.454** X-INVALID-ORDER-454  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{C_6 + s^3\left(C_2C_3C_4C_6R_2R_3R_4 - C_2C_3C_6R_2R_3R_4\right) + s^2\left(C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_2C_3C_6R_2R_4 + C_2C_3C_6R_2R_4 + C_3C_5C_6R_3R_4\right) + s\left(C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 + C_4C_6R_4 - C_5C_6R_4\right)}$ 

**9.455** X-INVALID-ORDER-455  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_2C_3C_5R_2R_3R_4R_6 - C_2C_3C_5R_2R_3R_4R_6 - C_2C_3C_5R_2R_3R_4R_6 - C_2C_3C_5R_2R_3R_4R_6 - C_2C_3C_6R_2R_3R_4R_6 - C_2C_3C_4R_2R_3R_4 - C_2C_3C_3C_4R_2R_3R_4 - C_2C_3C_3C_3R_3R_4 - C_2C_3C_3R_3R_4 - C_2C_3C_3R_3R_4 - C_2C_3C_3R_3R_4 - C_2C_3C_3R_3R_4 - C_2C_3C$ 

**9.456** X-INVALID-ORDER-456  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{C_2C_3C_4R_2R_3R_4R_5s^4 + s^3\left(C_2C_3C_4R_2R_3R_4 + C_2C_3C_5R_2R_3R_4 + C_2C_3C_5R_2R_3R_5 + C_2C_3C_5R_2R_4R_5 + C_2C_3C_5R_3R_4R_5 + C_2C_4C_5R_3R_4R_5 + s^2\left(C_2C_3R_1R_4 + C_2C_3R_2R_3 + C_2C_3R_2R_4 + C_2C_3R_3R_4 + C_2C_3R_2R_4 + C_2C_3R_2R$ 

**9.457** X-INVALID-ORDER-457  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_2C_3C_5C_6R_2R_3R_4R_5s^4 + C_6 + s^3\left(C_2C_3C_4C_6R_2R_3R_4 + C_2C_3C_5C_6R_2R_3R_4 + C_2C_3C_5C_6R_3R_4 + C_2C_3C_5C_6R_3R_4 + C_2C_3C_5C_6R_3R_4 + C_2C_3C_5C_6R_3R_4 + C_2C_3C_5C_6R_3R_4 + C_2C_3C_5C_6R_3R_$ 

9.458 X-INVALID-ORDER-458  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2}{C_2C_3C_4C_5C_6R_2R_3R_4R_5s^4 + C_6 + s^3\left(C_2C_3C_4C_6R_2R_3R_4 + C_2C_3C_5C_6R_2R_3R_4 + C_2C_3C_5C_6R_2R_3R_5 + C_2C_3C_5C_6R_2R_4R_5 + C_2C_3C_5C_6R_2R_4R_$ 

**9.459** X-INVALID-ORDER-459  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_2C_3C_4C_5C_6R_2R_3R_4R_5R_6s^5 + s^4\left(C_2C_3C_4C_5R_2R_3R_4R_5 + C_2C_3C_4C_6R_2R_3R_4R_6 + C_2C_3C_5C_6R_2R_3R_4R_6 + C_2C_3C_5C_6R_2R_4R_5R_6 + C_2C_3C_5C_6R_2R_4R_5R_5 + C_2C_3C_5C_6R_5R_5R_5 + C_2C_3C_5C_6R_5R_5R_5 + C_2C_3C_5C_6R_5R_5R_5 + C_2C_3C_5C_6R_5R_5R_5 + C_2C_5C_5C_6R_5R_5R_5 + C_2C_5C_5C_5R_5R_5 + C_2C_5C_5C_5R_$ 

**9.460** X-INVALID-ORDER-460  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_4R_6s + s^2\left(C_2C_3R_1R_2R_4R_6 + C_3C_5R_1R_4R_5R_6\right)}{-R_4 + R_5 + s^3\left(C_2C_3C_4R_2R_3R_4R_5 - C_2C_3C_5R_2R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_4R_5 - C_2C_3R_2R_3R_4 + C_2C_3R_2R_4R_5 + C_2C_3R_2R_4R_$ 

```
9.461 X-INVALID-ORDER-461 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5\right)}{-C_6R_4 + C_6R_5 + s^3\left(C_2C_3C_4C_6R_2R_3R_4R_5 - C_2C_3C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_4R_5 + C_2C_3C_6R_4R_5 + C_2C_3C_6R_4R_5 + C_2C_3C_6R_4R_5 + C_2C_3C_6R_4R_5 + C_2C_3C_6R_4R_5 + C_2C_3C_6
9.462 X-INVALID-ORDER-462 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_6R_1R_4R_5R_6\right) + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_3C_6
9.463 X-INVALID-ORDER-463 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-R_4 + R_5 + s^4 \left(C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_5 R_6 - C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_6 R_2 R_5 R_5 R_6 + C_2 C_3 C_6 R_2 R_
9.464 X-INVALID-ORDER-464 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                  H(s) = \frac{C_2C_3R_1R_2R_3R_4s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4\right)}{s^3\left(C_2C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}
9.465 X-INVALID-ORDER-465 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                 H(s) = \frac{C_2C_3C_6R_1R_2R_3R_4R_6s^3 + R_1R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_6R_1R_2R_4R_6 + C_3C_6R_1R_3R_4R_6\right) + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4 + C_6R_1R_4R_6\right)}{s^3\left(C_2C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}
9.466 X-INVALID-ORDER-466 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}R_{6}s^{2}+R_{1}R_{4}R_{6}+s\left(C_{2}R_{1}R_{2}R_{4}R_{6}+C_{3}R_{1}R_{3}R_{4}R_{6}\right)
                                   \frac{C_2C_3R_1R_2R_3R_4R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_3R_1R_3R_4R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(C_2C_3C_6R_1R_3R_4R_5R_6 + C_2C_3C_6R_2R_3R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_6R_1R_4R_5R_6 - C_2C_6R_2R_3R_4R_6 + C_2C_6R_2R_3R_4R_5R_6 + C_2C_6R_3R_4R_5R_6 + C_2C_6R_3R_4R_5R_6\right) + s\left(C_2R_1R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5R_6 + C_2C_6R_3R_4R_5R_6 + C_2C_6R_3R_4R_5R_6\right) + s\left(C_2R_1R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5R_6\right) + s\left(C_2R_1R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5R_6\right) + s\left(C_2R_1R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5R_6\right) + s\left(C_2R_1R_4R_5R_6\right) + s\left(C_2R_1R
9.467 X-INVALID-ORDER-467 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                    H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_4R_6s + s^2\left(C_2C_5R_1R_2R_4R_6 + C_3C_5R_1R_3R_4R_6\right)}{R_3 + R_4 + s^2\left(C_2C_3R_1R_3R_4 + C_2C_3R_2R_3R_4 - C_2C_5R_2R_3R_4\right) + s\left(C_2R_1R_4 + C_2R_2R_3 + C_2R_2R_4 + C_2R_3R_4 + C_3R_3R_4 - C_5R_3R_4\right)}
9.468 X-INVALID-ORDER-468 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                       H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_3R_4 + C_2C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_3R_4R_6\right) + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_3R_4 + C_2C_3C_6R_2R_3R_4 - C_2C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 - C_5C_6R_3R_4\right)}
9.469 X-INVALID-ORDER-469 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_4R_6s + s^2\left(C_2C_5R_1R_2R_4R_6 + C_3C_5R_1R_3R_4R_6\right)}{R_3 + R_4 + s^3\left(C_2C_3C_6R_1R_3R_4R_6 + C_2C_3C_6R_2R_3R_4R_6 - C_2C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_2C_3R_1R_3R_4 + C_2C_3R_2R_3R_4 + C_2C_6R_1R_4R_6 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_4R_6 + C_2C_6R_3R_4R_6 + C_3C_6R_3R_4R_6 - C_5C_6R_3R_4R_6\right) + s\left(C_2R_1R_4 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4R_6 + C_2C_6R_3R_4R_6 + C_3C_6R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4R_6 + C_2C_6R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4R_6 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_3R_4R_6 + C_2C_6R_3R_4R_6 + C_3C_6R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4R_6 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_3R_4R_6 + C_3C_6R_3R_4R_6 + C_3C_6R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4R_6 + C_2C_6R_2R_3R_4 + C_2C_6R_3R_4R_6 + C_3C_6R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4R_6 + C_2C_6R_3R_4R_6 + C_3C_6R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4R_6 + C_3C_6R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_1R_4R_6\right) + s$ 

**9.470** X-INVALID-ORDER-470  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_4R_6s + s^2\left(C_2C_5R_1R_2R_4R_6 + C_3C_5R_1R_3R_4R_6\right)}{R_3 + R_4 + s^3\left(C_2C_3C_5R_1R_3R_4R_5 + C_2C_5R_2R_3R_4 + C_2C_5R_3R_4R_5 + C_2C_5R_3R_5R_5 + C_2C_5R_5R_5R_5R_5 + C_2C_5R_5R_5R_5R_5 + C_2C_5R_5R_5R_5 + C_2C_5R_5R_5R_5 + C_2C_5R_5R_5R_5 + C_2C$ 

```
9.471 X-INVALID-ORDER-471 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4\right)}{C_6R_3 + C_6R_4 + s^3\left(C_2C_3C_5C_6R_1R_3R_4R_5 + C_2C_3C_5C_6R_2R_3R_4 + C_2C_5C_6R_1R_4R_5 + C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R
9.472 X-INVALID-ORDER-472 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_3R_4 + C_2C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_3R_4R_6\right) + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^3\left(C_2C_3C_5C_6R_1R_3R_4R_5 + C_2C_3C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R_3
9.473 X-INVALID-ORDER-473 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{R_3 + R_4 + s^4 \left( C_2 C_3 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_5 R_6 \right) + s^3 \left( C_2 C_3 C_5 R_1 R_3 R_4 R_5 + C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_1 R_3 R_4 R_6 + C_2 C_5 C_6 R_1 R_4 R_5 R_6 + C_2 C_5 C_6 R_2 R_3 R_4 R_5 + C_2 C_5 C_6 R_2 R_3 R_5 + C_2 C_5 C_6 R_2 R_5 R_5 + C_2 C_5 C_6 R_2 R_5 R_5 + C_2 C_5 C_6 R_5 R_5 + C_2 C_5 C_6 R_5 R_5 + C_2 C
9.474 X-INVALID-ORDER-474 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                            H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_4R_6 + s^2\left(C_2C_3R_1R_2R_3R_4R_6 + C_2C_5R_1R_2R_4R_5R_6 + C_3C_5R_1R_3R_4R_5R_6\right) + s\left(C_2R_1R_2R_4R_6 + C_3R_1R_3R_4R_6 + C_5R_1R_4R_5R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_3R_2R_3R_4R_5 - C_2C_5R_2R_3R_4R_5\right) + s\left(C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_2R_2R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5 - C_5R_3R_4R_5\right)}
9.475 X-INVALID-ORDER-475 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                   H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_5s^3 + R_1R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_5R_1R_2R_4R_5 + C_3C_5R_1R_3R_4R_5\right) + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4 + C_5R_1R_4R_5\right)}{s^3\left(C_2C_3C_6R_1R_3R_4R_5 + C_2C_5C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_3R_4R_5 + C_2C_6
9.476 X-INVALID-ORDER-476 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_4 + s^3\left(C_2C_3C_5R_1R_2R_3R_4R_5 + C_2C_3C_6R_1R_2R_3R_4R_6 + C_2C_5C_6R_1R_2R_4R_5R_6 + C_3C_5C_6R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_4R_4R_5 + C_2C_6R_4R_4R_5 + C_2C_6R_4R_4R_5 + C_2C_6R_4R_4R_5 + C_
9.477 X-INVALID-ORDER-477 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_4R_6 + s^2\left(C_2C_3R_1R_2R_3R_4R_6 + C_2C_5R_1R_2R_4R_5R_6 + C_3C_5R_1R_3R_4R_5R_6\right) + s\left(C_2R_3R_4R_5R_6 + C_2C_3R_3R_4R_5 +
```

9.478 X-INVALID-ORDER-478  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3R_1R_2R_3s^2 + R_1 + s\left(C_2R_1R_2 + C_3R_1R_3\right)}{s^3\left(C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_4C_6R_2R_3R_5\right) + s^2\left(C_2C_6R_1R_5 - C_2C_6R_2R_3 + C_2C_6R_2R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$$

9.479 X-INVALID-ORDER-479  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_6R_1R_2R_3R_6s^3 + R_1 + s^2\left(C_2C_3R_1R_2R_3 + C_2C_6R_1R_2R_6 + C_3C_6R_1R_3R_6\right) + s\left(C_2R_1R_2 + C_3R_1R_3 + C_6R_1R_6\right)}{s^3\left(C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_4C_6R_2R_3R_5\right) + s^2\left(C_2C_6R_1R_5 - C_2C_6R_2R_3 + C_2C_6R_2R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$$

**9.480** X-INVALID-ORDER-480  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_3R_1R_2R_3R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_3R_1R_3R_6\right)}{-R_3 + R_5 + s^3\left(C_2C_3C_6R_1R_3R_5R_6 + C_2C_3C_6R_2R_3R_5R_6 + C_2C_4C_6R_2R_3R_5R_6 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_3R_5 + C_2C_6R_2R_3R_6 + C_2C_6R_2R_3R_5R_6 + C_2C_6R_3R_5R_6 + C_2C_6R_5R_5R_6 + C_2C_6R_5R_5R_6 + C_2C_6R_5R_5R_6 + C_2C_6R_5R_5R_5R_6 + C_2C_6R_5R_5R_6 + C_2C_6R_5R_5R_6 +$$

$$\textbf{9.481} \quad \textbf{X-INVALID-ORDER-481} \ Z(s) = \left(R_1, \ R_2 + \frac{1}{C_2 s}, \ \frac{R_3}{C_3 R_3 s + 1}, \ \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ R_6\right) \\ H(s) = \frac{C_2 C_3 C_5 R_1 R_2 R_3 R_6 s^3 + C_5 R_1 R_6 s + s^2 \left(C_2 C_5 R_1 R_2 R_6 + C_3 C_5 R_1 R_3 R_6\right)}{s^2 \left(C_2 C_3 R_1 R_3 + C_2 C_3 R_2 R_3 + C_2 C_4 R_2 R_3 - C_2 C_5 R_2 R_3\right) + s \left(C_2 R_1 + C_2 R_2 + C_2 R_3 + C_3 R_3 + C_4 R_3 - C_5 R_3\right) + 1}$$

 $\textbf{9.482} \quad \textbf{X-INVALID-ORDER-482} \ Z(s) = \left(R_1, \ R_2 + \frac{1}{C_2 s}, \ \frac{R_3}{C_3 R_3 s+1}, \ \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ R_6 + \frac{1}{C_6 s}\right)$   $H(s) = \frac{C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_6 s^3 + C_5 R_1 + s^2 \left(C_2 C_3 C_5 R_1 R_2 R_3 + C_2 C_5 C_6 R_1 R_2 R_6 + C_3 C_5 C_6 R_1 R_3 R_6\right) + s \left(C_2 C_5 R_1 R_2 + C_3 C_5 R_1 R_3 + C_5 C_6 R_1 R_6\right) }{C_6 + s^2 \left(C_2 C_3 C_6 R_1 R_3 + C_2 C_3 C_6 R_2 R_3 + C_2 C_4 C_6 R_2 R_3 - C_2 C_5 C_6 R_2 R_3\right) + s \left(C_2 C_6 R_1 + C_2 C_6 R_2 + C_2 C_6 R_3 + C_3 C_6 R_3 + C_4 C_6 R_3 - C_5 C_6 R_3\right) }$ 

**9.483** X-INVALID-ORDER-483  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_6s^3 + C_5R_1R_6s + s^2\left(C_2C_5R_1R_2R_6 + C_3C_5R_1R_3R_6\right)}{s^3\left(C_2C_3C_6R_1R_3R_6 + C_2C_3C_6R_2R_3R_6 + C_2C_4C_6R_2R_3R_6 - C_2C_5C_6R_2R_3R_6\right) + s^2\left(C_2C_3R_1R_3 + C_2C_4R_2R_3 - C_2C_5R_2R_3 + C_2C_6R_2R_6 + C_2C_6R_3R_6 + C_3C_6R_3R_6 + C_4C_6R_3R_6 - C_5C_6R_3R_6\right) + s\left(C_2R_1 + C_2R_2 + C_2R_3 + C_3R_3 + C_3C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_2R_1 + C_2R_3 + C_3C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_3C_3R_3R_6 + C_3C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_3C_3R_3R_6 + C_3C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_3C_3R_3R_6 + C_3C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_3C_3R_3R_6 + C_3C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_3C_3R_3R_6 + C_3C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_3C_3R_3R_6 + C_3C_6R_3R_6 + C_3C_6R_$ 

**9.484** X-INVALID-ORDER-484  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_6s^3 + C_5R_1R_6s + s^2\left(C_2C_5R_1R_2R_6 + C_3C_5R_1R_3R_6\right)}{s^3\left(C_2C_3C_5R_1R_3R_5 + C_2C_3C_5R_2R_3R_5 + C_2C_4C_5R_2R_3R_5\right) + s^2\left(C_2C_3R_1R_3 + C_2C_3R_2R_3 + C_2C_5R_1R_5 - C_2C_5R_2R_5 + C_2C_5R_3R_5 + C_3C_5R_3R_5 + C_4C_5R_3R_5\right) + s\left(C_2R_1 + C_2R_2 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3 + C_5R_5\right) + 1}$ 

**9.485** X-INVALID-ORDER-485  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3s^2 + C_5R_1 + s\left(C_2C_5R_1R_2 + C_3C_5R_1R_3\right)}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_3R_5 + C_2C_3C_5C_6R_2R_3R_5 + C_2C_4C_5C_6R_2R_3R_5\right) + s^2\left(C_2C_3C_6R_1R_3 + C_2C_3C_6R_2R_3 + C_2C_5C_6R_1R_5 - C_2C_5C_6R_2R_5 + C_2C_5C_6R_3R_5 + C_3C_5C_6R_3R_5 + C_4C_5C_6R_3R_5\right) + s\left(C_2C_6R_1R_3 + C_2C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5 + C_3C_5C_6R_3R_5 + C_3C_5C_6R_3R_5 + C_3C_5C_6R_3R_5\right) + s\left(C_2C_6R_1R_3 + C_2C_3C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5 + C_3C_5C_6R_3R_5 + C_3C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_3C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5 + C_3C_5C_6R_3R_5 + C_3C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_3C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5 + C_2C_5C_6R_3R_5 + C_3C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_3C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5 + C_3C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_3C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5 + C_2C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_3C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5\right) + s\left(C_2C_3C_6R_1R_3 + C_2C_5C_6R_3R_5\right) + s\left(C_2C$ 

**9.486** X-INVALID-ORDER-486  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_6s^3 + C_5R_1 + s^2\left(C_2C_3C_5R_1R_2R_3 + C_2C_5C_6R_1R_2R_6 + C_3C_5C_6R_1R_3R_6\right) + s\left(C_2C_5R_1R_2 + C_3C_5R_1R_3 + C_5C_6R_1R_6\right)}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_3R_5 + C_2C_3C_5C_6R_2R_3R_5 + C_2C_5C_6R_2R_3 + C_2C_5C_6R_3R_5 +$ 

**9.487** X-INVALID-ORDER-487  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_2 C_3 C_5 C_6 R_1 R_3 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_2 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_2 C_3 C_5 R_1 R_3 R_5 + C_2 C_3 C_5 R_2 R_3 R_5 + C_2 C_3 C_6 R_2 R_3 R_6 + C_2 C_4 C_5 R_2 R_3 R_6 + C_2 C_5 C_6 R_2 R_3 R_6 +$ 

**9.488** X-INVALID-ORDER-488  $Z(s) = \left(R_1, \ R_2 + \frac{1}{C_2 s}, \ \frac{R_3}{C_3 R_3 s + 1}, \ \frac{1}{C_4 s}, \ \frac{R_5}{C_5 R_5 s + 1}, \ R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_5R_6s^3 + R_1R_6 + s^2\left(C_2C_3R_1R_2R_3R_6 + C_2C_5R_1R_2R_5R_6 + C_3C_5R_1R_3R_5R_6\right) + s\left(C_2R_1R_2R_6 + C_3R_1R_3R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^2\left(C_2C_3R_1R_3R_5 + C_2C_3R_2R_3R_5 + C_2C_4R_2R_3R_5 - C_2C_5R_2R_3R_5\right) + s\left(C_2R_1R_5 - C_2R_2R_3 + C_2R_2R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5 - C_5R_3R_5\right)}$ 

**9.489** X-INVALID-ORDER-489  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_5s^3 + R_1 + s^2\left(C_2C_3R_1R_2R_3 + C_2C_5R_1R_2R_5 + C_3C_5R_1R_3R_5\right) + s\left(C_2R_1R_2 + C_3R_1R_3 + C_5R_1R_5\right)}{s^3\left(C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_4C_6R_2R_3R_5 - C_2C_5C_6R_2R_3R_5\right) + s^2\left(C_2C_6R_1R_5 - C_2C_6R_2R_3 + C_2C_6R_2R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5 - C_5C_6R_3R_5\right) + s\left(C_2R_1R_2 + C_3R_1R_3 + C_5R_1R_5\right)}$ 

9.490 X-INVALID-ORDER-490  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_5R_6s^4 + R_1 + s^3\left(C_2C_3C_5R_1R_2R_3R_5 + C_2C_3C_6R_1R_2R_3R_6 + C_2C_5C_6R_1R_2R_5R_6 + C_3C_5C_6R_1R_3R_5R_6\right) + s^2\left(C_2C_3R_1R_2R_3 + C_2C_5R_1R_2R_5 + C_2C_6R_1R_2R_6 + C_3C_5R_1R_3R_5 + C_3C_6R_1R_3R_6 + C_5C_6R_1R_3R_6 + C_5C_6R_1R_3R_5 + C_5C_6R_1R_3R_5 + C_5C_6R_1R_3R_5 + C_5C_6R_1R_3R_5 + C_5C_6R_1R_3R_5 + C_5C_6R_2R_3R_5 + C_5C_6R_2R_3R_5 + C_5C_6R_2R_3R_5 + C_5C_6R_2R_3R_5 + C_5C_6R_3R_5 + C_5C_6R_3R_5$ 

- **9.492** X-INVALID-ORDER-492  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$
- $H(s) = \frac{C_2C_3C_4R_1R_2R_3R_4R_6s^3 + R_1R_6 + s^2\left(C_2C_3R_1R_2R_3R_6 + C_2C_4R_1R_2R_4R_6 + C_3C_4R_1R_3R_4R_6\right) + s\left(C_2R_1R_2R_6 + C_3R_1R_3R_6 + C_4R_1R_4R_6\right)}{-R_3 + R_5 + s^3\left(C_2C_3C_4R_1R_3R_4R_5 + C_2C_3C_4R_2R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_3R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_3R_4 + C$
- **9.493** X-INVALID-ORDER-493  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4R_1R_2R_3R_4s^3 + R_1 + s^2\left(C_2C_3R_1R_2R_3 + C_2C_4R_1R_2R_4 + C_3C_4R_1R_3R_4\right) + s\left(C_2R_1R_2 + C_3R_1R_3 + C_4R_1R_4\right)}{s^4\left(C_2C_3C_4C_6R_1R_3R_4R_5 + C_2C_3C_4C_6R_2R_3R_4 + C_2C_4C_6R_2R_3R_4 + C_2C_4C_6R_2R_4R_5 + C_2C_4C_6R_4R_4R_5 + C_2C_4C_6R_4R_4R_5 + C_2C_4C_6R_4R_4R_5 + C_2C_4C_6R_4R_4R_5 + C_2C_4C_6R_4R_4R_5 + C_2C_4C_6R_4R_4R_5$
- **9.494** X-INVALID-ORDER-494  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_6R_1R_2R_3R_4R_6s^4 + R_1 + s^3\left(C_2C_3C_4R_1R_2R_3R_4 + C_2C_4C_6R_1R_2R_4R_6 + C_3C_4C_6R_1R_3R_4R_6\right) + s^2\left(C_2C_3R_1R_2R_3 + C_2C_4R_1R_2R_4 + C_2C_6R_1R_2R_6 + C_3C_4R_1R_3R_4 + C_3C_6R_1R_3R_6 + C_4C_6R_1R_3R_4 + C_3C_4R_1R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_4R_1R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_4R_1R_3R_4 + C_3C$
- **9.495** X-INVALID-ORDER-495  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$
- **9.496** X-INVALID-ORDER-496  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_3R_4R_6s^4 + C_5R_1R_6s + s^3\left(C_2C_3C_5R_1R_2R_3R_6 + C_2C_4C_5R_1R_2R_4R_6 + C_3C_4C_5R_1R_3R_4R_6\right) + s^2\left(C_2C_5R_1R_2R_6 + C_3C_5R_1R_3R_6 + C_4C_5R_1R_4R_6\right)}{s^3\left(C_2C_3C_4R_1R_3R_4 + C_2C_4C_5R_2R_3R_4\right) + s^2\left(C_2C_3R_1R_3 + C_2C_4R_2R_3 + C_2C_4R_2R_4 + C_2C_4R_2R_4 + C_2C_4R_3R_4 C_4C_5R_3R_4\right) + s\left(C_2R_1 + C_2R_2 + C_2R_3 + C_3R_3 + C_4R_3 + C_4R_4 + C_5R_3\right) + 1}s^2\left(C_2C_3R_1R_3R_4 + C_2C_4C_5R_2R_3R_4 + C_2C_4R_2R_4 + C_2C_4R_3R_4 + C_2C_4R_3R_4 + C_4C_5R_3R_4\right) + s\left(C_2R_1 + C_2R_2 + C_2R_3 + C_3R_3 + C_4R_3 + C_4R_4 + C_5R_3\right) + 12s^2\left(C_2C_3R_1R_3R_4 + C_2C_4R_2R_3 + C_4C_4R_3R_4 + C_4C_5R_3R_4\right) + s\left(C_2R_1 + C_4R_3R_4 + C_4R_3 + C_4R_3 + C_4R_3R_4\right) + s\left(C_2R_1 + C_4R_3R_4 + C_4R_3R_4 + C_4R_3R_4 + C_4R_3R_4 + C_4R_3R_4\right) + s\left(C_2R_1 + C_4R_3R_4 + C_4R_3R_4 + C_4R_3R_4\right) + s\left(C_2R_1 + C_4R_3R_4 + C_4R_3R_4 + C_4R_3R_4\right) + s\left(C_2R_1 + C_4R_3$
- 9.497 X-INVALID-ORDER-497  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_3R_4s^3 + C_5R_1 + s^2\left(C_2C_3C_5R_1R_2R_3 + C_2C_4C_5R_1R_2R_4 + C_3C_4C_5R_1R_3R_4\right) + s\left(C_2C_5R_1R_2 + C_3C_5R_1R_3 + C_4C_5R_1R_4\right)}{C_6 + s^3\left(C_2C_3C_4C_6R_1R_3R_4 + C_2C_4C_6R_2R_3 + C_2C_4C_6R_2R_3 + C_2C_4C_6R_2R_3 + C_2C_4C_6R_2R_4 + C_2C_4C_6R_2R_4 + C_2C_4C_6R_3R_4 C_4C_5C_6R_3R_4 C_4C_5C_6R_3R_4\right) + s\left(C_2C_3C_4C_6R_1R_3R_4 + C_2C_4C_6R_2R_3 + C_2C_4C_6R_2R_3 + C_2C_4C_6R_3R_4 C_4C_5C_6R_3R_4 C_4C_5C_6R_3R_4\right) + s\left(C_2C_3C_4C_6R_1R_3 + C_4C_5C_6R_2R_3 + C_4C_6R_3R_4 + C_4C_5C_6R_3R_4 C_4C_5C_6R_3R_4\right) + s\left(C_2C_3C_4C_6R_1R_3R_4 + C_4C_5C_6R_3R_4 + C_4C_5C_6R_3R_4$
- 9.498 X-INVALID-ORDER-498  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_1 + s^3\left(C_2C_3C_4C_5R_1R_2R_3R_4 + C_2C_3C_5C_6R_1R_2R_3R_6 + C_2C_4C_5C_6R_1R_2R_4R_6 + C_3C_4C_5C_6R_1R_2R_3 + C_2C_4C_5R_1R_2R_4 + C_2C_5C_6R_1R_2R_4 + C_2C_5C_6R_1R_2R_4 + C_3C_4C_5R_1R_3R_4 + C_3C_5C_6R_1R_3R_4 + C_3C_5C_6R_$
- 9.499 X-INVALID-ORDER-499  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_3R_4R_6s^4 + C_5R_1R_2R_3R_4R_6s^4 + C_5R_1R_2R_3R_4R_6s^4 + C_5R_1R_2R_3R_4R_6s^4 + C_5R_1R_2R_3R_4R_6s^4 + C_5R_1R_3R_4R_6s^4 + C_5R_2R_3R_4R_6s^4 + C_5R_3R_3R_4R_6s^4 + C_5R_3R_3R_4R_6s$
- **9.500** X-INVALID-ORDER-500  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_3R_4R_6s^4 + C_5R_1R_6s + s^3\left(C_2C_3C_5R_1R_2R_3R_4 + C_2C_4C_5R_1R_3R_4 + C_2C_4C_5R_1R_3R_4 + C_2C_4C_5R_1R_3R_4 + C_2C_4C_5R_1R_4R_5 + C_2C_4C_5R_1R_4R_5 + C_2C_4C_5R_2R_3R_4 + C_2C_4C_5R_2R_4R_5 + C_2C_4C_5R_2R_4R_5 + C_2C_4C_5R_2R_4R_5 + C_2C_4C_5R_2R_4R_5 + C_2C_4C_5R_2R_4R_5 + C_2C_4C_5R_4R_4R_5 + C_2C_4C_5R_4R_4R_5 + C_2C_4C_5R_4R_4R_5 + C_2C_4C_5R_4R_4R_5 + C_2C_4C_5R_4R_4R_5 + C_2C_4C_5R_4R_5R_4 + C_2C_4C_5R_4R_5R_4 + C_2C_4C_5R_4R_5R_5 + C_2C_4C_5R_4R_5R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_5R_5 + C_2C_4C_5R_5R_5 + C_2C_4C_5R_5R_5 + C_2C_4C_5R_5R_5 + C_2C_4C_5R$

```
9.501 X-INVALID-ORDER-501 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_2C_3C_4C_5R_1R_3R_4R_5 + C_2C_3C_4C_5C_6R_1R_3R_4R_5 + C_2C_3C_4C_5C_6R_2R_3R_4 + C_2C_3C_4C_5R_1R_3R_5 + C_2C_3C_5C_6R_1R_3R_5 + C_2C_4C_5C_6R_2R_3R_4 + C_2C_4C_5C_6R_2R_4 + C_2C_4C_5C_6R_2R_4 + C_2C_4C_5C_6R$ 

**9.502** X-INVALID-ORDER-502  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_1 + s^3\left(C_2C_3C_4C_5R_1R_2R_3R_4 + C_2C_3C_5C_6R_1R_2R_3R_6 + C_2C_4C_5C_6R_1R_2R_3R_4 + C_2C_3C_5C_6R_1R_3R_4 + C_2C_3C_5C_6R_2R_3R_4 + C_2C_4C_5C_6R_2R_3R_4 + C_2C_4C_$ 

**9.503** X-INVALID-ORDER-503  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{s^5 \left( C_2 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 \right) + s^4 \left( C_2 C_3 C_4 C_5 R_1 R_3 R_4 R_5 + C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_2 C_3 C_5 C_6 R_1 R_3 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_2 C_4 C_5 C_6 R_1 R_4 R_5 R_6 - C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_5 R_4 R_5 R_5 + C_2 C_3 C_5 R_5 R_5 + C_2 C_5 R_5 R_5 R_5 R_5 +$ 

**9.504** X-INVALID-ORDER-504  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_3R_4R_5R_6s^4 + R_1R_6 + s^3\left(C_2C_3C_4R_1R_2R_3R_4R_6 + C_2C_4C_5R_1R_2R_3R_5R_6 + C_2C_4C_5R_1R_2R_3R_6 + C_2C_4C_5R_1R_2R_3R_6 + C_2C_4R_1R_2R_4R_6 + C_2C_4R_1R_2R_4R_6 + C_2C_5R_1R_2R_5R_6 + C_3C_4R_1R_3R_4R_6 + C_3C_5R_1R_3R_5R_6}{-R_3 + R_5 + s^3\left(C_2C_3C_4R_1R_3R_4R_5 + C_2C_4R_2R_3R_4R_5 + C_2C_4R_2R_3R_4 + C_2C_4R_3R_4R_4 + C_2C_4R_3R_4R_4 + C_2C_4R_3R_4R_4 + C_2C_4R_3R_4R_4 + C_2C_4R_3R_4R_4 + C_2C_4R_3R_4R_4 + C_2C_4$ 

**9.505** X-INVALID-ORDER-505  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_3R_4R_5s^4 + R_1 + s^3\left(C_2C_3C_4R_1R_2R_3R_4 + C_2C_3C_5R_1R_2R_3R_5 + C_2C_4C_5R_1R_2R_4R_5 + C_3C_4C_5R_1R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_2R_3 + C_2C_4R_1R_2R_4 + C_2C_5R_1R_2R_5 + C_3C_4C_5R_1R_2R_4R_5 + C_3C_4C_5R_1R_3R_4R_5 + C_3C_4C_5R_3R_4R_5 + C$ 

**9.506** X-INVALID-ORDER-506  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_1 + s^4\left(C_2C_3C_4C_5R_1R_2R_3R_4R_5 + C_2C_3C_4C_6R_1R_2R_3R_4R_6 + C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6 + C_3C_4C_5C_6R_1R_3R_4R_5R_6\right) + s^3\left(C_2C_3C_4R_1R_2R_3R_4 + C_2C_3C_5R_1R_2R_3R_5 + C_2C_3C_6R_1R_2R_3R_6 + C_2C_4C_5C_6R_1R_3R_4R_5 + C_2C_3C_4C_6R_1R_3R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R$ 

**9.507** X-INVALID-ORDER-507  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-R_3 + R_5 + s^4 \left(C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_5 R_6 - C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_1 R_3 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_5 R_6 - C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_2 C_4 C_6 R_1 R_4 R_5 R_6\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_1 R_3 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_1 R_3 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_4 R_5\right) + s^3 \left(C_2 C_3 C_4 R_1 R_3 R_5\right) + s^3 \left(C_2 C_3 R_4 R_5\right) + s^3 \left(C_2 C_3 R_4 R_5\right) + s^3$ 

**9.508** X-INVALID-ORDER-508  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_3R_4s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4\right)}{s^3\left(C_2C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 + C_2C_4C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$ 

**9.509** X-INVALID-ORDER-509  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_6R_1R_2R_3R_4R_6s^3 + R_1R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_6R_1R_2R_4R_6 + C_3C_6R_1R_3R_4R_6\right) + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4 + C_6R_1R_4R_6\right)}{s^3\left(C_2C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 + C_2C_4C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_4R_5 - C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_4C_6R_3R_4R_5\right) + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4 + C_6R_1R_4R_6\right)}$ 

**9.510** X-INVALID-ORDER-510  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_2C_3R_1R_2R_3R_4R_6s^2 + R_1R_4R_6 + s(C_2R_1R_2R_4R_6 + C_3R_1R_3R_4R_6)$ 

 $\frac{C_2C_3R_1R_2R_3R_4R_6 + C_2C_3C_6R_1R_3R_4R_6 + C_2R_1R_2R_4R_6 + C_3R_1R_3R_4R_6 + C_3R_1R_3R_4R_6 + C_3R_1R_3R_4R_6 + C_3R_1R_3R_4R_6 + C_3R_1R_3R_4R_6 + C_3R_3R_4R_6 + C_3R_3R_4R_$ 

```
9.511 X-INVALID-ORDER-511 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)
                                                                       H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_4R_6s + s^2\left(C_2C_5R_1R_2R_4R_6 + C_3C_5R_1R_3R_4R_6\right)}{R_3 + R_4 + s^2\left(C_2C_3R_1R_3R_4 + C_2C_3R_2R_3R_4 + C_2C_4R_2R_3R_4 - C_2C_5R_2R_3R_4\right) + s\left(C_2R_1R_4 + C_2R_2R_3 + C_2R_2R_4 + C_2R_3R_4 + C_3R_3R_4 + C_4R_3R_4 - C_5R_3R_4\right)}
9.512 X-INVALID-ORDER-512 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

**9.513** X-INVALID-ORDER-513  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_4R_6s + s^2\left(C_2C_5R_1R_2R_4R_6 + C_3C_5R_1R_3R_4R_6\right)}{R_3 + R_4 + s^3\left(C_2C_3C_6R_1R_3R_4R_6 + C_2C_6R_2R_3R_4R_6 + C_2C_6R_2R$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_3R_4 + C_2C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_3R_4R_6\right) + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_3C_6R$ 

**9.514** X-INVALID-ORDER-514  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $\frac{C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{6}s^{3}+C_{5}R_{1}R_{4}R_{6}s+s^{2}\left(C_{2}C_{5}R_{1}R_{2}R_{4}R_{6}+C_{3}C_{5}R_{1}R_{3}R_{4}R_{6}\right)}{R_{3}+R_{4}+s^{3}\left(C_{2}C_{3}C_{5}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{5}R_{2}R_{3}R_{4}+C_{2}C_{5}R_$ 

**9.515** X-INVALID-ORDER-515  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4\right)}{C_6R_3 + C_6R_4 + s^3\left(C_2C_3C_5C_6R_1R_3R_4R_5 + C_2C_3C_5C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R$ 

**9.516** X-INVALID-ORDER-516  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $\frac{C_2C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_3R_4 + C_2C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_3R_4R_6\right) + s\left(C_2C_5R_1R_2R_4 + C_2C_5C_6R_1R_3R_4 + C_2C_5C_6R_1R_3R_4 + C_2C_5C_6R_2R_3R_4 + C_2C_5C$ 

**9.517** X-INVALID-ORDER-517  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{R_3 + R_4 + s^4 \left( C_2 C_3 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_5 R_1 R_3 R_4 R_5 + C_2 C_3 C_5 R_1 R_3 R_4 R_5 + C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_5 R_5 R_5 R_5 + C_2 C_3 C_5 R_5 R_5 R_5 + C_2 C_5$ 

**9.518** X-INVALID-ORDER-518  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_4R_6 + s^2\left(C_2C_3R_1R_2R_3R_4R_6 + C_2C_5R_1R_2R_4R_5R_6 + C_3C_5R_1R_3R_4R_5R_6\right) + s\left(C_2R_1R_2R_4R_6 + C_3R_1R_3R_4R_6 + C_5R_1R_4R_5R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_2C_5R_2R_3R_4R_5\right) + s\left(C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_2R_2R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5 + C_3R_3R_4R_5$ 

**9.519** X-INVALID-ORDER-519  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_5s^3 + R_1R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_5R_1R_2R_4R_5 + C_3C_5R_1R_3R_4R_5\right) + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4 + C_5R_1R_4R_5\right)}{s^3\left(C_2C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 + C_2C_5C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_3R_4R_5 + C_2C_6R_3$ 

**9.520** X-INVALID-ORDER-520  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_4 + s^3\left(C_2C_3C_5R_1R_2R_3R_4R_5 + C_2C_3C_6R_1R_2R_3R_4R_6 + C_2C_5C_6R_1R_2R_4R_5R_6 + C_3C_5C_6R_1R_3R_4R_5 + C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_2R_4R_$ 

**9.521** X-INVALID-ORDER-521 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_4R_6 + s^2\left(C_2C_3R_1R_2R_3R_4R_6 + C_2C_3R_3R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C$ 

**9.522** X-INVALID-ORDER-522  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(C_2 R_1 R_2 R_4 R_5 + C_2 R_2 R_3 R_4 R_5\right)}$$

**9.523** X-INVALID-ORDER-523  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{R_1 R_2 R_4}{s^2 \left( C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5 \right) + s \left( C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5 \right)}$$

**9.524** X-INVALID-ORDER-524  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_6 R_1 R_2 R_4 R_6 s + R_1 R_2 R_4}{s^2 \left(C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$$

**9.525** X-INVALID-ORDER-525  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{1}{C_5s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s \left(C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 - C_5 R_2 R_3 R_4\right)}$$

**9.526** X-INVALID-ORDER-526  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s \left( C_2 C_6 R_1 R_2 R_4 + C_2 C_6 R_2 R_3 R_4 - C_5 C_6 R_2 R_3 R_4 \right)}$$

**9.527** X-INVALID-ORDER-527  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_2C_6R_1R_2R_4 + C_2C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

**9.528** X-INVALID-ORDER-528  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\frac{-\sqrt{51}(11)(21)(41)(65)}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + S^3\left(C_2C_5C_6R_1R_2R_4R_5R_6 + C_2C_5C_6R_2R_3R_4R_5 + C_2C_5R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_6 + C_5C_6R_2R_3R_4R_6 + C_5C_6R_2R_4R_5R_6 + C_5C_6R_2R_4R_5R_6 + C_5C_6R_4R_5R_6 + C_5C_6R_5R_5R_5R_6 + C_5C_6R_5R_5R_5R_6 + C_5C_6R_5R_5R_5R_5$ 

**9.529** X-INVALID-ORDER-529  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_5 R_6 s + R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(C_2 R_1 R_2 R_4 R_5 + C_2 R_2 R_3 R_4 R_5 - C_5 R_2 R_3 R_4 R_5\right)}$$

**9.530** X-INVALID-ORDER-530  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_5 s + R_1 R_2 R_4}{s^2 \left(C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5 - C_5 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$$

$$\textbf{9.531} \quad \textbf{X-INVALID-ORDER-531} \ \ Z(s) = \left(R_1, \ \frac{R_2}{C_2R_2s+1}, \ R_3, \ R_4, \ \frac{R_5}{C_5R_5s+1}, \ R_6 + \frac{1}{C_6s}\right)$$
 
$$H(s) = \frac{C_5C_6R_1R_2R_4R_5R_6s^2 + R_1R_2R_4 + s\left(C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^2\left(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.532** X-INVALID-ORDER-532  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s \left( C_2 R_1 R_2 R_5 + C_2 R_2 R_3 R_5 + C_4 R_2 R_3 R_5 \right)}$$

**9.533** X-INVALID-ORDER-533  $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{R_1 R_2}{s^2 \left( C_2 C_6 R_1 R_2 R_5 + C_2 C_6 R_2 R_3 R_5 + C_4 C_6 R_2 R_3 R_5 \right) + s \left( C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5 \right)}$$

**9.534** X-INVALID-ORDER-534  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_6R_1R_2R_6s + R_1R_2}{s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_4C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$$

**9.535** X-INVALID-ORDER-535  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s \left(C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3\right)}$$

**9.536** X-INVALID-ORDER-536  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3 + s \left( C_2 C_6 R_1 R_2 + C_2 C_6 R_2 R_3 + C_4 C_6 R_2 R_3 - C_5 C_6 R_2 R_3 \right)}$$

**9.537** X-INVALID-ORDER-537  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5 C_6 R_1 R_2 R_6 s + C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3 + s \left( C_2 C_6 R_1 R_2 + C_2 C_6 R_2 R_3 + C_4 C_6 R_2 R_3 - C_5 C_6 R_2 R_3 \right)}$$

**9.538** X-INVALID-ORDER-538  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s^3 \left(C_2 C_5 C_6 R_1 R_2 R_5 R_6 + C_2 C_5 C_6 R_2 R_3 R_5 R_6 + C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_4 C_5 R_2 R_3 R_5 + C_2 C_6 R_1 R_2 R_6 + C_2 C_6 R_2 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 + C_5 C_6 R_2 R_5 R_6 + C_5 C_6 R_$$

**9.539** X-INVALID-ORDER-539  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_5 R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s \left( C_2 R_1 R_2 R_5 + C_2 R_2 R_3 R_5 + C_4 R_2 R_3 R_5 - C_5 R_2 R_3 R_5 \right)}$$

**9.540** X-INVALID-ORDER-540  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_5 s + R_1 R_2}{s^2 \left(C_2 C_6 R_1 R_2 R_5 + C_2 C_6 R_2 R_3 R_5 + C_4 C_6 R_2 R_3 R_5 - C_5 C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5\right)}$$

 $\textbf{9.541} \quad \textbf{X-INVALID-ORDER-541} \ Z(s) = \left(R_1, \ \frac{R_2}{C_2R_2s+1}, \ R_3, \ \frac{1}{C_4s}, \ \frac{R_5}{C_5R_5s+1}, \ R_6 + \frac{1}{C_6s}\right)$   $H(s) = \frac{C_5C_6R_1R_2R_5R_6s^2 + R_1R_2 + s\left(C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 - C_5C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$ 

**9.542** X-INVALID-ORDER-542  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_4 R_1 R_2 R_4 s + R_1 R_2}{s^3 \left(C_2 C_4 C_6 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_2 R_3 R_4 R_5\right) + s^2 \left(C_2 C_6 R_1 R_2 R_5 + C_2 C_6 R_2 R_3 R_5 + C_4 C_6 R_2 R_3 R_4 + C_4 C_6 R_2 R_3 R_5 + C_4 C_6 R_2 R_4 R_5 + C_4 C_6 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5\right)}$ 

**9.543** X-INVALID-ORDER-543  $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_6R_1R_2R_4R_6s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_6R_1R_2R_6\right)}{s^3\left(C_2C_4C_6R_1R_2R_4R_5 + C_2C_4C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_4R_5 + C_4C_6R_2R_4R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$ 

**9.544** X-INVALID-ORDER-544  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_4 R_1 R_2 R_4 R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^3 \left(C_2 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_4 R_2 R_3 R_4 R_5 + C_2 C_4 R_2 R_3 R_4 R_5 + C_2 C_6 R_1 R_2 R_5 R_6 + C_4 C_6 R_2 R_3 R_4 R_6 + C_4 C_6 R_2 R_4 R_6 + C_4 C_6 R_4 R_4 R_6 +$ 

**9.545** X-INVALID-ORDER-545  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^3\left(C_2C_4C_6R_1R_2R_4R_6 + C_2C_4C_6R_2R_3R_4R_6 - C_4C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_2C_4R_1R_2R_4 + C_2C_4R_2R_3R_4 + C_2C_6R_1R_2R_6 + C_4C_5R_2R_3R_6 + C_4C_6R_2R_3R_6 + C_4C_6R_3R_4R_6 + C_4C_6R_4R_4R_6 + C_4C$ 

**9.546** X-INVALID-ORDER-546  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^3\left(C_2C_4C_5R_1R_2R_4R_5 + C_2C_4C_5R_2R_3R_4 + C_2C_4R_2R_3R_4 + C_2C_5R_1R_2R_5 + C_2C_5R_2R_3R_5 + C_4C_5R_2R_3R_4 + C_4C_5R_2R_3R_5 + C_4C_5R_3R_4R_5 + C_4C_5R_5R_5R_5 + C_$ 

**9.547** X-INVALID-ORDER-547  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_2C_4C_5C_6R_1R_2R_4R_5 + C_2C_4C_5C_6R_2R_3R_4 + C_2C_4C_6R_2R_3R_4 + C_2C_5C_6R_1R_2R_5 + C_2C_5C_6R_1R_2R_5 + C_4C_5C_6R_2R_3R_4 + C_4C_5C_6R_3R_4R_5 + C_4C_5C_6R_$ 

**9.548** X-INVALID-ORDER-548  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_4C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_4 + C_5C_6R_1R_2R$ 

**9.549** X-INVALID-ORDER-549  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_1 + R_2 + R_3 + s^4 \left( C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_4 C_5 R_2 R_3 R_4 R_5 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 + C_2 C_5 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_5 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 \right) + s^3 \left( C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_4 C_5 R_4 R_4 R_5 \right) + s^3 \left( C_2 C_4 C_5 R_4 R_4 R_5 R_6 \right) + s^3 \left( C_2 C_4 R_4 R_5 R_6 \right) + s^3 \left( C_2 C_4 R_4 R_5 R_6 \right) + s^3 \left( C_2 C_4 R_4 R_5 R_6 \right) + s^3 \left( C_2 C_4 R_4 R_5 R_6 \right) + s^3 \left( C_2 C_4 R_4 R_5 R_6 \right) + s^3 \left( C_2 C_4 R_4 R_5 R_6$ 

**9.550** X-INVALID-ORDER-550  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4R_5s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_5R_1R_2R_5\right)}{s^3\left(C_2C_4C_6R_1R_2R_4R_5 + C_2C_4C_6R_2R_3R_4R_5 - C_4C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_5R_5 +$ 

```
9.551 X-INVALID-ORDER-551 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
```

 $H(s) = \frac{C_4C_5C_6R_1R_2R_4R_5R_6s^3 + R_1R_2 + s^2\left(C_4C_5R_1R_2R_4R_5 + C_4C_6R_1R_2R_4R_6 + C_5C_6R_1R_2R_4 + C_5R_1R_2R_4 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right) + s\left(C_4R_1R_2R_4 + C_5R_1R_2R_4 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{s^3\left(C_2C_4C_6R_1R_2R_4R_5 + C_4C_6R_2R_3R_4R_5 - C_4C_5C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_5R_5 + C_4C_6R_5R_5 + C_4C_6R_5R_5 + C_4C_6R_5R_5 + C_4C_6R_5R_5 +$ 

**9.552** X-INVALID-ORDER-552  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\frac{C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_6 + C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_6 + C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_6 + C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_4R_5R_6s^2 + R_1R_2R_$ 

**9.553** X-INVALID-ORDER-553  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(C_2 R_1 R_2 R_4 R_5 + C_2 R_2 R_3 R_4 R_5 + C_4 R_2 R_3 R_4 R_5\right)}$$

**9.554** X-INVALID-ORDER-554  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{R_1 R_2 R_4}{s^2 \left(C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5 + C_4 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$$

**9.555** X-INVALID-ORDER-555  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_6 R_1 R_2 R_4 R_6 s + R_1 R_2 R_4}{s^2 \left(C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5 + C_4 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$$

**9.556** X-INVALID-ORDER-556  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s \left(C_2 R_1 R_2 R_4 + C_2 R_2 R_3 R_4 + C_4 R_2 R_3 R_4 - C_5 R_2 R_3 R_4\right)}$$

**9.557** X-INVALID-ORDER-557  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s \left(C_2 C_6 R_1 R_2 R_4 + C_2 C_6 R_2 R_3 R_4 + C_4 C_6 R_2 R_3 R_4 - C_5 C_6 R_2 R_3 R_4\right)}$$

**9.558** X-INVALID-ORDER-558  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_2C_6R_1R_2R_4 + C_2C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

**9.559** X-INVALID-ORDER-559  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_5R_1R_2R_4R_6 + C_2C_5R_2R_3R_4R_5 + C_2C_5R_3R_4R_5 + C_2C_5R_5R_5R_5 + C_2C_5R_5R_5R_5R_5 + C_2C_5R_5R_5R_5 + C_2C_5R_5R_5 + C_2C_5R_5R_5R_5 + C_2C_5R_5R_5R_5 + C_2C_5R_5R$ 

**9.560** X-INVALID-ORDER-560  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

$$H(s) = \frac{C_5 R_1 R_2 R_4 R_5 R_6 s + R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(C_2 R_1 R_2 R_4 R_5 + C_2 R_2 R_3 R_4 R_5 + C_4 R_2 R_3 R_4 R_5 - C_5 R_2 R_3 R_4 R_5\right)}$$

 $\textbf{9.561} \quad \textbf{X-INVALID-ORDER-561} \ Z(s) = \left(R_1, \ \frac{R_2}{C_2R_2s+1}, \ R_3, \ \frac{R_4}{C_4R_4s+1}, \ \frac{R_5}{C_5R_5s+1}, \ \frac{1}{C_6s}\right)$   $H(s) = \frac{C_5R_1R_2R_4R_5s + R_1R_2R_4}{s^2(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$   $\textbf{9.562} \quad \textbf{X-INVALID-ORDER-562} \ Z(s) = \left(R_1, \ \frac{R_2}{C_2R_2s+1}, \ R_3, \ \frac{R_4}{C_4R_4s+1}, \ \frac{R_5}{C_5R_5s+1}, \ R_6 + \frac{1}{C_6s}\right)$   $H(s) = \frac{C_5C_6R_1R_2R_4R_5R_6s^2 + R_1R_2R_4 + s\left(C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^2(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_3R_4R_5\right)}$ 

**9.563** X-INVALID-ORDER-563  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{C_2 C_3 C_6 R_1 R_2 R_4 R_5 R_6 s^3 - R_2 R_4 + R_2 R_5 + R_4 R_5 + s^2 \left(C_2 C_3 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_4 R_5 R_6 + C_3 C_6 R_1 R_4 R_5 R_6 + C_3 C_6 R_2 R_4 R_5 + C_3 R_1 R_4 R_5 + C_3 R_2 R_4 R_5 - C_6 R_2 R_4 R_6 + C_6 R_2 R_5 R_6 + C_6 R_4 R_5 R_6\right)}$ 

**9.564** X-INVALID-ORDER-564  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{C_2C_3C_6R_1R_2R_4R_6s^3 + R_2 + R_4 + s^2\left(C_2C_3R_1R_2R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_1R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 - C_5R_2R_4 + C_6R_2R_6 + C_6R_4R_6\right)}$ 

**9.565** X-INVALID-ORDER-565  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{C_2C_3C_5R_1R_2R_4R_5s^3 + R_2 + R_4 + s^2\left(C_2C_3R_1R_2R_4 + C_2C_5R_2R_4R_5 + C_3C_5R_1R_4R_5 + C_3C_5R_2R_4R_5\right) + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 - C_5R_2R_4 + C_5R_2R_5 + C_5R_4R_5\right)}$ 

**9.566** X-INVALID-ORDER-566  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_2C_3C_5C_6R_1R_2R_4R_5s^3 + C_6R_2 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_2R_4 + C_2C_5C_6R_2R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4 + C_3C_6R_2R_4 + C_3C_6R_2R_4 + C_5C_6R_2R_4 + C_5C_6R_$ 

**9.567** X-INVALID-ORDER-567  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_2C_3C_5C_6R_1R_2R_4R_5s^3 + C_6R_2 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_2R_4 + C_2C_5C_6R_2R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4 + C_3C_6R_2R_4 + C_3C_6R_2R_4 + C_5C_6R_2R_4 + C_5C_6R_2R_$ 

**9.568** X-INVALID-ORDER-568  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

**9.569** X-INVALID-ORDER-569  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{C_2C_3C_6R_1R_2R_4R_5R_6s^3 - R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_2R_4R_5 + C_2C_6R_2R_4R_5R_6 + C_3C_6R_2R_4R_5R_6\right) + s\left(C_2R_2R_4R_5 + C_3R_2R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5 - C_6R_2R_4R_5 + C_6R_2R_4R_6\right) + s\left(C_2R_2R_4R_5 + C_3R_2R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5 - C_6R_2R_4R_6 + C_6R_2R_5R_6\right) + s\left(C_2R_2R_4R_5 + C_3R_2R_4R_5 + C_3R_2R_4R_5 - C_5R_2R_4R_5 - C_6R_2R_4R_5 + C_6R_2R_5R_6\right) + s\left(C_2R_2R_4R_5 + C_3R_2R_4R_5 + C_3R_2R_4R_5 - C_6R_2R_4R_5 + C_6R_2R_4R_5 + C_6R_2R_4R_5\right) + s\left(C_2R_2R_4R_5 + C_3R_2R_4R_5 + C_3R_2R_4R_5 - C_6R_2R_4R_5 + C_6R_2R_4R_5\right) + s\left(C_2R_2R_4R_5 + C_3R_2R_4R_5 - C_6R_2R_4R_5\right) + s\left(C_2R_2R_4R_5 - C_6R_2R_4R_5\right) + s\left(C_2R_2R_4R_5\right) + s\left(C_2R_$ 

**9.570** X-INVALID-ORDER-570  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_6 s}{C_2 C_3 C_6 R_1 R_2 R_5 R_6 s^3 - R_2 + R_5 + s^2 \left(C_2 C_3 R_1 R_2 R_5 + C_2 C_6 R_2 R_5 R_6 + C_3 C_6 R_1 R_5 R_6 + C_3 C_6 R_2 R_5 R_6 + C_4 C_6 R_2 R_5 R_6\right) + s \left(C_2 R_2 R_5 + C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5 - C_6 R_2 R_6 + C_6 R_5 R_6\right)}$ 

**9.571** X-INVALID-ORDER-571  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{C_2C_3C_6R_1R_2R_6s^3 + s^2\left(C_2C_3R_1R_2 + C_2C_6R_2R_6 + C_3C_6R_1R_6 + C_3C_6R_2R_6 + C_4C_6R_2R_6 - C_5C_6R_2R_6\right) + s\left(C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_6R_6\right) + 1}$$

**9.572** X-INVALID-ORDER-572  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{C_2C_3C_5R_1R_2R_5s^3 + s^2\left(C_2C_3R_1R_2 + C_2C_5R_2R_5 + C_3C_5R_1R_5 + C_3C_5R_2R_5 + C_4C_5R_2R_5\right) + s\left(C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_5R_5\right) + 1}$$

**9.573** X-INVALID-ORDER-573  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2s}{C_2C_3C_5C_6R_1R_2R_5s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_2 + C_2C_5C_6R_2R_5 + C_3C_5C_6R_1R_5 + C_3C_5C_6R_2R_5 + C_4C_5C_6R_2R_5\right) + s\left(C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2 + C_5C_6R_2\right)}$$

**9.574** X-INVALID-ORDER-574  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_2C_3C_5C_6R_1R_2R_5s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_2 + C_2C_5C_6R_2R_5 + C_3C_5C_6R_1R_5 + C_3C_5C_6R_2R_5 + C_4C_5C_6R_2R_5\right) + s\left(C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2 + C_5C_6R_5\right)}$$

**9.575** X-INVALID-ORDER-575  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_6s^2}{C_2C_3C_5C_6R_1R_2R_5R_6s^4 + s^3\left(C_2C_3C_5R_1R_2R_5 + C_2C_3C_6R_1R_2R_6 + C_3C_5C_6R_2R_5R_6 + C_3C_5C_6R_2R_5R_6 + C_4C_5C_6R_2R_5R_6 + C_4C_5C_6R_4R_5R_6 + C_4C_5C_6R_4R_5R_5 + C_4C_5C_6R_5R_5R_5 + C_4C_5C_5R_5R_5 + C_4C_5C_5R_5R_5$$

**9.576** X-INVALID-ORDER-576  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{C_2C_3C_6R_1R_2R_5R_6s^3 - R_2 + R_5 + s^2\left(C_2C_3R_1R_2R_5 + C_2C_6R_2R_5R_6 + C_3C_6R_1R_5R_6 + C_3C_6R_2R_5R_6 + C_4C_6R_2R_5R_6\right) + s\left(C_2R_2R_5 + C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5 - C_5R_2R_5 - C_6R_2R_6 + C_6R_5R_6\right)}$$

**9.577** X-INVALID-ORDER-577  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{C_2C_3C_4R_1R_2R_4R_5s^3 - R_2 + R_5 + s^2\left(C_2C_3R_1R_2R_5 + C_2C_4R_2R_4R_5 + C_3C_4R_1R_4R_5 + C_3C_4R_2R_4R_5\right) + s\left(C_2R_2R_5 + C_3R_1R_5 + C_3R_2R_5 - C_4R_2R_4 + C_4R_2R_5 + C_4R_4R_5\right)}$$

**9.578** X-INVALID-ORDER-578  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_4R_1R_2R_4s + C_3R_1R_2}{C_2C_3C_4C_6R_1R_2R_4R_5s^3 - C_6R_2 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_2R_5 + C_2C_4C_6R_2R_4R_5 + C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_2R_4 + C_4C_6R_4 + C_4C_6R_$$

**9.579** X-INVALID-ORDER-579  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_4C_6R_1R_2R_4R_6s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_6\right)}{C_2C_3C_4C_6R_1R_2R_4R_5s^3 - C_6R_2 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_2R_5 + C_2C_4C_6R_2R_4R_5 + C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_2R_4 + C_3C_6R_2R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_4R_5\right)}$$

**9.580** X-INVALID-ORDER-580  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{C_2C_3C_4C_6R_1R_2R_4R_5R_6s^4 - R_2 + R_5 + s^3\left(C_2C_3C_4R_1R_2R_4R_5 + C_2C_4C_6R_2R_4R_5R_6 + C_3C_4C_6R_1R_4R_5R_6 + C_3C_4C_6R_2R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_2R_5 + C_2C_4R_2R_4R_5 + C_3C_4R_1R_4R_5 + C_3C_4R_2R_4R_5 + C_3C_4R_4R_5R_5 + C_3C_4R_5R_5 + C_3C_4R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5 + C_3C_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C$$

**9.581** X-INVALID-ORDER-581  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$  $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{C_2C_3C_4R_1R_2R_4s^3 + s^2\left(C_2C_3R_1R_2 + C_2C_4R_2R_4 + C_3C_4R_1R_4 + C_3C_4R_2R_4 - C_4C_5R_2R_4\right) + s\left(C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 + C_4R_4 - C_5R_2\right) + 1}$ **9.582** X-INVALID-ORDER-582  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$  $H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{C_2C_3C_4C_6R_1R_2R_4s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_2 + C_2C_4C_6R_2R_4 + C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_4 - C_4C_5C_6R_2R_4\right) + s\left(C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 + C_4C_6R_4 - C_5C_6R_2\right)}$ **9.583** X-INVALID-ORDER-583  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$  $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{C_2C_3C_4C_6R_1R_2R_4s^3 + C_6 + s^2\left(C_2C_3C_6R_1R_2 + C_2C_4C_6R_2R_4 + C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_4 - C_4C_5C_6R_2R_4\right) + s\left(C_2C_6R_2 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 + C_4C_6R_4 - C_5C_6R_2\right)}$ **9.584** X-INVALID-ORDER-584  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$  $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{C_2C_3C_4C_6R_1R_2R_4R_6s^4 + s^3\left(C_2C_3C_4R_1R_2R_4 + C_2C_3C_6R_1R_2R_6 + C_3C_4C_6R_2R_4R_6 + C_3C_4C_6R_2R_4R_6 - C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_2C_3R_1R_2 + C_2C_4R_2R_4 + C_3C_4R_2R_4 + C_3C_4R_4R_4 + C_3C_4R_4R_$ **9.585** X-INVALID-ORDER-585  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$  $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{C_2C_3C_4C_5R_1R_2R_4R_5s^4 + s^3\left(C_2C_3C_4R_1R_2R_4 + C_2C_3C_5R_1R_2R_5 + C_2C_4C_5R_2R_4R_5 + C_3C_4C_5R_2R_4R_5\right) + s^2\left(C_2C_3R_1R_2 + C_2C_4R_2R_4 + C_3C_5R_2R_4 + C_3C_5R_1R_5 + C_3C_5R_2R_5 - C_4C_5R_2R_4 + C_4C_5R_4R_4 + C_$ **9.586** X-INVALID-ORDER-586  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$  $H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{C_2C_3C_4C_5C_6R_1R_2R_4 + C_2C_3C_5C_6R_1R_2R_5 + C_2C_4C_5C_6R_2R_4R_5 + C_3C_4C_5C_6R_2R_4R_5 + S^2\left(C_2C_3C_6R_1R_2 + C_2C_4C_6R_2R_4 + C_3C_5C_6R_2R_4 + C_$ **9.587** X-INVALID-ORDER-587  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$  $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{C_2C_3C_4C_5C_6R_1R_2R_4 + C_3C_5C_6R_1R_2R_5 + C_3C_4C_5C_6R_1R_4R_5 + C_3C_4C_5C_6R_2R_4R_5 + s^2\left(C_2C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_4 + C_3C_5C_6R_1R_4R_4 + C_3C_5C_6R_1R_4 + C$ **9.588** X-INVALID-ORDER-588  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ **9.589** X-INVALID-ORDER-589  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$  $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_6 + C_3C_5R_1R_2R_5R_6\right)}{C_2C_3C_4R_1R_2R_4R_5s^3 - R_2 + R_5 + s^2\left(C_2C_3R_1R_2R_5 + C_3C_4R_1R_4R_5 + C_3C_4R_2R_4R_5 - C_4C_5R_2R_4R_5\right) + s\left(C_2R_2R_5 + C_3R_1R_5 + C_3R_2R_5 - C_4R_2R_4 + C_4R_2R_5 + C_4R_4R_5 - C_5R_2R_5\right)}$ **9.590** X-INVALID-ORDER-590  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$  $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5\right)}{C_2C_3C_4C_6R_1R_2R_4R_5s^3 - C_6R_2 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_2R_5 + C_2C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 - C_4C_5C_6R_2R_4R_5\right) + s\left(C_2C_6R_2R_5 + C_3C_6R_2R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 +$ 

```
9.591 X-INVALID-ORDER-591 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
              H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_2R_5R_6\right) + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{C_2C_3C_4C_6R_1R_2R_4R_5s^3 - C_6R_2 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_2R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 - C_4C_5C_6R_2R_4R_5\right) + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_1R_2R_5 + C_3C_6R_2R_4 + C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_2R_4 + C_4C_6R_2R_4 + C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_2R_4 + C_4C_6R_2R_5\right)}
9.592 X-INVALID-ORDER-592 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_5R_6 + C_3C_4C_6R_1R_4R_5R_6 + C_3C_4C_6R_2R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_2R_5 + C_2C_4R_2R_4R_5 + C_3C_4R_1R_2R_4R_5 + C_3C_4R_1R_4R_5 + 
9.593 X-INVALID-ORDER-593 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{C_2 C_3 C_6 R_1 R_2 R_4 R_5 R_6 s^3 - R_2 R_4 + R_2 R_5 + R_4 R_5 + s^2 \left(C_2 C_3 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_4 R_5 R_6 + C_3 C_6 R_1 R_4 R_5 R_6 + C_4 C_6 R_2 R_4 R_5 R_6 \right) + s \left(C_2 R_2 R_4 R_5 + C_3 R_1 R_4 R_5 + C_4 R_2 R_4 R_5 + C_4 R_2 R_4 R_5 + C_6 R_5 R_5 + C_6 R
9.594 X-INVALID-ORDER-594 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
                                                       H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{C_2C_3C_6R_1R_2R_4R_6s^3 + R_2 + R_4 + s^2\left(C_2C_3R_1R_2R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_1R_4R_6 + C_3C_6R_2R_4R_6 + C_4C_6R_2R_4R_6\right) + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4 + C_6R_2R_4R_6\right)}{c_3C_5R_1R_2R_4R_6s^3 + R_2 + R_4 + s^2\left(C_2C_3R_1R_2R_4 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_4C_6R_2R_4R_6\right) + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4 + C_6R_2R_4R_6\right)}
9.595 X-INVALID-ORDER-595 Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                 H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{C_2C_3C_5R_1R_2R_4R_5s^3 + R_2 + R_4 + s^2\left(C_2C_3R_1R_2R_4 + C_2C_5R_2R_4R_5 + C_3C_5R_1R_4R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 + C_4R_2R_4 - C_5R_2R_4 + C_5R_2R_5 + C_5R_4R_5\right)}
9.596 X-INVALID-ORDER-596 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)
                                   9.597 X-INVALID-ORDER-597 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
               H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_2C_3C_6R_1R_2R_4R_5s^3 + C_6R_2 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_2R_4 + C_2C_5C_6R_2R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_4C_5C_6R_2R_4R_5\right) + s\left(C_2C_6R_2R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_5C_6R_2R_4 + C_5C_6
9.598 X-INVALID-ORDER-598 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
```

**9.599** X-INVALID-ORDER-599  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{C_2C_3C_6R_1R_2R_4R_5R_6s^3 - R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_2R_4R_5 + C_3C_6R_2R_4R_5R_6 + C_3C_6R_2R_4R_5R_6 + C_4C_6R_2R_4R_5R_6 + C_4C_6R_2R_4R_5R_6 + C_4C_6R_2R_4R_5 + C_3R_4R_5 + C_4R_2R_4R_5 + C_4R_4R_5 + C_4R_5R_5 + C_$ 

**9.600** X-INVALID-ORDER-600  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $C_3R_1R_2R_4R_6s$  $-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_2C_3C_6R_1R_2R_4R_5R_6 + C_2C_3C_6R_2R_3R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_2R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_2C_6R_2R_4R_5R_6 + C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_4R_5R_5 + C_3C_6R_2R_4R_5R_5 + C_3C_6R_2R_4R_5R_5 + C_3C_6R_2R_4R_5R_5 + C_3C_6R_2R_4R_5R_5 + C_3C_6R_3R_4R_5R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5R_5 + C_3C_6R_5$ 

```
H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_2C_3C_6R_1R_2R_4R_6 + C_2C_3C_6R_2R_3R_4R_6 - C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_2C_3R_1R_2R_4 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_4R_6 - C_3C_5R_2R_3R_4 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 - C_5C_6R_2R_4R_6\right) + s\left(C_2R_2R_4 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_2R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_2R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_2R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_2R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_2R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_2R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_2R_4R_6\right) + s\left(C_2R_2R_4R_6 + C_3C_6R_2R_4R_6 + C_3C_6R_4R_4R_6 + C_3C_6R_4R_4R_6 + C_3C_6R_4R_4R_6 + C_3C_6R_4R_4R_6 + C_3C_6R_4R_4R_6 + C_3C_6R_4R_4R_6 + C_3C_6R_4R_4 
9.602 X-INVALID-ORDER-602 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, R_6\right)
H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_5R_2R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_2R_4 + C_2C_3R_2R_3R_4 + C_2C_5R_2R_4R_5 + C_3C_5R_2R_3R_4 + C_3C_5R_2R_3R_4 + C_3C_5R_2R_3R_4 + C_3C_5R_2R_4R_5 + C_3C_5R_4R_5 + C_3C_5R_5R_4R_5 + C_3C_5R_5R_4R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_
9.603 X-INVALID-ORDER-603 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_2C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_5C_6R_2R_4R_5 + C_3C_5C_6R_2R_3R_4 + C_3C_5C_6R_3R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_
9.604 X-INVALID-ORDER-604 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_2C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_5C_6R_2R_4R_5 + C_3C_5C_6R_2R_3R_4 + C_3C_5C_6R_3R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_6R_3R_4 + C_3C_5C_5C_
9.605 X-INVALID-ORDER-605 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{1}{R_2 + R_4 + s^4 \left( C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_6 + C_3 C_5 C_6 R_2 R
9.606 X-INVALID-ORDER-606 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_2C_3C_6R_1R_2R_4R_5R_6 + C_2C_3C_6R_2R_3R_4R_5R_6\right) + s^2\left(C_2C_3R_1R_2R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_3C_6
9.607 X-INVALID-ORDER-607 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3 R_1 R_2 R_6 s}{-R_2 + R_5 + s^3 \left(C_2 C_3 C_6 R_1 R_2 R_5 R_6 + C_2 C_3 C_6 R_2 R_3 R_5 R_6 + C_3 C_4 R_2 R_3 R_5 R_6 + C_3 C_4 R_2 R_3 R_5 + C_2 C_3 R_2 R_3 R_5 + C_2 C_6 R_2 R_5 R_6 + C_3 C_6 R_2 R_3 R_6 + C_3 C_6 R_2 R_5 R_6 + C_3 C_6 R_5 R_5 R_6 + C_5 C_6 R_5 R_5 R_6
9.608 X-INVALID-ORDER-608 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^3\left(C_2C_3C_6R_1R_2R_6 + C_2C_3C_6R_2R_3R_6 + C_3C_4C_6R_2R_3R_6 - C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_2C_3R_1R_2 + C_2C_3R_2R_3 + C_2C_6R_2R_6 + C_3C_4R_2R_3 + C_3C_6R_2R_6 +
9.609 X-INVALID-ORDER-609 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)
H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^3\left(C_2C_3C_5R_1R_2R_5 + C_2C_3C_5R_2R_3R_5 + C_3C_4C_5R_2R_3R_5\right) + s^2\left(C_2C_3R_1R_2 + C_2C_3R_2R_3 + C_2C_5R_2R_5 + C_3C_5R_2R_3 + C_3C_5R_2R_5 + C_3C_5R_5R_5 + C_3C_
9.610 X-INVALID-ORDER-610 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)
```

**9.601** X-INVALID-ORDER-601  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

```
9.611 X-INVALID-ORDER-611 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_2C_3C_5C_6R_1R_2R_5 + C_2C_3C_5C_6R_2R_3R_5 + C_3C_4C_5C_6R_2R_3 + C_2C_5C_6R_2R_3 + C_3C_5C_6R_2R_3 + C_3C_5C_6R_3R_3 + C_3C_5C_6R_3R_3 + C_3C_5C_6R_3R_3 + C_3C_5C_6R_3R_3 + C_3C_5C_6R_3R_3 + C_3C_5C_5C_6R_3R_3 + C_3C_5C_5C_6R_3R_3 + C_3C_5C_5C_6R_3R_3 + C_3C_5C_5C_6R_3R_3 + C_3C_5C_5C_6R_
9.612 X-INVALID-ORDER-612 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
                                          \overline{s^4 \left( C_2 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_3 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_3 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_3 C_4 C_5 R_2 R_3 R_5 + C_2 C_3 C_5 R_1 R_2 R_5 + C_2 C_3 C_6 R_1 R_2 R_6 + C_2 C_3 C_6 R_2 R_3 R_6 + C_3 C_4 C_5 R_2 R_3 R_5 + C_3 C_4 C_6 R_2 R_3 R_6 + C_3 C_5 C_6 R_2 R_3 R_5 + C
9.613 X-INVALID-ORDER-613 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_5s}{-R_2 + R_5 + s^3\left(C_2C_3C_6R_1R_2R_5R_6 + C_2C_3C_6R_2R_3R_5R_6 - C_3C_5C_6R_2R_3R_5R_6 + C_3C_4R_2R_3R_5 + C_2C_3R_2R_3R_5 + C_2C_6R_2R_3R_5 + C_3C_6R_2R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R_5 + C_3C_6R
9.614 X-INVALID-ORDER-614 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, R_6\right)
H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_2R_3R_4R_5\right) + s^2\left(C_2C_3R_1R_2R_5 + C_2C_3R_2R_3R_5 + C_2C_4R_2R_4R_5 + C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_4 + C_3C_4R_2R_4R_4 + C_3C_4R_4R_4R_4 + C_3C_4R_4R_4R_4 + C_3C_4R_4R_4R_4 + C_3C_4R_4R_4R_4 + C_3C_4R_4R_4 + C_3C_4R_4
9.615 X-INVALID-ORDER-615 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_4R_1R_2R_4s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^3\left(C_2C_3C_4C_6R_1R_2R_4R_5 + C_2C_3C_4C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_3C_6R_1R_2R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_3R_4 + C_3C_4C_6R_2R_3R_5 + C_3C_4C_6R_3R_5 + C_3C_4C_6R_5R_5 + C_3C_4C_6
9.616 X-INVALID-ORDER-616 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)
                                          \frac{C_3C_4C_6R_1R_2R_4R_6s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^3\left(C_2C_3C_4C_6R_1R_2R_4R_5 + C_2C_3C_4C_6R_2R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_3R_4 + C_3C_4C_6R_2R_3R_5 + C_3C_4C_6R_3R_3R_5 
9.617 X-INVALID-ORDER-617 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)
9.618 X-INVALID-ORDER-618 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)
                                          \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{s^3\left(C_2C_3C_4R_1R_2R_4 + C_2C_3C_4R_2R_3R_4 - C_3C_4C_5R_2R_3R_4\right) + s^2\left(C_2C_3R_1R_2 + C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_3C_4R_2R_4 + C_3C_4R_3R_4 - C_3C_5R_2R_3 - C_4C_5R_2R_4\right) + s\left(C_2R_2 + C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 + C_4R_4 - C_5R_2\right) + 1}{s^3\left(C_2C_3C_4R_1R_2R_4 + C_3C_4R_2R_3 + C_3C_4R_2R_3 + C_3C_4R_2R_4 + C_3C_4R_3R_4 - C_3C_5R_2R_3 - C_4C_5R_2R_4\right) + s\left(C_2R_2 + C_3R_1 + C_3R_2 + C_4R_2 + C_4R_4 - C_5R_2\right) + 1}{s^3\left(C_2C_3C_4R_1R_2R_4 + C_3C_4R_2R_4 + C_3C_4R_4R_4 + C_3C_4R_4 + C_3C_4
```

**9.619** X-INVALID-ORDER-619  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s$  $H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_2C_3C_4C_6R_1R_2R_4 + C_2C_3C_4C_6R_2R_3 + C_3C_4C_6R_2R_3 + C_3C_4C_6R_2R_4 + C_3C_4C_6R_4R_4 + C_3C_4C_6R_4R_$ 

**9.620** X-INVALID-ORDER-620  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6)$  $\frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{C_6 + s^3\left(C_2C_3C_4C_6R_1R_2R_4 + C_2C_3C_6R_2R_3 + C_2C_4C_6R_2R_4 + C_3C_4C_6R_2R_4 + C_3C_$ 

- **9.621** X-INVALID-ORDER-621  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{s^4 \left( C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_2 C_3 C_4 R_1 R_2 R_4 + C_2 C_3 C_6 R_1 R_2 R_6 + C_2 C_3 C_6 R_2 R_3 R_6 + C_2 C_4 C_6 R_2 R_3 R_4 + C_3 C_4 C_6 R_2 R_3 R_4 +$
- **9.622** X-INVALID-ORDER-622  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{C_3C_4C_5R_1R_2}{s^4\left(C_2C_3C_4C_5R_1R_2R_4R_5 + C_2C_3C_4C_5R_2R_3R_4R_5\right) + s^3\left(C_2C_3C_4R_1R_2R_4 + C_2C_3C_4R_2R_3R_4 + C_2C_3C_5R_1R_2R_5 + C_2C_4C_5R_2R_4R_5 + C_3C_4C_5R_2R_3R_4 + C_3C_4C_5R_3R_4R_5 + C_3C_4C_5R_4R_5R_5 + C_3C_4C_5R_4R_5 + C_3C_4C_5R_4R_5 + C_3C_4C_5R_4R_5 + C_3C_4C_5R_4R_5 + C_3C_4C_5R_5R_5R_5 + C_3C_4C_5R_5R_5R_5 + C_3C_4C_5R_5R_5R_5 + C_3C_4C_5R_5R_5R_5 + C_3C_4C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_$
- **9.623** X-INVALID-ORDER-623  $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_2 C_3 C_4 C_6 R_2 R_3 R_4 + C_2 C_3 C_5 C_6 R_1 R_2 R_5 + C_2 C_3 C_5 C_6 R_2 R_3 R_5 + C_2 C_4 C_5 C_6 R_2 R_3 R_5 + C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_3 C_4 C_5 C_6 R_2 R_3 R_5 + C_3 C_4 C_5 C_6 R_2 R_5 R_5 + C_3 C_4 C_5 C_6 R_2 R_5 R_5 + C_3 C_4 C_5 C_6 R_5 R_5 R_5 + C_3 C_5 C_6 R_5 R_5 R_5 + C_3 C_5 C_6 R_5 R_5 R_5 + C_5 C_5 R_5 R_5 R_5 + C_5 C_5$
- **9.624** X-INVALID-ORDER-624  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 \right) + s^3 \left( C_2 C_3 C_4 C_6 R_1 R_2 R_4 + C_2 C_3 C_5 C_6 R_1 R_2 R_5 + C_2 C_3 C_5 C_6 R_2 R_3 R_5 + C_2 C_4 C_5 C_6 R_2 R_3 R_5 + C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_3 C_4 C_5 C_6 R_2 R_3 R_5 + C_3 C_4 C_5 C_6 R_2 R_5 R_5 + C_3 C_5 C_6 R_5 R_5 R_5 + C_5 C_5 R_5 R_5 R_5 + C$
- **9.625** X-INVALID-ORDER-625  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{s^5 \left( C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 \right) + s^4 \left( C_2 C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_2 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_2 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_4 C_5 C_6 R_4 R_5 R_5 + C_4 C_5 C_6 R_4 R_5 R_5 + C_4 C_5 C_6 R_4 R_5 R_5 + C_4 C_5 C_6 R_5 R_5 R_5 + C_4 C_5 C_6 R_5 R_5 R_5 + C_5 C_5 R_5 R_5 R_5 +$
- **9.626** X-INVALID-ORDER-626  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$
- $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_6 + C_3C_5R_1R_2R_5R_6\right)}{-R_2 + R_5 + s^3\left(C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_2R_3R_4R_5 C_3C_4R_2R_3R_4R_5 + C_2C_3R_2R_3R_5 + C_2C_4R_2R_4R_5 + C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_2R_3R_4 + C_3C_4R_3R_4R_5 + C_3C_4R_2R_4R_5 + C_3C_4R_4R_5 +$
- 9.627 X-INVALID-ORDER-627  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5\right)}{-C_6R_2 + C_6R_5 + s^3\left(C_2C_3C_4C_6R_1R_2R_4 + C_3C_3C_4C_6R_2R_3R_4R_5 C_3C_4C_6R_2R_3R_4 + C_3C_4C_6R_4R_4 + C_3C_4C_6R_4R_4 + C_3C_5C_4C_6R_4R_4 + C_3C_5C_4C_6R_4R_4 + C_3C_5C_4C_6R_4R_4 + C_3C_5C_4C_6R_4R_4$
- 9.628 X-INVALID-ORDER-628  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_2R_5R_6\right) + s\left(C_3C_4R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_4R_5 + C_3C_4C_6R_2R_3R_4R_5 + C_3C_4C_6R_2R_3R_4 + C_3C_4C_6R_2R_4R_5 + C_3C_4$
- 9.629 X-INVALID-ORDER-629  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-R_2 + R_5 + s^4 \left(C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_5 R_6 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6\right) + s^3 \left(C_2 C_3 C_4 R_1 R_2 R_4 R_5 + C_2 C_3 C_4 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_5 R_6 + C_2 C_4 C_6 R_2 R_4 R_5 R_6 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_3 C_4 C_6 R_2 R_3 R_4 R_5 + C_3$
- **9.630** X-INVALID-ORDER-630  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_2C_3C_6R_1R_2R_4R_5R_6 + C_2C_3C_6R_2R_3R_4R_5R_6 + C_3C_4C_6R_2R_3R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_2C_6R_2R_4R_5R_6 + C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R$

- $\textbf{9.631} \quad \textbf{X-INVALID-ORDER-631} \ Z(s) = \left(R_1, \ \frac{R_2}{C_2R_2s+1}, \ R_3 + \frac{1}{C_3s}, \ \frac{R_4}{C_4R_4s+1}, \ \frac{1}{C_5s}, \ \frac{R_6}{C_6R_6s+1}\right)$   $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_2C_3C_6R_1R_2R_4R_6 + C_2C_3C_6R_2R_3R_4R_6 + C_3C_5C_6R_2R_3R_4R_6 + C_3C_5R_2R_3R_4 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_3R_4 + C_3C_6R_2R_3R_4 + C_3C_6$
- **9.632** X-INVALID-ORDER-632  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$
- **9.633** X-INVALID-ORDER-633  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_2C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_2R_3R_4R_5 + C_3C_4C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4 + C_3C_5C_6R_2R_3R_4 + C_3C_5C_6R_3R_3R_4 + C_3C_5C_6R_3R_3R_4 + C_3C_5C_6R_3R_3R_4 + C_3C_5C_6R_3R_3R_4 + C_3C_5C_6R_3R_3R_4 + C_3C_5C_6R_3R_3R_4 + C_3C_$
- 9.634 X-INVALID-ORDER-634  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_2C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_2R_3R_4R_5 + C_3C_4C_5R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4 + C_3C_5C_6R_2R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_$
- **9.635** X-INVALID-ORDER-635  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{R_2 + R_4 + s^4 \left( C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_3 C_4 C$
- **9.636** X-INVALID-ORDER-636  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- 9.637 X-INVALID-ORDER-637  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5, \frac{1}{C_6s}\right)$ 
  - $H(s) = \frac{C_3 R_1 R_2 R_3 R_4 s + R_1 R_2 R_4}{C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 s^3 + s^2 \left(C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5 + C_3 C_6 R_1 R_3 R_4 R_5 \right) + s \left(C_6 R_1 R_4 R_5 C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5 \right)}$
- **9.638** X-INVALID-ORDER-638  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5, R_6 + \frac{1}{C_6s}\right)$ 
  - $H(s) = \frac{C_3C_6R_1R_2R_3R_4R_6s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_6R_1R_2R_4R_6\right)}{C_2C_3C_6R_1R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_3C_6R_1R_3R_4R_5 + C_3C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$
- **9.639** X-INVALID-ORDER-639  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)$
- **9.640** X-INVALID-ORDER-640  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{C_2C_3C_6R_1R_2R_3R_4R_6s^3 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_6R_1R_2R_4R_6 + C_3C_6R_2R_3R_4R_6 + C_3C_6R_2R_3R_4R_6\right) + s\left(C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_2R_3R_4 + C_3R_3R_4 + C_3R_3$

```
9.642 X-INVALID-ORDER-642 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)
                                   \frac{C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}s+C_{5}R_{1}R_{2}R_{4}}{C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{6}R_{2}R_{3}+C_{6}R_{2}R_{4}+C_{6}R_{3}R_{4}+s^{2}\left(C_{2}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{2}C_{5}C_{6}R_{1}R_{3}R_{4}+C_{5}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{3}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s\left(C_{2}C_{6}R_{1}R_{2}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}+C_{3}C_{6}R_{2}R_{3}+C_{3}C_{6}R_{2}+C_{3}C_{6}R_{2}+C_{3}C_{6}R_{2}+C_{3}C_{6}R_{2}+C_{3}C_{6}R_{2}+C_{3}C_{6}R_{2}+
9.643 X-INVALID-ORDER-643 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_2C_3C_5C_6R_1R_2R_3R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_2C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_2R_4 + C_3C_5C_6R_1R_3R_4 + C_3C_5C
9.644 X-INVALID-ORDER-644 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
                                   \overline{C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^3\left(C_2C_3C_5R_1R_2R_3R_4R_5 + C_2C_5C_6R_1R_2R_4R_5R_6 + C_2C_5C_6R_1R_3R_4R_5R_6 + C_3C_5C_6R_2R_3R_4R_5R_6 + C_3C_5C_6R_3R_3R_4R_5R_6 + C_3C_5C_6R_3R_3R_4R_5R_6 + C_3C_5C_6R_3R_3R_4R_5R_6 + C_3C_5C_6R_3R_3R_4R_5R_5 + C_3C_5C_6R_3R_3R_4R_5R_5 + C_3C_5C_6R_3R_3R_4R_5 + C_3C_5C_6R_3R_3R_4R_5 + C_3C_5C_6R_3R_3R_4R_5 + C_3C_5C_6R_3R_3R_4R_5 + C_3C_5C_6R_3R_3R_4R_5 + C_3C_5C_6R_3R_3R_4R_5 + C_3C_5C_6R_3R_3R_5R_5 + C_3C_5C_6R_3R_5R_5 + C_3C_5C_6R_5R_5R_5 + C_3C_5C_5R_5R_5R_5 + C_3C_5C_5R_5R_5R_5 + C_3C_5C_5R_5
9.645 X-INVALID-ORDER-645 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                                                                                              H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5\right)}{C_2C_3C_6R_1R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_3C_6R_1R_3R_4R_5 + C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}
9.646 X-INVALID-ORDER-646 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
                                                                                                              H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_4 + s^2\left(C_3C_5R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_6 + C_5C_6R_1R_2R_4R_5R_6\right) + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{C_2C_3C_6R_1R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_3C_6R_1R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}
9.647 X-INVALID-ORDER-647 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)}{C_2C_3C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + s^2\left(C_2C_3R_1R_2R_3R_4R_5 + C_2C_6R_1R_2R_4R_5R_6 + C_3C_6R_2R_3R_4R_5R_6 + C_3C_6R_2R_3R_4R_5 + C_3C_6R_3R_4R
9.648 X-INVALID-ORDER-648 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)
                                                                                                                                                                                                       H(s) = \frac{C_3R_1R_2R_3s + R_1R_2}{C_2C_3C_6R_1R_2R_3R_5s^3 + s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}
9.649 X-INVALID-ORDER-649 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                       H(s) = \frac{C_3C_6R_1R_2R_3R_6s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_6R_1R_2R_6\right)}{C_2C_3C_6R_1R_2R_3R_5s^3 + s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}
9.650 X-INVALID-ORDER-650 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_3R_1R_2R_3R_6s + R_1R_2R_6
                                   \frac{C_3R_1R_2R_3R_6s + R_1R_2R_6}{C_2C_3C_6R_1R_2R_3R_5R_6s^3 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_2C_3R_1R_2R_3R_5 + C_2C_6R_1R_2R_5R_6 + C_3C_6R_2R_3R_5R_6 + C_3C_6R_2R_3R_5R_6\right) + s\left(C_2R_1R_2R_5 + C_2R_2R_3R_5 + C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_5 + C_4R_3R_3R_5 + C_4R_3R
```

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{C_2C_3C_5R_1R_2R_3R_4R_5s^3 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_5R_1R_2R_4R_5 + C_2C_5R_2R_3R_4R_5 + C_3C_5R_1R_3R_4R_5 + C_3C_5R_1R_3R_4 + C_3R_1R_3R_4 + C_3R_1R_3R_4 + C_5R_1R_4R_5 - C_5R_2R_3R_4 + C_5R_1R_3R_4 + C_$ 

**9.641** X-INVALID-ORDER-641  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, R_6\right)$ 

```
9.651 X-INVALID-ORDER-651 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{C_2C_3C_6R_1R_2R_3R_6s^3 + R_1 + R_2 + R_3 + s^2\left(C_2C_3R_1R_2R_3 + C_2C_6R_1R_2R_6 + C_3C_6R_1R_3R_6 + C_3C_6R_2R_3R_6\right) + s\left(C_2R_1R_2 + C_2R_2R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 - C_5R_2R_3 + C_6R_1R_6 + C_6R_2R_6 + C_6R_2R_3R_6\right) + s\left(C_2R_1R_2 + C_2R_2R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 - C_5R_2R_3 + C_6R_1R_6 + C_6R_2R_6 + C_6R_2R_3R_6\right) + s\left(C_2R_1R_2 + C_2R_2R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 - C_5R_2R_3 + C_6R_1R_6 + C_6R_2R_6 + C_6R_2R_3R_6\right) + s\left(C_2R_1R_2 + C_2R_2R_3 + C_3R_1R_3 + C_4R_2R_3 + C_6R_1R_3R_6 + C_6R_2R_3R_6\right) + s\left(C_2R_1R_2 + C_2R_2R_3 + C_3R_3R_6 + C_4R_2R_3 + C_4R_3R_3 
9.652 X-INVALID-ORDER-652 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)
                                       \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{C_2C_3C_5R_1R_2R_3R_5s^3 + R_1 + R_2 + R_3 + s^2\left(C_2C_3R_1R_2R_3 + C_2C_5R_1R_2R_5 + C_2C_5R_2R_3R_5 + C_3C_5R_1R_3R_5 + C_4C_5R_2R_3R_5\right) + s\left(C_2R_1R_2 + C_2R_2R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_2R_3 + C_5R_1R_5 - C_5R_2R_3 + C_5R_2R_5 + C_5R_3R_5\right)}
9.653 X-INVALID-ORDER-653 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5R_1R_2R_3s + C_5R_1R_2}{C_2C_3C_5C_6R_1R_2R_3R_5s^3 + C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_2C_3C_6R_1R_2R_3 + C_2C_5C_6R_2R_3R_5 + C_3C_5C_6R_1R_3R_5 + C_3C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_3 + C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_4C_6R_2R_3 + C_5C_6R_1R_3 + C_5C_
9.654 X-INVALID-ORDER-654 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
                           \frac{C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_5C_6R_1R_2R_3 + C_5C_6R_1R_2R_6\right)}{C_2C_3C_5C_6R_1R_2R_3 + C_5C_6R_1R_2R_3 + C_2C_5C_6R_1R_2R_5 + C_2C_5C_6R_2R_3R_5 + C_3C_5C_6R_1R_3R_5 + C_3C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_3R_5 + C_4C_5C_6R_3R_5 + C_4C_5C_6R_3R_5 + C_4C_5C_5C_6R_3R_5 + C_4C_5C_5C_6R_3R_5 + C_4C_5C_5C_6R_3R_5 + C_4C_5C_5C_6R_3R_5 + C_4C_5C_5C_6R_3R_5 
9.655 X-INVALID-ORDER-655 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
9.656 X-INVALID-ORDER-656 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                                                                                                                          H(s) = \frac{C_3C_5R_1R_2R_3R_5s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_5R_1R_2R_5\right)}{C_2C_3C_6R_1R_2R_3R_5s^3 + s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_3C_6R_1R_3R_5 + C_4C_6R_2R_3R_5 - C_5C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}
9.657 X-INVALID-ORDER-657 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                          H(s) = \frac{C_3C_5C_6R_1R_2R_3R_5R_6s^3 + R_1R_2 + s^2\left(C_3C_5R_1R_2R_3R_5 + C_3C_6R_1R_2R_3R_6 + C_5C_6R_1R_2R_5R_6\right) + s\left(C_3R_1R_2R_3 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{C_2C_3C_6R_1R_2R_3R_5s^3 + s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 - C_5C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_3 + C_6R_2R_3 + C_6R_3R_5\right)}
9.658 X-INVALID-ORDER-658 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
                             \frac{C_{3}C_{5}R_{1}R_{2}R_{3}R_{5}R_{6}s^{2}+R_{1}R_{2}R_{6}+s\left(C_{3}R_{1}R_{2}R_{3}R_{6}+C_{5}R_{1}R_{2}R_{5}R_{6}\right)}{C_{2}C_{3}C_{6}R_{1}R_{2}R_{3}R_{5}+S_{6}+C_{2}C_{6}R_{1}R_{2}R_{5}R_{6}+C_{2}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{3}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{4}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_3C_5R_1R_2R_3R_5R_6s^2 + R_1R_2R_6 + s\left(C_3R_1R_2R_3R_6 + C_5R_1R_2R_5R_6\right)
9.659 X-INVALID-ORDER-659 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, R_6\right)
```

 $H(s) = \frac{C_3C_4R_1R_2R_3R_4R_6s^2 + R_1R_2R_6 + s\left(C_3R_1R_2R_3R_6 + C_4R_1R_2R_4R_6\right)}{C_2C_3C_4R_1R_2R_3R_4R_5s^3 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_2C_3R_1R_2R_3R_5 + C_2C_4R_1R_2R_4R_5 + C_2C_4R_2R_3R_4R_5 + C_3C_4R_2R_3R_4R_5 + C_3C_4R_3R_4R_5 + C_3C_4R_4R_5 + C_3C_4R_4R_5 + C_3C_4R_4R$ 

 $H(s) = \frac{C_3C_4R_1R_2R_3R_4s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_4R_1R_2R_4\right)}{C_2C_3C_4C_6R_1R_2R_3R_4R_5s^4 + s^3\left(C_2C_3C_6R_1R_2R_3R_5 + C_2C_4C_6R_1R_2R_4R_5 + C_3C_4C_6R_1R_3R_4R_5 + C_3C_4C_6R_2R_3R_4R_5\right) + s^2\left(C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_4 + C_4C_6R_2$ 

9.664 X-INVALID-ORDER-664  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

**9.665** X-INVALID-ORDER-665  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_3R_4 + C_3C_5C_6R_1R_2R_3R_6 + C_4C_5C_6R_1R_2R_4R_6\right) + s\left(C_3C_5R_1R_2R_3 + C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_6\right)}{C_2C_3C_4C_6R_1R_2R_3R_4s^3 + C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_2C_3C_6R_1R_2R_3 + C_2C_4C_6R_1R_2R_4 + C_3C_4C_6R_1R_3R_4 + C_3C_4$ 

**9.666** X-INVALID-ORDER-666  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_4}{C_2C_3C_4C_6R_1R_2R_3R_4R_6s^4 + R_1 + R_2 + R_3 + s^3\left(C_2C_3C_4R_1R_2R_3R_4 + C_2C_4C_6R_1R_2R_4R_6 + C_2C_4C_6R_2R_3R_4R_6 + C_3C_4C_6R_2R_3R_4R_6 + C_3C_4C_6R_3R_4R_4 + C_3$ 

**9.667** X-INVALID-ORDER-667  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_5s^4}{C_2C_3C_4C_5R_1R_2R_3R_4R_5s^4 + R_1 + R_2 + R_3 + s^3\left(C_2C_3C_4R_1R_2R_3R_4 + C_2C_3C_5R_1R_2R_3R_4 + C_2C_4C_5R_1R_2R_4R_5 + C_2C_4C_5R_1R_3R_4R_5 + C_3C_4C_5R_1R_3R_4R_5 + C_3C_4C_5R_1R_2R_3 + C_2C_4R_1R_2R_3 + C_2C_4R_1R_2R_4 + C_2C_4R_1$ 

**9.668** X-INVALID-ORDER-668  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

**9.669** X-INVALID-ORDER-669  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_2C_3C_4C_6R_1R_2R_3R_4 + C_2C_3C_5C_6R_1R_2R_4R_5 + C_2C_4C_5C_6R_1R_3R_4R_5 + C_3C_4C_5C_6R_1R_3R_4R_5 + C_3C_4C_5C_6R_1R_3R_4 + C_3C_5C_5R_3R_5 + C_3C_5C_5R_5R_5R_5 + C_3C_5C_5R_5R_5R_5 + C_3C_5C_5R_5R_5R_5 + C_3C_5C_5R_5R_5R_5 + C_3C_5C_5R_5R_5R_5 + C_3C_5C_5R_5R_$ 

**9.670** X-INVALID-ORDER-670  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_1 + R_2 + R_3 + s^4\left(C_2C_3C_4C_5R_1R_2R_3R_4R_5 + C_2C_3C_4C_6R_1R_2R_3R_4R_6 + C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_4C_5C_6R_1R_3R_4R_5R_6 + C_3C_4C_5C_6R_1R_3R_4R_5R_6 + C_3C_4C_5C_6R_1R_3R_4R_5R_5R_5 + C_3C_4C_5C_6R_1R_3R_4R_5R_5R_5 + C_3C_4C_5C_6R_1R_3R_4R_5R_5R_5 + C_3C_4C_5C_6R_1R_3R_4R_5R_5R_5 + C_3C_4C_5C_6R_3R_4R_5R_5 + C_3C_4C_5C_6R_3R_4R_5R_5 + C_3C_4C_5C_6R_3R_4R_5R_5 + C_3C_4C_5C_6R_3R_4R_5R_5 + C_3C_4C_5C_6R_3R_5R_5 + C_3C_5C_5C_6R_5R_5R_5 + C_3C_5C_5C_6R_5R_5R_5 + C_3C_5C_5C_5R_5R_5R_5 + C_3C_5C_5C_5R_5R_5R_5 + C_3C_5C_5C_5R_5R_5R_5 + C_3C_5C_5C_$ 

```
9.671 X-INVALID-ORDER-671 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)
H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_6 + s^2\left(C_3C_4R_1R_2R_3R_4R_6 + C_3C_5R_1R_2R_3R_5R_6 + C_4C_5R_1R_2R_3R_6 + C_4R_1R_2R_4R_6 + C_5R_1R_2R_5R_6\right)}{C_2C_3C_4R_1R_2R_3R_4R_5s^3 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_2C_3R_1R_2R_3R_4R_5 + C_2C_4R_1R_2R_4R_5 + C_3C_4R_1R_3R_4R_5 + C_3C_4R_1R_2R_3R_4R_5\right) + s\left(C_3R_1R_2R_3R_6 + C_4R_1R_2R_4R_6 + C_5R_1R_2R_5R_6\right)}
9.672 X-INVALID-ORDER-672 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                   \frac{C_{3}C_{4}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}s^{3}+R_{1}R_{2}+s^{2}\left(C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}+C_{3}C_{5}R_{1}R_{2}R_{3}R_{5}+C_{4}C_{5}R_{1}R_{2}R_{3}R_{5}+C_{4}C_{5}R_{1}R_{2}R_{3}R_{4}+C_{5}R_{1}R_{2}R_{4}+C_{5}R_{1}R_{2}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_{3}R_{5}+C_{5}C_{6}R_{2}R_
9.673 X-INVALID-ORDER-673 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_5F_6s^4 + R_1R_2 + s^3\left(C_3C_4C_5R_1R_2R_3R_4R_5 + C_3C_4C_6R_1R_2R_3R_4F_6 + C_4C_5C_6R_1R_2R_3R_5 + C_4C_5R_1R_2R_3R_4 + C_3C_5R_1R_2R_3R_5 + C_3C_6R_1R_2R_3R_5 + C_4C_5R_1R_2R_3R_5 + C_4C_5R_1R_2R_3R_5 + C_4C_5R_1R_2R_3R_4 + C_3C_5R_1R_2R_3R_4 + C_3C_5R_1R_2R_3R_5 + C_3C_6R_1R_2R_3R_5 + C_4C_5R_1R_2R_3R_5 + C_4C_5R_1R_2R_5 +
```

**9.674** X-INVALID-ORDER-674  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(C_2C_3C_4R_1R_2R_3R_4R_5 + C_2C_4C_6R_1R_2R_3R_4R_5R_6 + C_2C_4C_6R_1R_3R_4R_5R_6 + C_3C_4C_6R_1R_3R_4R_5R_6 + C_3C_4C_6R_2R_3R_4R_5R_6 + C_3C_4C_6R_3R_3R_4R_5R_6 + C_3C_4C_6R_3R_3R_5R_6 + C_3C_4C_6R_3R_5R_5 + C_3C_4C_6R_3R_5R_5 + C_3C_5$ 

**9.675** X-INVALID-ORDER-675  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_3 R_4 s + R_1 R_2 R_4}{C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 s^3 + s^2 \left(C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5 + C_3 C_6 R_1 R_3 R_4 R_5 + C_4 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$ 

**9.676** X-INVALID-ORDER-676  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_2R_3R_4R_6s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_6R_1R_2R_4R_6\right)}{C_2C_3C_6R_1R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_3C_6R_1R_3R_4R_5 + C_4C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$ 

**9.677** X-INVALID-ORDER-677  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6}{C_2C_3C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + C_2C_6R_1R_2R_4R_5R_6 + C_3C_6R_1R_3R_4R_5R_6 + C_3C_6R_2R_3R_4R_5R_6 + C_4C_6R_2R_3R_4R_5R_6 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_2R_5R_5R_5 + C_4C_6R_5R_5R_5R_5 + C_4C_6R_5R_5R_5R_5 + C_4C_6R_5R_5R_5R_5 + C_4C_6R_5R_5R_5R_5 + C$ 

**9.678** X-INVALID-ORDER-678  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\frac{C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{6}s^{2}+C_{5}R_{1}R_{2}R_{3}R_{4}R_{6}s^{2}+C_{5}R_{1}R_{2}R_{4}R_{6}s}{C_{2}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{2}R_{3}+C_{2}C_{6}R_{1}R_{$ 

**9.679** X-INVALID-ORDER-679  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{C_2C_3C_5R_1R_2R_3R_4R_5s^3 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_5R_1R_2R_4R_5 + C_3C_5R_1R_3R_4R_5 + C_4C_5R_2R_3R_4R_5 + C_4C_5R_2R_3R_4 + C_3R_2R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 + C_4R_3R_4R_4 + C_4R_2R_3R_4 + C_4R_2R_3R_4 + C_4R_2R_3R_4 + C_4R_2R_3R_4 + C_4R_2R_3R_4 + C_4R_3R_4 + C_$ 

**9.680** X-INVALID-ORDER-680  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4$  $\frac{C_3C_5R_1R_2R_3R_4R_5r^3 + C_6R_1R_4 + C_6R_2R_3 + C_6R_1R_2R_3R_4 + C_2C_5C_6R_1R_2R_3R_4 + C_2C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_2R_3R_4R_5 + C_4C_5C_6R_2R_3R_4R_5 + C_4C_5C_6R_2R_3R_4 + C_4C_5C_$ 

```
9.681 X-INVALID-ORDER-681 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
```

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_2C_3C_5C_6R_1R_2R_3R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_2C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_2R_3R_4R_5 + C_4C_5C_6R_2R_3R_4R_5 + C_4C_5C_6R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4 + C_5C_6R$ 

**9.682** X-INVALID-ORDER-682  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}s^{4}+R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}+s^{3}\left(C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}R_{6}+C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}R_{6}+C_{3}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{3}C_{$ 

**9.683** X-INVALID-ORDER-683  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5\right)}{C_2C_3C_6R_1R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_3R_4 + C_6R_3R_4 + C_6R_3R_4 + C_6R_3R_4 + C_6R_3R_4 + C_6R_3R_4 + C_6R_$ 

**9.684** X-INVALID-ORDER-684  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_4 + s^2\left(C_3C_5R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_6 + C_5C_6R_1R_2R_4R_5R_6\right) + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{C_2C_3C_6R_1R_2R_3R_4R_5s^3 + s^2\left(C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_3R_4 + C$ 

**9.685** X-INVALID-ORDER-685  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6)$ 

**9.686** X-INVALID-ORDER-686  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{R_2 R_4 R_6}{R_4 R_5 + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5\right)}$$

**9.687** X-INVALID-ORDER-687  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{R_2 R_4}{C_6 R_4 R_5 s + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5\right)}$$

**9.688** X-INVALID-ORDER-688  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_6 R_2 R_4 R_6 s + R_2 R_4}{C_6 R_4 R_5 s + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5\right)}$$

**9.689** X-INVALID-ORDER-689  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_2 R_4 R_6 s}{-C_1 C_5 C_6 R_2 R_3 R_4 R_6 s^3 + R_4 + s^2 \left(-C_1 C_5 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_6 + C_1 C_6 R_2 R_4 R_6 + C_1 C_6 R_3 R_4 R_6\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_6 R_4 R_6\right)}$$

**9.690** X-INVALID-ORDER-690  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{C_{5}R_{2}R_{4}R_{6}s}{R_{4}+s^{3}\left(-C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{4}R_{5}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{5}+C_{1}C_{5}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{4}R_{6}+C_{1}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{6}+C_{1}C_{5}R_{2}R_{3}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{6}+C_{1}C_{5}R_{2}R_{3}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{5}R_{2}R_{3}R_{6}+C_{1}C_{5}$ 

**9.691** X-INVALID-ORDER-691 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_2 R_4 R_5 s + R_2 R_4}{-C_1 C_5 C_6 R_2 R_3 R_4 R_5 s^3 + C_6 R_4 R_5 s + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_2 R_4 R_5\right)}$$

**9.692** X-INVALID-ORDER-692 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_2R_4R_5R_6s^2 + R_2R_4 + s\left(C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{-C_1C_5C_6R_2R_3R_4R_5s^3 + C_6R_4R_5s + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5\right)}$$

**9.693** X-INVALID-ORDER-693 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$$

$$H(s) = \frac{C_5 R_2 R_4 R_5 R_6 s + R_2 R_4 R_6}{-C_1 C_5 C_6 R_2 R_3 R_4 R_5 R_6 s^3 + R_4 R_5 + s^2 \left(-C_1 C_5 R_2 R_3 R_4 R_5 - C_1 C_6 R_2 R_3 R_4 R_6 + C_1 C_6 R_2 R_4 R_5 R_6 + C_1 C_6 R_2 R_4 R_5 R_6 \right) + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 + C_1 R_4 R_5 R_6 \right)}$$

**9.694** X-INVALID-ORDER-694 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{R_2}{C_1 C_4 C_6 R_2 R_3 R_5 s^3 + C_6 R_5 s + s^2 \left( -C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5 \right)}$$

**9.695** X-INVALID-ORDER-695 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_6 R_2 R_6 s + R_2}{C_1 C_4 C_6 R_2 R_3 R_5 s^3 + C_6 R_5 s + s^2 \left( -C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5 \right)}$$

**9.696** X-INVALID-ORDER-696 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{R_2 R_6}{C_1 C_4 C_6 R_2 R_3 R_5 R_6 s^3 + R_5 + s^2 \left(C_1 C_4 R_2 R_3 R_5 - C_1 C_6 R_2 R_3 R_6 + C_1 C_6 R_2 R_5 R_6 + C_1 C_6 R_3 R_5 R_6\right) + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_6 R_5 R_6\right)}$$

**9.697** X-INVALID-ORDER-697 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & R_3, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$$

$$H(s) = \frac{C_5 R_2 R_6 s}{s^3 \left(C_1 C_4 C_6 R_2 R_3 R_6 - C_1 C_5 C_6 R_2 R_3 R_6\right) + s^2 \left(C_1 C_4 R_2 R_3 - C_1 C_5 R_2 R_3 + C_1 C_6 R_2 R_6 + C_1 C_6 R_3 R_6\right) + s \left(C_1 R_2 + C_1 R_3 + C_6 R_6\right) + 1}$$

**9.698** X-INVALID-ORDER-698 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_2 R_6 s}{C_1 C_4 C_5 R_2 R_3 R_5 s^3 + s^2 \left(C_1 C_4 R_2 R_3 - C_1 C_5 R_2 R_3 + C_1 C_5 R_2 R_5 + C_1 C_5 R_3 R_5\right) + s \left(C_1 R_2 + C_1 R_3 + C_5 R_5\right) + 1}$$

**9.699** X-INVALID-ORDER-699 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_2}{C_1 C_4 C_5 C_6 R_2 R_3 R_5 s^3 + C_6 + s^2 \left(C_1 C_4 C_6 R_2 R_3 - C_1 C_5 C_6 R_2 R_3 + C_1 C_5 C_6 R_2 R_5 + C_1 C_5 C_6 R_3 R_5\right) + s \left(C_1 C_6 R_2 + C_1 C_6 R_3 + C_5 C_6 R_5\right)}$$

**9.700** X-INVALID-ORDER-700 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_2R_6s + C_5R_2}{C_1C_4C_5C_6R_2R_3R_5s^3 + C_6 + s^2\left(C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_3R_5\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_5C_6R_5\right)}$$

**9.701** X-INVALID-ORDER-701  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_5 R_2 R_6 s}{C_1 C_4 C_5 C_6 R_2 R_3 R_5 R_6 s^4 + s^3 \left(C_1 C_4 C_5 R_2 R_3 R_5 + C_1 C_4 C_6 R_2 R_3 R_6 + C_1 C_5 C_6 R_2 R_3 R_6 + C_1 C_5 C_6 R_2 R_3 R_6 + C_1 C_5 C_6 R_2 R_3 R_5 + C_1 C_5 R_2 R_3 + C_1 C_5 R_2 R_5 + C_1 C_5 R_5 R_5 + C_1 C_5 R_$ 

**9.702** X-INVALID-ORDER-702  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_2 R_5 s + R_2}{C_6 R_5 s + s^3 \left( C_1 C_4 C_6 R_2 R_3 R_5 - C_1 C_5 C_6 R_2 R_3 R_5 \right) + s^2 \left( -C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5 \right)}$$

**9.703** X-INVALID-ORDER-703  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5C_6R_2R_5R_6s^2 + R_2 + s\left(C_5R_2R_5 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5\right)}$$

**9.704** X-INVALID-ORDER-704  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_2 R_5 R_6 s + R_2 R_6}{R_5 + s^3 \left(C_1 C_4 C_6 R_2 R_3 R_5 R_6 - C_1 C_5 C_6 R_2 R_3 R_5 R_6\right) + s^2 \left(C_1 C_4 R_2 R_3 R_5 - C_1 C_5 R_2 R_3 R_5 - C_1 C_6 R_2 R_3 R_6 + C_1 C_6 R_2 R_5 R_6\right) + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_6 R_5 R_6\right)}$$

**9.705** X-INVALID-ORDER-705  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4 R_2 R_4 s + R_2}{C_6 R_5 s + s^3 \left(-C_1 C_4 C_6 R_2 R_3 R_4 + C_1 C_4 C_6 R_2 R_3 R_5 + C_1 C_4 C_6 R_2 R_4 R_5 + C_1 C_4 C_6 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5 + C_4 C_6 R_4 R_5\right)}$$

**9.706** X-INVALID-ORDER-706  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_6R_2R_4R_6s^2 + R_2 + s\left(C_4R_2R_4 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(-C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_4C_6R_4R_5\right)}$$

**9.707** X-INVALID-ORDER-707  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_4 R_2 R_4 R_6 s + R_2 R_6}{R_5 + s^3 \left(-C_1 C_4 C_6 R_2 R_3 R_4 R_6 + C_1 C_4 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_4 C_6 R_3 R_4 R_5 R_6\right) + s^2 \left(-C_1 C_4 R_2 R_3 R_4 + C_1 C_4 R_2 R_3 R_5 + C_1 C_4 R_2 R_3 R_6 + C_1 C_6 R_2 R_5 R_6 + C_1 C_6 R_5 R_5$$

**9.708** X-INVALID-ORDER-708  $Z(s) = \left(\frac{1}{C_{1}s}, R_2, R_3, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$ 

$$H(s) = \frac{C_4C_5R_2R_4R_6s^2 + C_5R_2R_6s}{-C_1C_4C_5R_2R_3R_4s^3 + s^2\left(C_1C_4R_2R_3 + C_1C_4R_2R_4 + C_1C_4R_3R_4 - C_1C_5R_2R_3\right) + s\left(C_1R_2 + C_1R_3 + C_4R_4\right) + 1}$$

**9.709** X-INVALID-ORDER-709  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5R_2R_4s + C_5R_2}{-C_1C_4C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_4C_6R_4\right)}$$

**9.710** X-INVALID-ORDER-710  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5C_6R_2R_4R_6s^2 + C_5R_2 + s\left(C_4C_5R_2R_4 + C_5C_6R_2R_6\right)}{-C_1C_4C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_4C_6R_4\right)}$$

```
9.711 X-INVALID-ORDER-711 Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

$$H(s) = \frac{C_4C_5R_2R_4R_6s^2 + C_5R_2R_6s}{-C_1C_4C_5C_6R_2R_3R_4R_6s^4 + s^3\left(-C_1C_4C_5R_2R_3R_4 + C_1C_4C_6R_2R_3R_6 + C_1C_4C_6R_2R_4R_6 + C_1C_4C_6R_2R_3R_6 + C_1C_4C_6R_2R_3R_6 + C_1C_4R_2R_4 + C_1C_4R_2R_4 + C_1C_4R_3R_4 - C_1C_5R_2R_3 + C_1C_6R_3R_6 + C_4C_6R_3R_6 + C_4C_6R_3R_6 + C_4C_6R_3R_6 + C_4C_6R_3R_4 + C_4C_6R_3R_6 + C_4C_6R_3R_4 + C_4C_6R_4R_5 +$$

**9.712** X-INVALID-ORDER-712  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_4C_5R_2R_4R_6s^2 + C_5R_2R_6s}{s^3\left(-C_1C_4C_5R_2R_3R_4 + C_1C_4C_5R_2R_3R_5 + C_1C_4C_5R_2R_4R_5 + C_1C_4C_5R_3R_4R_5\right) + s^2\left(C_1C_4R_2R_3 + C_1C_4R_2R_4 + C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_3R_5 + C_4C_5R_4R_5\right) + s\left(C_1R_2 + C_1R_3 + C_4R_4 + C_5R_5\right) + 1}$$

**9.713** X-INVALID-ORDER-713  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5R_2R_4s + C_5R_2}{C_6 + s^3\left(-C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_3R_5 + C_4C_5C_6R_4R_5\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_4C_6R_4R_5\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_4C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_4C_6R_4R_5\right) + s\left(C_1C_6R_4R_5\right) + s\left(C_1$$

**9.714** X-INVALID-ORDER-714  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5C_6R_2R_4R_6s^2 + C_5R_2 + s\left(C_4C_5R_2R_4 + C_5C_6R_2R_6\right)}{C_6 + s^3\left(-C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_3R_5 + C_4C_5C_6R_4R_5\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_4C_6R_4R_5\right) + s\left(C_1C_6R_4 + C_4C_6R_4 + C_4C_6R_4\right) + s\left(C_1C_6R_4 + C_4C_6R_4 + C_4C_6R_4\right) + s\left(C_1C_6R_4 + C_4C_6R_4 + C_4C_6R_4\right) + s\left(C_1C_6R_4 + C_4C_6R_4R_5\right) + s\left(C_1C_6R_4 + C_4C_6R_4 + C_4C_6R_4\right) + s\left(C_1C_6R_4 + C_4C_6R_4\right) +$$

**9.715** X-INVALID-ORDER-715  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_4C_5R_2R_4}{s^4\left(-C_1C_4C_5C_6R_2R_3R_4R_6 + C_1C_4C_5C_6R_2R_3R_5R_6 + C_1C_4C_5C_6R_2R_4R_5R_6 + C_1C_4C_5R_2R_3R_4 + C_1C_4C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_6 + C_1C_4C_6R_2R_3R_6 + C_1C_4C_6R_2R_4R_6 + C_1C_4C_6R_4R_4R_6 + C_$$

**9.716** X-INVALID-ORDER-716  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_4C_5R_2R_4R_5R_6s^2 + R_2R_6 + s\left(C_4R_2R_4R_6 + C_5R_2R_5R_6\right)}{-C_1C_4C_5R_2R_3R_4R_5s^3 + R_5 + s^2\left(-C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_4R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_2R_3R_5\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_4R_4R_5\right)}$$

9.717 X-INVALID-ORDER-717  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5R_2R_4R_5s^2 + R_2 + s\left(C_4R_2R_4 + C_5R_2R_5\right)}{-C_1C_4C_5C_6R_2R_3R_4R_5s^4 + C_6R_5s + s^3\left(-C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 + C_1C_4C$$

**9.718** X-INVALID-ORDER-718  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5C_6R_2R_4R_5R_6s^3 + R_2 + s^2\left(C_4C_5R_2R_4R_5 + C_4C_6R_2R_4R_6 + C_5C_6R_2R_5R_6\right) + s\left(C_4R_2R_4 + C_5R_2R_5 + C_6R_2R_6\right)}{-C_1C_4C_5C_6R_2R_3R_4R_5s^4 + C_6R_5s + s^3\left(-C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_4C_6R_4R_5\right)}$$

**9.719** X-INVALID-ORDER-719  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_4C_5R_2R_4R_5R_6s^2 + R_2R_6 + s\left(C_4R_2R_4R_6 + C_5R_2R_5R_6\right)}{-C_1C_4C_5C_6R_2R_3R_4R_5R_6s^4 + R_5 + s^3\left(-C_1C_4C_5R_2R_3R_4R_5 - C_1C_4C_6R_2R_3R_5R_6 + C_1C_4C_6R_2R_3R_5R_6 + C_1C_4C_6R_2R_3R_5R_6\right) + s^2\left(-C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_3R_3R_5 + C_1C_4R_3R_5 + C_1C_4R_5 + C_1C_4R_5 + C_1C_4R_5 + C_1$$

**9.720** X-INVALID-ORDER-720  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{R_2 R_4}{C_1 C_4 C_6 R_2 R_3 R_4 R_5 s^3 + C_6 R_4 R_5 s + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5\right)}$$

**9.721** X-INVALID-ORDER-721  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_6 R_2 R_4 R_6 s + R_2 R_4}{C_1 C_4 C_6 R_2 R_3 R_4 R_5 s^3 + C_6 R_4 R_5 s + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5\right)}$$

**9.722** X-INVALID-ORDER-722  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{R_2 R_4 R_6}{C_1 C_4 C_6 R_2 R_3 R_4 R_5 R_6 s^3 + R_4 R_5 + s^2 \left(C_1 C_4 R_2 R_3 R_4 R_5 - C_1 C_6 R_2 R_3 R_4 R_6 + C_1 C_6 R_2 R_3 R_5 R_6 + C_1 C_6 R_2 R_4 R_5 R_6\right) + s \left(-C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 \right)}$$

**9.723** X-INVALID-ORDER-723  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$ 

$$H(s) = \frac{C_5 R_2 R_4 R_6 s}{R_4 + s^3 \left(C_1 C_4 C_6 R_2 R_3 R_4 R_6 - C_1 C_5 C_6 R_2 R_3 R_4 R_6\right) + s^2 \left(C_1 C_4 R_2 R_3 R_4 - C_1 C_5 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_6 + C_1 C_6 R_2 R_4 R_6\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_6 R_4 R_6\right)}$$

**9.724** X-INVALID-ORDER-724  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_2 R_4 R_6 s}{C_1 C_4 C_5 R_2 R_3 R_4 R_5 s^3 + R_4 + s^2 \left(C_1 C_4 R_2 R_3 R_4 - C_1 C_5 R_2 R_3 R_4 + C_1 C_5 R_2 R_3 R_5 + C_1 C_5 R_2 R_4 R_5 + C_1 C_5 R_3 R_4 R_5\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_5 R_4 R_5\right)}{c_1 C_4 C_5 R_2 R_3 R_4 R_5 s^3 + R_4 + s^2 \left(C_1 C_4 R_2 R_3 R_4 - C_1 C_5 R_2 R_3 R_4 + C_1 C_5 R_2 R_3 R_5 + C_1 C_5 R_2 R_4 R_5\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_5 R_4 R_5\right)}$$

**9.725** X-INVALID-ORDER-725  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5 R_2 R_4}{C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 s^3 + C_6 R_4 + s^2 \left(C_1 C_4 C_6 R_2 R_3 R_4 - C_1 C_5 C_6 R_2 R_3 R_4 + C_1 C_5 C_6 R_2 R_3 R_5 + C_1 C_5 C_6 R_2 R_4 R_5 \right) + s \left(C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_3 R_4 + C_5 C_6 R_4 R_5 \right)}$$

9.726 X-INVALID-ORDER-726  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5C_6R_2R_4R_6s + C_5R_2R_4}{C_1C_4C_5C_6R_2R_3R_4R_5s^3 + C_6R_4 + s^2\left(C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_5 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_3R_4R_5\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_5C_6R_4R_5\right)}$$

**9.727** X-INVALID-ORDER-727  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_2 R_4 R_6 s}{C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 s^4 + R_4 + s^3 \left(C_1 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_5 R_2 R_3 R_4 + C_1 C_5 R_4 R_5 + C_1 C_5 R_4 R_5 R_5 + C_1 C_5 R_4 R_5 + C_1 C_5 R_5 R_5 + C_1 C_5 R_5$$

**9.728** X-INVALID-ORDER-728  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_5 R_2 R_4 R_5 s + R_2 R_4}{C_6 R_4 R_5 s + s^3 \left(C_1 C_4 C_6 R_2 R_3 R_4 R_5 - C_1 C_5 C_6 R_2 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_2 R_4 R_5\right)}$$

**9.729** X-INVALID-ORDER-729  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5C_6R_2R_4R_5R_6s^2 + R_2R_4 + s\left(C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right)}$$

**9.730** X-INVALID-ORDER-730  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_2 R_4 R_5 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^3 \left(C_1 C_4 C_6 R_2 R_3 R_4 R_5 R_6 - C_1 C_5 C_6 R_2 R_3 R_4 R_5 - C_1 C_5 R_2 R_3 R_4 R_5 - C_1 C_6 R_2 R_3 R_4 R_5 - C_1 C_6 R_2 R_3 R_4 R_5 + C_1 C_6 R_2 R_5 + C_1 C_6 R_2 R_5 + C_1 C_6 R_2 R_5 + C_1 C_6 R_5 R_5 +$$

**9.731** X-INVALID-ORDER-731 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_2 R_4 R_6}{C_1 C_3 R_2 R_4 R_5 s - C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5}$$

**9.732** X-INVALID-ORDER-732 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_2 R_4}{C_1 C_3 C_6 R_2 R_4 R_5 s^2 + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_3 C_6 R_4 R_5\right)}$$

**9.733** X-INVALID-ORDER-733 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_2R_4R_6s + C_3R_2R_4}{C_1C_3C_6R_2R_4R_5s^2 + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.734** X-INVALID-ORDER-734 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3 C_5 R_2 R_4 R_6 s}{C_1 R_2 + C_1 R_4 + C_3 R_4 + s \left(C_1 C_3 R_2 R_4 - C_1 C_5 R_2 R_4\right)}$$

**9.735** X-INVALID-ORDER-735 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 C_5 R_2 R_4}{C_1 C_6 R_2 + C_1 C_6 R_4 + C_3 C_6 R_4 + s \left(C_1 C_3 C_6 R_2 R_4 - C_1 C_5 C_6 R_2 R_4\right)}$$

**9.736** X-INVALID-ORDER-736 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$$

**9.737** X-INVALID-ORDER-737 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1C_3C_5C_6R_2R_4R_5R_6s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_5R_2R_4R_6 - C_1C_5C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6 + C_1C_5C_6R_4R_5R_6\right) + s\left(C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_4R_5 + C_1C_5R_5R_5 + C_1C_5$$

**9.738** X-INVALID-ORDER-738  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_3R_2R_4R_5 - C_1C_5R_2R_4R_5\right)}$$

**9.739** X-INVALID-ORDER-739  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_5s + C_3R_2R_4}{s^2\left(C_1C_3C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.740** X-INVALID-ORDER-740 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_2R_4R_5R_6s^2 + C_3R_2R_4 + s\left(C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{s^2\left(C_1C_3C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.741** X-INVALID-ORDER-741 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_2 R_6}{-C_1 R_2 + C_1 R_5 + C_3 R_5 + s \left(C_1 C_3 R_2 R_5 + C_1 C_4 R_2 R_5\right)}$$

**9.742** X-INVALID-ORDER-742 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_2}{s^2 \left(C_1 C_3 C_6 R_2 R_5 + C_1 C_4 C_6 R_2 R_5\right) + s \left(-C_1 C_6 R_2 + C_1 C_6 R_5 + C_3 C_6 R_5\right)}$$

**9.743** X-INVALID-ORDER-743 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 C_6 R_2 R_6 s + C_3 R_2}{s^2 \left(C_1 C_3 C_6 R_2 R_5 + C_1 C_4 C_6 R_2 R_5\right) + s \left(-C_1 C_6 R_2 + C_1 C_6 R_5 + C_3 C_6 R_5\right)}$$

**9.744** X-INVALID-ORDER-744 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3 C_5 R_2 R_6 s}{C_1 + C_3 + s \left( C_1 C_3 R_2 + C_1 C_4 R_2 - C_1 C_5 R_2 \right)}$$

**9.745** X-INVALID-ORDER-745 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3 C_5 R_2}{C_1 C_6 + C_3 C_6 + s \left(C_1 C_3 C_6 R_2 + C_1 C_4 C_6 R_2 - C_1 C_5 C_6 R_2\right)}$$

**9.746** X-INVALID-ORDER-746 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_2R_6s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s\left(C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2\right)}$$

**9.747** X-INVALID-ORDER-747 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

**9.748** X-INVALID-ORDER-748  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_5R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s\left(C_1C_3R_2R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5\right)}$$

**9.749** X-INVALID-ORDER-749  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_5s + C_3R_2}{s^2\left(C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.750** X-INVALID-ORDER-750 
$$Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{1}{C_3 s}, \ \frac{1}{C_4 s}, \ \frac{R_5}{C_5 R_5 s + 1}, \ R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_2R_5R_6s^2 + C_3R_2 + s\left(C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^2\left(C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.751** X-INVALID-ORDER-751  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4R_2R_4s + C_3R_2}{C_1C_3C_4C_6R_2R_4R_5s^3 + s^2\left(C_1C_3C_6R_2R_5 - C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_3C_4C_6R_4R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.752** X-INVALID-ORDER-752  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_6R_2R_4R_6s^2 + C_3R_2 + s\left(C_3C_4R_2R_4 + C_3C_6R_2R_6\right)}{C_1C_3C_4C_6R_2R_4R_5s^3 + s^2\left(C_1C_3C_6R_2R_5 - C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_3C_4C_6R_4R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.753** X-INVALID-ORDER-753  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$C_3C_4R_2R_4R_6s + C_3R_2R_6$$

 $H(s) = \frac{C_3C_4R_2R_4R_6s + C_3R_2R_6}{C_1C_3C_4C_6R_2R_4R_5R_6s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_2R_4R_5 + C_1C_3C_6R_2R_5R_6 - C_1C_4C_6R_2R_4R_6 + C_1C_4C_6R_2R_5R_6 + C_1C_4C_6R_4R_5R_6\right) + s\left(C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 - C_1C_6R_2R_6 + C_1C_4C_6R_2R_5R_6 + C_1C_4C_6R_4R_5R_6\right) + s\left(C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 - C_1C_6R_2R_6 + C_1C_4C_6R_4R_5R_6\right) + s\left(C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_4R_5 - C_1C_6R_2R_6 + C_1C_4C_6R_4R_5R_6\right) + s\left(C_1C_3R_4R_5R_6 - C_1C_4R_4R_5 - C_1C_4C_6R_4R_5R_6\right) + s\left(C_1C_3R_4R_5R_6 - C_1C_4R_4R_5 - C_1C_4R_4R_5 - C_1C_4R_4R_5 - C_1C_4R_4R_5\right) + s\left(C_1C_3R_4R_5R_6 - C_1C_4R_4R_5 - C_1C_4R_4R_5\right) + s\left(C_1C_3R_4R_5R_6 - C_1C_4R_4R_5 - C_1C_4R_4R_5\right) + s\left(C_1C_3R_4R_5R_5 - C_1C_4R_4R_5 - C_1C_4R_4R_5\right) + s\left(C_1C_3R_4R_5R_5 - C_1C_4R_4R_5 - C_1C_4R_4R_5\right) + s\left(C_1C_3R_4R_5R_5 - C_1C_4R_5R_5\right) + s\left(C_1C_3R_5R_5 - C_1C_4R$ 

**9.754** X-INVALID-ORDER-754  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{1}{C_3 s}, \ R_4 + \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_3C_4C_6R_2R_4R_6 - C_1C_4C_5C_6R_2R_4 + C_1C_3C_6R_2R_6 + C_1C_4C_6R_2R_6 + C_1C_4C_6R_2R_6 + C_1C_4C_6R_2R_6 + C_1C_4C_6R_2R_6 + C_1C_4C_6R_2R_6 + C_1C_4C_6R_2R_6 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_2 + C_1C_4R_2 + C_1C_4R_2 + C_1C_4R_4 - C_1C_5R_2 + C_1C_4R_4 + C_1C_5R_4 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4R_6 + C_1C_4C_6R_4R_6 - C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_6 - C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4 + C_1C_4R_4 + C_1C_5R_4 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4R_6 + C_1C_4R_4 + C_1C_5R_4R_6 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4R_6 + C_1C_4R_4 + C_1C_5R_4R_6\right) + s\left(C_1C_3R_4R_4 + C_1C_5R_4R_6 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4R_4 + C_1C_5R_4R_6 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4R_4 + C_1C_5R_4R_6 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4R_4 + C_1C_5R_4R_6\right) + s\left(C_1C_3R_4R_4 + C_1C_5R_4R_6\right) + s\left(C_1C_3R_4R_6 + C_1C_4C_6R_4R_6\right) + s\left(C_1C_3R_4R_6 + C_1C_4R_4R_6\right) + s\left(C_1C_3R_4R_6\right) +$$

**9.755** X-INVALID-ORDER-755  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{C_1C_3C_4C_5R_2R_4R_5s^3 + C_1 + C_3 + s^2\left(C_1C_3C_4R_2R_4 + C_1C_3C_5R_2R_5 - C_1C_4C_5R_2R_4 + C_1C_4C_5R_2R_5 + C_1C_4C_5R_4R_5 + C_3C_4C_5R_4R_5\right) + s\left(C_1C_3R_2 + C_1C_4R_2 + C_1C_4R_4 - C_1C_5R_2 + C_1C_5R_5 + C_3C_4R_4 + C_3C_5R_5\right)}$$

**9.756** X-INVALID-ORDER-756  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_2R_4s + C_3C_5R_2}{C_1C_3C_4C_5C_6R_2R_4R_5s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_4 + C_1C_3C_5C_6R_2R_5 - C_1C_4C_5C_6R_2R_4 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_4R_5\right) + s\left(C_1C_3C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_1C_5C_6R_2 + C_1C_5C_6R_4 + C_3C_5C_6R_5\right)}$$

**9.757** X-INVALID-ORDER-757  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_2R_4R_6s^2 + C_3C_5R_2 + s\left(C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_6\right)}{C_1C_3C_4C_5C_6R_2R_4 + C_1C_3C_5C_6R_2R_5 - C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_4R_5) + s\left(C_1C_3C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_3C_4C_6R_4 + C_3C_5C_6R_5\right)}$$

**9.758** X-INVALID-ORDER-758  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{C_{3}C_{4}C_{5}R_{2}R_{4}R_{6}s}{C_{1}C_{3}C_{4}C_{5}C_{6}R_{2}R_{4}R_{5}R_{6}s^{4}+C_{1}+C_{3}+s^{3}\left(C_{1}C_{3}C_{4}C_{5}R_{2}R_{4}R_{6}+C_{1}C_{3}C_{5}C_{6}R_{2}R_{5}R_{6}-C_{1}C_{4}C_{5}C_{6}R_{2}R_{5}R_{6}+C_{1}C_{4}C_{5}C_{6}R_{4}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{3}C_{4}R_{2}R_{4}+C_{1}C_{3}C_{5}R_{2}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{5}R_{6}-C_{1}C_{4}C_{5}C_{6}R_{2}R_{5}R_{6}+C_{1}C_{4}C_{5}C_{6}R_{4}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{3}C_{4}R_{2}R_{4}+C_{1}C_{3}C_{5}R_{2}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{5}R_{6}-C_{1}C_{4}C_{5}C_{6}R_{2}R_{5}R_{6}+C_{1}C_{4}C_{5}C_{6}R_{4}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{3}C_{4}R_{2}R_{4}+C_{1}C_{3}C_{5}R_{2}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{5}R_{6}-C_{1}C_{4}C_{5}C_{6}R_{2}R_{5}R_{6}+C_{1}C_{4}C_{5}C_{6}R_{4}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{3}C_{4}R_{2}R_{4}+C_{1}C_{3}C_{5}R_{2}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{5}R_{6}-C_{1}C_{4}C_{5}C_{6}R_{2}R_{5}R_{6}+C_{1}C_{4}C_{5}C_{6}R_{4}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{3}C_{4}R_{2}R_{4}+C_{1}C_{3}C_{5}R_{2}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{5}R_{6}+C_{1}C_{4}C_{5}C_{6}R_{4}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{3}C_{4}R_{2}R_{4}+C_{1}C_{3}C_{5}R_{2}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}+C_{1}C_{5}R_{5$ 

**9.759** X-INVALID-ORDER-759  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & \frac{1}{C_3 s}, & R_4 + \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_4C_5R_2R_4R_5s^2 + C_3R_2 + s\left(C_3C_4R_2R_4 + C_3C_5R_2R_5\right)}{s^3\left(C_1C_3C_4C_6R_2R_4R_5 - C_1C_4C_5C_6R_2R_4R_5\right) + s^2\left(C_1C_3C_6R_2R_5 - C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_3C_4C_6R_4R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.760** X-INVALID-ORDER-760  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_2R_4R_5R_6s^3 + C_3R_2 + s^2\left(C_3C_4C_5R_2R_4R_5 + C_3C_4C_6R_2R_4R_6 + C_3C_5C_6R_2R_5R_6\right) + s\left(C_3C_4R_2R_4 + C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_3C_4C_6R_2R_4R_5 - C_1C_4C_5R_2R_4R_5\right) + s^2\left(C_1C_3C_6R_2R_5 - C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 - C_1C_5C_6R_2R_5 + C_3C_4C_6R_4R_5\right) + s\left(C_3C_4R_2R_4 + C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}$$

**9.761** X-INVALID-ORDER-761 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6 + s\left(C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6\right)$$

 $H(s) = \frac{C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6 + s\left(C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_3C_4R_2R_4R_5R_6 - C_1C_4C_5R_2R_4R_5 + C_1C_3C_6R_2R_5R_6 - C_1C_4C_5R_2R_4R_5 - C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_4R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4$ 

**9.762** X-INVALID-ORDER-762  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_2 R_4 R_6}{-C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left(C_1 C_3 R_2 R_4 R_5 + C_1 C_4 R_2 R_4 R_5\right)}$$

**9.763** X-INVALID-ORDER-763  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3 R_2 R_4}{s^2 \left(C_1 C_3 C_6 R_2 R_4 R_5 + C_1 C_4 C_6 R_2 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_3 C_6 R_4 R_5\right)}$$

**9.764** X-INVALID-ORDER-764  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_2R_4R_6s + C_3R_2R_4}{s^2\left(C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.765** X-INVALID-ORDER-765  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3 C_5 R_2 R_4 R_6 s}{C_1 R_2 + C_1 R_4 + C_3 R_4 + s \left( C_1 C_3 R_2 R_4 + C_1 C_4 R_2 R_4 - C_1 C_5 R_2 R_4 \right)}$$

**9.766** X-INVALID-ORDER-766  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$$

**9.767** X-INVALID-ORDER-767  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$$

**9.768** X-INVALID-ORDER-768  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{1}{C_3 s}, \ \frac{R_4}{C_4 R_4 s + 1}, \ R_5 + \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$C_3C_5R_2R_4R_6s$$

**9.769** X-INVALID-ORDER-769  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & R_6 \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_4R_5\right)}$$

**9.770** X-INVALID-ORDER-770  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_2R_4R_5s + C_3R_2R_4}{s^2\left(C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

$$\textbf{9.771} \quad \textbf{X-INVALID-ORDER-771} \ \ Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{1}{C_3 s}, \ \frac{R_4}{C_4 R_4 s+1}, \ \frac{R_5}{C_5 R_5 s+1}, \ R_6 + \frac{1}{C_6 s}\right)$$
 
$$H(s) = \frac{C_3 C_5 C_6 R_2 R_4 R_5 R_6 s^2 + C_3 R_2 R_4 + s \left(C_3 C_5 R_2 R_4 R_5 + C_3 C_6 R_2 R_4 R_6\right)}{s^2 \left(C_1 C_3 C_6 R_2 R_4 R_5 + C_1 C_4 C_6 R_2 R_4 R_5 - C_1 C_5 C_6 R_2 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_3 C_6 R_4 R_5\right)}$$

**9.772** X-INVALID-ORDER-772  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_2 R_4 R_6}{-C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left(-C_1 C_3 R_2 R_3 R_4 + C_1 C_3 R_2 R_3 R_5 + C_1 C_3 R_2 R_4 R_5 + C_1 C_3 R_3 R_4 R_5\right)}$$

**9.773** X-INVALID-ORDER-773  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_2 R_4}{s^2 \left(-C_1 C_3 C_6 R_2 R_3 R_4 + C_1 C_3 C_6 R_2 R_3 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 + C_1 C_3 C_6 R_3 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_3 C_6 R_4 R_5\right)}$$

**9.774** X-INVALID-ORDER-774  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_2R_4R_6s + C_3R_2R_4}{s^2\left(-C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_3R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.775** X-INVALID-ORDER-775  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$_{3}C_{5}R_{2}R_{4}R_{6}s$$

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{-C_1C_3C_5C_6R_2R_3R_4R_6s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(-C_1C_3C_5R_2R_3R_4 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 - C_1C_5R_2R_4 + C_1C_6R_4R_6 + C_3C_6R_4R_6\right)}$$

**9.776** X-INVALID-ORDER-776  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$I(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(-C_1C_3C_5C_6R_2R_3R_4R_6 + C_1C_3C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_2R_4R_5R_6 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R$$

**9.777** X-INVALID-ORDER-777  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_5s + C_3R_2R_4}{-C_1C_3C_5C_6R_2R_3R_4R_5s^3 + s^2\left(-C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.778** X-INVALID-ORDER-778  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_4R_5R_6s^2 + C_3R_2R_4 + s\left(C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{-C_1C_3C_5C_6R_2R_3R_4R_5s^3 + s^2\left(-C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.779** X-INVALID-ORDER-779  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6$$

$$H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1C_3C_5C_6R_2R_3R_4R_5R_6s^3 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + c_3R_4R_5 + c_4C_3C_6R_2R_3R_4R_6 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1$$

**9.780** X-INVALID-ORDER-780  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_2}{C_1 C_3 C_4 C_6 R_2 R_3 R_5 s^3 + s^2 \left(-C_1 C_3 C_6 R_2 R_3 + C_1 C_3 C_6 R_2 R_5 + C_1 C_3 C_6 R_3 R_5 + C_1 C_4 C_6 R_2 R_5\right) + s \left(-C_1 C_6 R_2 + C_1 C_6 R_5 + C_3 C_6 R_5\right)}$$

**9.781** X-INVALID-ORDER-781  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_2R_6s + C_3R_2}{C_1C_3C_4C_6R_2R_3R_5s^3 + s^2\left(-C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.782** X-INVALID-ORDER-782  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_2 R_6}{C_1 C_3 C_4 C_6 R_2 R_3 R_5 R_6 s^3 - C_1 R_2 + C_1 R_5 + C_3 R_5 + s^2 \left(C_1 C_3 C_4 R_2 R_3 R_5 - C_1 C_3 C_6 R_2 R_3 R_6 + C_1 C_3 C_6 R_2 R_5 R_6 + C_1 C_4 C_6 R_2 R_5 R_6 \right) + s \left(-C_1 C_3 R_2 R_3 + C_1 C_3 R_2 R_5 + C_1 C_4 R_2 R_5 - C_1 C_6 R_2 R_6 + C_1 C_6 R_5 R_6 + C_3 C_6 R_5 R_6 \right)}$ 

**9.783** X-INVALID-ORDER-783  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_3C_4C_6R_2R_3R_6 - C_1C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3 + C_1C_3C_6R_2R_6 + C_1C_3C_6R_2R_6 + C_1C_4C_6R_2R_6 - C_1C_5C_6R_2R_6\right) + s\left(C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2 + C_1C_6R_6 + C_3C_6R_6\right)}$ 

**9.784** X-INVALID-ORDER-784  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_6s}{C_1C_3C_4C_5R_2R_3R_5s^3 + C_1 + C_3 + s^2\left(C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_2R_5 + C_1C_4C_5R_2R_5\right) + s\left(C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2 + C_1C_5R_5 + C_3C_5R_5\right)}$ 

**9.785** X-INVALID-ORDER-785  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2}{C_1C_3C_4C_5C_6R_2R_3R_5s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 + C_1C_5C_6R_2 + C_1C_5C_6R_2$ 

**9.786** X-INVALID-ORDER-786  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_6s + C_3C_5R_2}{C_1C_3C_4C_5C_6R_2R_3R_5s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5\right) + s\left(C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_3C_5C_6R_5\right)}$$

**9.787** X-INVALID-ORDER-787  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_6s}{C_1C_3C_4C_5C_6R_2R_3R_5R_6s^4 + C_1 + C_3 + s^3\left(C_1C_3C_4C_5R_2R_3R_6 + C_1C_3C_5C_6R_2R_3R_6 + C_1C_3C_5C_6R_2R_5R_6\right) + s^2\left(C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_5R_5 + C$ 

**9.788** X-INVALID-ORDER-788  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_5s + C_3R_2}{s^3\left(C_1C_3C_4C_6R_2R_3R_5 - C_1C_3C_5C_6R_2R_3R_5\right) + s^2\left(-C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.789** X-INVALID-ORDER-789  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_5R_6s^2 + C_3R_2 + s\left(C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_3C_4C_6R_2R_3R_5 - C_1C_3C_5C_6R_2R_3R_5\right) + s^2\left(-C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

9.790 X-INVALID-ORDER-790  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_5R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_3C_4C_6R_2R_3R_5R_6 - C_1C_3C_5C_6R_2R_3R_5R_6\right) + s^2\left(C_1C_3C_4R_2R_3R_5 - C_1C_3C_5R_2R_3R_5 - C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_5R_6 - C_1C_5C_6R_2R_5R_6\right) + s\left(-C_1C_3R_2R_3R_5 - C_1C_3C_6R_2R_3R_5 - C_1C_3C_6R_2R_5 - C_1C_3C_6R_3R_5 - C_1C_3C_6R_3R_5 - C_1C_3C_6R_3R_5 - C_1C_3C_6R_3R_5 - C_1C_3C_6R_3R_5 - C_1C_3C_5C_6R_5 - C_1C_3C_5C_6R_5 - C_1C_3C_5C_6R_5 - C_1C_3C_5C_6R_5 - C_1C_5C_5C_6R_5$$

**9.791** X-INVALID-ORDER-791  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_4R_2R_4s + C_3R_2}{s^3\left(-C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + s(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5)\right)}$ **9.792** X-INVALID-ORDER-792  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $\frac{C_3C_4C_6R_2R_4R_6s^2 + C_3R_2 + s\left(C_3C_4R_2R_4 + C_3C_6R_2R_6\right)}{s^3\left(-C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_3C_4C_6R_4R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$ **9.793** X-INVALID-ORDER-793  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_3C_4R_2R_4R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(-C_1C_3C_4C_6R_2R_3R_4R_6 + C_1C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6\right) + s^2\left(-C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_5 + C_1C_3C_4R_3R_4R_5 - C_1C_3C_4R_3R_4R_5 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_5R_5 + C_1C_3C_4R_5R_5 + C_1C_3C_4R_5R_5 + C_1C_3C_4R_5R_5 + C_1C_3C_4R$ **9.794** X-INVALID-ORDER-794  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{-C_1C_3C_4C_5R_2R_3R_4s^3 + C_1 + C_3 + s^2\left(C_1C_3C_4R_2R_3 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_3R_4 - C_1C_3C_5R_2R_3 - C_1C_4C_5R_2R_4\right) + s\left(C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 + C_1C_4R_4 - C_1C_5R_2 + C_3C_4R_4\right)}$ **9.795** X-INVALID-ORDER-795  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_4C_5R_2R_4s + C_3C_5R_2}{-C_1C_3C_4C_5C_6R_2R_3R_4s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 + C_1C_3C_4C_6R_2R_4 + C_1C_3C_4C_6R_2R_4 - C_1C_3C_5C_6R_2R_4\right) + s\left(C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_3C_4C_6R_4\right)}$ **9.796** X-INVALID-ORDER-796  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_4C_5C_6R_2R_4R_6s^2 + C_3C_5R_2 + s\left(C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_6\right)}{-C_1C_3C_4C_5C_6R_2R_3R_4s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 + C_1C_3C_4C_6R_2R_4 + C_1C_3C_5C_6R_2R_3 - C_1C_4C_5C_6R_2R_4\right) + s\left(C_1C_3C_6R_3 + C_1C_4C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_3C_4C_6R_4\right)}$ **9.797** X-INVALID-ORDER-797  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s$ 

 $H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_3R_4R_6s^2 + C_3C_5R_2R_6s}{-C_1C_3C_4C_5R_2R_3R_4R_6s^4 + C_1 + C_3 + s^3\left(-C_1C_3C_4C_5R_2R_3R_4 + C_1C_3C_4C_6R_2R_4R_6 + C_1C_3C_4C_6R_2R_4R_6 + C_1C_3C_4C_6R_2R_4R_6 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_3R_4 + C_1C_3C_4$ 

**9.798** X-INVALID-ORDER-798  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s$  $H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(-C_1C_3C_4C_5R_2R_3R_4 + C_1C_3C_4C_5R_2R_3R_5 + C_1C_3C_4C_5R_2R_4R_5 + C_1C_3C_4R_2R_3 + C_1C_3C_4R_2R_4 + C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_2R_5 + C_1C_4C_5R_2R_4 + C_1C_4C_5R_4R_5 + C_1C_4C_5R_4R_5$ 

**9.799** X-INVALID-ORDER-799  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_3C_4C_5R_2R_4s + C_3C_5R_2$ 

**9.800** X-INVALID-ORDER-800  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_3C_4C_5C_6R_2R_4R_6s^2 + C_3C_5R_2 + s(C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_6)$  $H(s) = \frac{C_3C_4C_5C_6R_2R_3R_4 + C_1C_3C_4C_5R_2R_3R_4 + C_1C_3C_4C_5R_2R_3R_5 + C_1C_3C_4C_5R_2R_4R_5 + C_1C_3C_4C_5R_3R_4R_5) + s^2\left(C_1C_3C_4C_6R_2R_3 + C_1C_3C_4C_6R_2R_3 + C_1C_3C_4C_5R_2R_3 + C_1C_3C_4C_5R_3R_4 + C_1C_3C_4C_5R_3R_5 + C_1C_3C_4C_5R_3R_5 + C_1C_3C_4C_5R_3R_5 + C_1C_3C_4C_5R_3R_5 + C_1C_3C_4C_5R_3R_5 + C_1C_3C_4C_5R_3R_5$ 

```
 \textbf{9.801} \quad \textbf{X-INVALID-ORDER-801} \ Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ R_3 + \frac{1}{C_3 s}, \ R_4 + \frac{1}{C_4 s}, \ R_5 + \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right)   H(s) = \frac{1}{C_1 + C_3 + s^4 \left(-C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5
```

**9.802** X-INVALID-ORDER-802  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6 + s\left(C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6\right)}{-C_1C_3C_4C_5R_2R_3R_4R_5s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(-C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_5 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_$ 

**9.803** X-INVALID-ORDER-803  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_4R_5s^2 + C_3R_2 + s\left(C_3C_4R_2R_4 + C_3C_5R_2R_5\right)}{-C_1C_3C_4C_5R_2R_3R_4 + S^4 + s^3\left(-C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5\right) + s^2\left(-C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_3R_3 + C_1C_3C_6R_3R_3$ 

**9.804** X-INVALID-ORDER-804  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_2R_4R_5R_6s^3 + C_3R_2 + s^2\left(C_3C_4C_5R_2R_4R_5 + C_3C_4C_6R_2R_4R_6 + C_3C_5C_6R_2R_5R_6\right) + s\left(C_3C_4R_2R_4 + C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{-C_1C_3C_4C_5C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_6R_2R_3R_5 - C_1C_4C_5C_6R_2R_3R_5 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_3R_3 + C_1C_3C_6R$ 

**9.805** X-INVALID-ORDER-805  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-C_1C_3C_4C_5C_6R_2R_3R_4R_5R_6s^4 - C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(-C_1C_3C_4C_5R_2R_3R_4R_5 - C_1C_3C_4C_6R_2R_3R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5R_6 - C_1C_3C_4C_6R_2R_3R_5R_6 - C_1C_3C_4C_6R_2R_3R_4R_5 - C_1C_3C_4C_6R_2R_4R_5R_5 - C_1C_3C_4C_6R_2R_4R_5 - C_1C_3C_4C_6R_4R_5R_5 - C_1C_3C_4C_6R_5R_5R_5 - C_1C_3C_4C_5R_5R_5R_5 - C_1C_3C_4C_5R_5R_5R_5 - C_1C_3C_4C_5R_5R_5R_5 - C_1C_3C_4C_5R_5R_5R_5 - C_1C_3C_5C_5R_5R_5R_5 - C_1C_3C_5C_5R_5R_5R_5 - C_1C_3C_5C_5R_5R_5R_5 - C_1C_3C_5C_5R_5R_5R_5 - C_1C_3C_5C_5R_5R_5$ 

**9.806** X-INVALID-ORDER-806  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_2 R_4}{C_1 C_3 C_4 C_6 R_2 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_3 C_6 R_2 R_3 R_4 + C_1 C_3 C_6 R_2 R_3 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 + C_1 C_4 C_6 R_2 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_3 C_6 R_4 R_5\right)}$ 

9.807 X-INVALID-ORDER-807  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_2R_4R_6s + C_3R_2R_4}{C_1C_3C_4C_6R_2R_3R_4R_5s^3 + s^2\left(-C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.808** X-INVALID-ORDER-808  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.809** X-INVALID-ORDER-809  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_3C_4C_6R_2R_3R_4R_6 - C_1C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 - C_1C_5C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_4R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_4R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_4R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_4R_4R_6 + C_1C_3C_6R_4R_4R_6\right) + s\left(C_1C_3R_4R_4R_6 + C_1C_3C_6R_4R_4R_6\right) + s\left(C_1C_3R_4R_4R_6 + C_1C_3C_6R_4R_4R_6\right) + s\left(C_1C_3R_4R_4R_6\right) +$ 

**9.810** X-INVALID-ORDER-810  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1C_3C_4C_5R_2R_3R_4R_5s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_2R_4R_5\right) + s\left(C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_1C_5$ 

```
9.811 X-INVALID-ORDER-811 Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_5R_2R_4}{C_1C_3C_4C_5C_6R_2R_3R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4R_4 + C_1C_3C_6R_4 + 
9.812 X-INVALID-ORDER-812 Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_3C_4C_5C_6R_2R_3R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_2R_3R_4 - C_1C_3C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_3R_4 + C_1C_3C_6R$ 

**9.813** X-INVALID-ORDER-813  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 s^4 + C_1 R_2 + C_1 R_4 + C_3 R_4 + s^3 \left( C_1 C_3 C_4 C_5 R_2 R_3 R_4 R_6 - C_1 C_3 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_3 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_3 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_5 R_5 R_5 R_5 R_6 + C_1 C_5 C_6 R_5 R_5 R_5 R_5 R_6 + C_1 C_5 C_6 R_5 R_5 R_5 R_5 R_5 R_5 R_5 R$ 

**9.814** X-INVALID-ORDER-814  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5R_2R_4R_5s + C_3R_2R_4}{s^3\left(C_1C_3C_4C_6R_2R_3R_4R_5 - C_1C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.815** X-INVALID-ORDER-815  $Z(s) = \left(\frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5C_6R_2R_4R_5R_6s^2 + C_3R_2R_4 + s\left(C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{s^3\left(C_1C_3C_4C_6R_2R_3R_4R_5 - C_1C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.816** X-INVALID-ORDER-816  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ R_3 + \frac{1}{C_3 s}, \ \frac{R_4}{C_4 R_4 s + 1}, \ \frac{R_5}{C_5 R_5 s + 1}, \ \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6$ 

 $\frac{C_3C_5\kappa_2\kappa_4\kappa_5\kappa_6s + C_3\kappa_2\kappa_4\kappa_6s}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + S^3\left(C_1C_3C_4C_6R_2R_3R_4R_5R_6 - C_1C_3C_5R_2R_3R_4R_5 - C_1C_3C_6R_2R_3R_4R_5 - C_1C_3C_6R_3R_4R_5 - C_1C_3C_6R_3R_4R_5$ 

**9.817** X-INVALID-ORDER-817  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_2 R_3 R_4 s + R_2 R_4}{C_1 C_3 C_6 R_2 R_3 R_4 R_5 s^3 + C_6 R_4 R_5 s + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5 + C_3 C_6 R_3 R_4 R_5\right)}$ 

**9.818** X-INVALID-ORDER-818  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_2R_3R_4R_6s^2 + R_2R_4 + s\left(C_3R_2R_3R_4 + C_6R_2R_4R_6\right)}{C_1C_3C_6R_2R_3R_4R_5s^3 + C_6R_4R_5s + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right)}$ 

**9.819** X-INVALID-ORDER-819  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3R_2R_3R_4R_6s + R_2R_4R_6}{C_1C_3C_6R_2R_3R_4R_5R_6s^3 + R_4R_5 + s^2\left(C_1C_3R_2R_3R_4R_5 - C_1C_6R_2R_3R_4R_6 + C_1C_6R_2R_3R_5R_6 + C_1C_6R_2R_4R_5R_6\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5 + C_3R_3R_4R_5 + C_3R_3R_4R_5R_6\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_$ 

**9.820** X-INVALID-ORDER-820  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & \frac{R_3}{C_3 R_3 s + 1}, & R_4, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$ 

 $=\frac{C_3C_5R_2R_3R_4R_6s^2+C_5R_2R_4R_6s}{R_4+s^3\left(C_1C_3C_6R_2R_3R_4R_6-C_1C_5C_6R_2R_3R_4R_6\right)+s^2\left(C_1C_3R_2R_3R_4-C_1C_5R_2R_3R_4+C_1C_6R_2R_3R_6+C_1C_6R_2R_4R_6+C_1C_6R_3R_4R_6\right)+s\left(C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_3R_3R_4+C_6R_4R_6\right)}$ 

**9.821** X-INVALID-ORDER-821  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4R_6s^2 + C_5R_2R_4R_6s}{C_1C_3C_5R_2R_3R_4R_5s^3 + R_4 + s^2\left(C_1C_3R_2R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_5 + C_1C_5R_2R_4R_5 + C_1C_5R_3R_4R_5 + C_3C_5R_3R_4R_5\right) + s\left(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4 + C_5R_4R_5\right)}$ 

**9.822** X-INVALID-ORDER-822  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4s + C_5R_2R_4}{C_1C_3C_5C_6R_2R_3R_4R_5s^3 + C_6R_4 + s^2\left(C_1C_3C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_5 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_$ 

**9.823** X-INVALID-ORDER-823  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_3R_4R_6s^2 + C_5R_2R_4 + s\left(C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_1C_3C_5C_6R_2R_3R_4R_5s^3 + C_6R_4 + s^2\left(C_1C_3C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R$ 

**9.824** X-INVALID-ORDER-824  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

**9.825** X-INVALID-ORDER-825  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4R_5s^2 + R_2R_4 + s\left(C_3R_2R_3R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right)}$ 

**9.826** X-INVALID-ORDER-826  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_3R_4R_5R_6s^3 + R_2R_4 + s^2\left(C_3C_5R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_6 + C_5C_6R_2R_4R_5R_6\right) + s\left(C_3R_2R_3R_4 + C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right)}$ 

9.827 X-INVALID-ORDER-827  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^3\left(C_1C_3C_6R_2R_3R_4R_5R_6 - C_1C_5C_6R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5 - C_1C_6R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_5R_6 + C_1C_6R_2R_3R_4R_5R_6 + C_1C_6R_2R_3R_4R_5R_6 + C_1C_6R_3R_4R_5R_6 + C_1C_6R_3R_4R_5R_5 + C_1C_6R_3R_4R_5R_5 + C_1C_6R_3R_4R_5R_5 + C_1C_6R_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R$ 

**9.828** X-INVALID-ORDER-828  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{R_3}{C_3 R_3 s + 1}, \ \frac{1}{C_4 s}, \ R_5, \ \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_2 R_3 s + R_2}{C_6 R_5 s + s^3 \left( C_1 C_3 C_6 R_2 R_3 R_5 + C_1 C_4 C_6 R_2 R_3 R_5 \right) + s^2 \left( -C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5 + C_3 C_6 R_3 R_5 \right)}$ 

**9.829** X-INVALID-ORDER-829  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_2R_3R_6s^2 + R_2 + s\left(C_3R_2R_3 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_3C_6R_3R_5\right)}$ 

**9.830** X-INVALID-ORDER-830  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3 R_2 R_3 R_6 s + R_2 R_6}{R_5 + s^3 \left(C_1 C_3 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_2 R_3 R_5 R_6\right) + s^2 \left(C_1 C_3 R_2 R_3 R_5 + C_1 C_4 R_2 R_3 R_5 - C_1 C_6 R_2 R_3 R_6 + C_1 C_6 R_2 R_5 R_6 + C_1 C_6 R_3 R_5 R_6\right) + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_6 R_5 R_6\right)}$ 

**9.831** X-INVALID-ORDER-831  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_6s^2 + C_5R_2R_6s}{s^3\left(C_1C_3C_6R_2R_3R_6 + C_1C_4C_6R_2R_3R_6 - C_1C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_1C_6R_2R_6 + C_1C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_1R_2 + C_1R_3 + C_3R_3 + C_6R_6\right) + 1}$$

**9.832** X-INVALID-ORDER-832  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_6s^2 + C_5R_2R_6s}{s^3\left(C_1C_3C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5\right) + s^2\left(C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_3R_5 + C_3C_5R_3R_5\right) + s\left(C_1R_2 + C_1R_3 + C_3R_3 + C_5R_5\right) + 1}{s^3\left(C_1C_3C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5\right) + s^2\left(C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_3R_5\right) + s\left(C_1R_2 + C_1R_3 + C_3R_3 + C_5R_5\right) + 1}{s^3\left(C_1C_3C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5\right) + s^2\left(C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_3R_5\right) + s\left(C_1R_2 + C_1R_3 + C_3R_3 + C_3R_5\right) + s\left(C_1R_3R_3R_5 + C_3R_3R_5\right) + s^2\left(C_1C_3R_2R_3 + C_1C_5R_2R_3 + C_1C_5R_3R_5 + C_1C_5R_3R_5\right) + s\left(C_1R_3R_3R_5 + C_3R_3R_5\right) + s\left(C_1R_3R_5 + C_3R_3R$$

**9.833** X-INVALID-ORDER-833  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3s + C_5R_2}{C_6 + s^3\left(C_1C_3C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_3R_5 + C_3C_5C_6R_3R_5\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3 + C_5C_6R_3\right)}$$

**9.834** X-INVALID-ORDER-834  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_3R_6s^2 + C_5R_2 + s\left(C_3C_5R_2R_3 + C_5C_6R_2R_6\right)}{C_6 + s^3\left(C_1C_3C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_3R_5 + C_3C_5C_6R_3R_5\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3 + C_5C_6R_3\right)}$$

**9.835** X-INVALID-ORDER-835  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_6s^2 + C_5R_2R_6s}{s^4\left(C_1C_3C_5C_6R_2R_3R_5R_6 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_6 + C_1C_5C_6R_2R_3R_6 + C_1C_5C_6R_2R_3R_5 + C_1C_5C_5R_3R_5 + C_1C_5C_5R_3R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_$$

**9.836** X-INVALID-ORDER-836  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_5s^2 + R_2 + s\left(C_3R_2R_3 + C_5R_2R_5\right)}{C_6R_5s + s^3\left(C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_3C_6R_3R_5\right)}$$

**9.837** X-INVALID-ORDER-837  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_3R_5R_6s^3 + R_2 + s^2\left(C_3C_5R_2R_3R_5 + C_3C_6R_2R_3R_6 + C_5C_6R_2R_5R_6\right) + s\left(C_3R_2R_3 + C_5R_2R_5 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_3C_6R_3R_5\right)}$$

**9.838** X-INVALID-ORDER-838  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_5R_6s^2 + R_2R_6 + s\left(C_3R_2R_3R_6 + C_5R_2R_5R_6\right)}{R_5 + s^3\left(C_1C_3C_6R_2R_3R_5R_6 + C_1C_4C_6R_2R_3R_5R_6 - C_1C_5C_6R_2R_3R_5R_6\right) + s^2\left(C_1C_3R_2R_3R_5 + C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5 + C_1C_6R_2R_3R_5 + C_1C_6R_3R_5R_6\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_3R_3R_5 + C_3R_3$$

**9.839** X-INVALID-ORDER-839  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3C_4R_2R_3R_4R_6s^2 + R_2R_6 + s\left(C_3R_2R_3R_6 + C_4R_2R_4R_6\right)}{C_1C_3C_4R_2R_3R_4R_5s^3 + R_5 + s^2\left(C_1C_3R_2R_3R_5 - C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_4R_5 + C_1C_4R_3R_4R_5 + C_3C_4R_3R_4R_5\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_3R_3R_5 + C_4R_4R_5\right)}$$

**9.840** X-INVALID-ORDER-840  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4R_2R_3R_4s^2 + R_2 + s\left(C_3R_2R_3 + C_4R_2R_4\right)}{C_1C_3C_4C_6R_2R_3R_4s^4 + C_6R_5s + s^3\left(C_1C_3C_6R_2R_3R_5 - C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_3 + C_1C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_4R_5\right)}$$

```
9.841 X-INVALID-ORDER-841 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                              H(s) = \frac{C_3C_4C_6R_2R_3R_4R_6s^3 + R_2 + s^2\left(C_3C_4R_2R_3R_4 + C_3C_6R_2R_3R_6 + C_4C_6R_2R_4R_6\right) + s\left(C_3R_2R_3 + C_4R_2R_4 + C_6R_2R_6\right)}{C_1C_3C_4C_6R_2R_3R_4R_5s^4 + C_6R_5s + s^3\left(C_1C_3C_6R_2R_3R_5 - C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_3C_4C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_4R_5\right)}
9.842 X-INVALID-ORDER-842 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C_3C_4R_2R_3R_4R_6s^2 + R_2R_6 + s\left(C_3R_2R_3R_6 + C_4R_2R_4R_6\right)
9.843 X-INVALID-ORDER-843 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                H(s) = \frac{C_3C_4C_5R_2R_3R_4R_6s^3 + C_5R_2R_6s + s^2\left(C_3C_5R_2R_3R_6 + C_4C_5R_2R_4R_6\right)}{s^3\left(C_1C_3C_4R_2R_3R_4 - C_1C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_3R_2R_3 + C_1C_4R_2R_3 + C_1C_4R_2R_4 + C_1C_4R_3R_4 - C_1C_5R_2R_3 + C_3C_4R_3R_4\right) + s\left(C_1R_2 + C_1R_3 + C_3R_3 + C_4R_4\right) + 1}
9.844 X-INVALID-ORDER-844 Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{R_3}{C_3 R_3 s + 1}, \ R_4 + \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ \frac{1}{C_6 s}\right)
                                                                   H(s) = \frac{C_3C_4C_5R_2R_3R_4s^2 + C_5R_2 + s\left(C_3C_5R_2R_3 + C_4C_5R_2R_4\right)}{C_6 + s^3\left(C_1C_3C_4C_6R_2R_3R_4 - C_1C_4C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_2R_3 + C_3C_4C_6R_3R_4\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3 + C_4C_6R_3\right)}
9.845 X-INVALID-ORDER-845 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                  H(s) = \frac{C_3C_4C_5C_6R_2R_3R_4R_6s^3 + C_5R_2 + s^2\left(C_3C_4C_5R_2R_3R_4 + C_3C_5C_6R_2R_3R_6 + C_4C_5C_6R_2R_4R_6\right) + s\left(C_3C_5R_2R_3 + C_4C_5R_2R_4 + C_5C_6R_2R_6\right)}{C_6 + s^3\left(C_1C_3C_4C_6R_2R_3R_4 - C_1C_4C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_2R_3 + C_3C_4C_6R_3R_4\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3 + C_4C_6R_3\right)}
9.846 X-INVALID-ORDER-846 Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{R_3}{C_3 R_3 s+1}, \ R_4 + \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_3C_4C_5R_2R_3R_4R_6s^3 + C_5R_2R_6s + s^2(C_3C_5R_2R_3R_6 + C_4C_5R_2R_4R_6)
                      \frac{C_3C_4C_5R_2R_3R_4R_6s^3 + C_5R_2R_6s + s^2\left(C_3C_5R_2R_3R_6 + C_4C_5R_2R_4R_6\right)}{s^4\left(C_1C_3C_4C_6R_2R_3R_4R_6 - C_1C_4C_5R_2R_3R_4 + C_1C_4C_6R_2R_3R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_
9.847 X-INVALID-ORDER-847 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_4C_5R_2R_3R_4R_6s^3 + C_5R_2R_6s + s^2\left(C_3C_5R_2R_3R_6 + C_4C_5R_2R_4R_6\right)}{C_1C_3C_4C_5R_2R_3R_4R_5s^4 + s^3\left(C_1C_3C_4R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5 + C_1C_4C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5 + C_1C_4C_5R_3R_4R_5\right) + s^2\left(C_1C_3R_2R_3 + C_1C_4R_2R_3 + C_1C_4R_2R_4 + C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_2R_5 + C_1C_5R_2R_5 + C_1C_4R_3R_4 + C_1C_5R_2R_3 + C_1C_4R_3R_4 + C_1C_5R_3R_4 +
```

**9.848** X-INVALID-ORDER-848  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_3R_4s^2 + C_5R_2 + s\left(C_3C_5R_2R_3 + C_4C_5R_2R_3\right)}{C_1C_3C_4C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_4R_4 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_5C_6R_5R_5 + C_1C_5C_5C_6R_5R_5 + C_1C_5C_5$ 

 $C_{1}C_{3}C_{4}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}s^{4} + C_{6} + s^{3}\left(C_{1}C_{3}C_{4}C_{6}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{5}C_{6}R_{2}R_{3}R_{5} - C_{1}C_{4}C_{5}C_{6}R_{2}R_{3}R_{5} + C_{1}C_{4}C_{5}C_{6}R_{2}R_{3}R_{4} +$ 

**9.849** X-INVALID-ORDER-849  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{R_3}{C_3 R_3 s + 1}, \ R_4 + \frac{1}{C_4 s}, \ R_5 + \frac{1}{C_5 s}, \ R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_2R_3R_4R_6s^3 + C_5R_2 + s^2\left(C_3C_4C_5R_2R_3R_4 + C_3C_5C_6R_2R_3R_6 + C_4C_5C_6R_2R_4R_6\right) + s\left(C_3C_5R_2R_3 + C_4C_5R_2R_3R_4 + C_3C_5C_6R_2R_3R_4 +$ 

**9.850** X-INVALID-ORDER-850  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{1}{C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 s^5 + s^4 (C_1 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_2 R_3 R_4 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_5 R_5 R_5 R_6 + C_1 C_4 C_5 R_5 R_5 R_5 R_6 + C_1 C_4 C_5 R_5 R_5 R_5 R_6 + C_1 C_4 C_5 R_5 R_5 R_5 R_5 R_5 R_6 + C_1 C_4 C$ 

```
9.851 X-INVALID-ORDER-851 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)
                                H(s) = \frac{C_3C_4C_5R_2R_3R_4R_5R_6s^3 + R_2R_6 + s^2\left(C_3C_4R_2R_3R_4R_6 + C_3C_5R_2R_3R_5R_6 + C_4C_5R_2R_4R_5R_6\right) + s\left(C_3R_2R_3R_6 + C_4R_2R_4R_6 + C_5R_2R_5R_6\right)}{R_5 + s^3\left(C_1C_3C_4R_2R_3R_4R_5 - C_1C_4C_5R_2R_3R_4R_5\right) + s^2\left(C_1C_3R_2R_3R_5 - C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_4R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_2R_3R_4R_5\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_3R_3R_5 + C_3R_4R_5\right)}
9.852 X-INVALID-ORDER-852 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)
                            C_{3}C_{4}C_{5}R_{2}R_{3}R_{4}R_{5}s^{3} + R_{2} + s^{2}\left(C_{3}C_{4}R_{2}R_{3}R_{4} + C_{3}C_{5}R_{2}R_{3}R_{5} + C_{4}C_{5}R_{2}R_{4}R_{5}\right) + s\left(C_{3}R_{2}R_{3} + C_{4}R_{2}R_{4} + C_{5}R_{2}R_{5}\right) \\ C_{6}R_{5}s + s^{4}\left(C_{1}C_{3}C_{4}C_{6}R_{2}R_{3}R_{4}R_{5} - C_{1}C_{4}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}\right) + s^{3}\left(C_{1}C_{3}C_{6}R_{2}R_{3}R_{5} + C_{1}C_{4}C_{6}R_{2}R_{3}R_{5} + C_{1}C_{5}C_{6}R_{2}R_{3}R_{5} + C_{1}C_{5
9.853 X-INVALID-ORDER-853 Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)
```

- $\frac{C_3C_4C_5C_6R_2R_3R_4R_5R_6s^4 + R_2 + s^3\left(C_3C_4C_5R_2R_3R_4R_5 + C_3C_4C_6R_2R_3R_4R_6 + C_3C_5C_6R_2R_3R_4R_6 + C_4C_5C_6R_2R_3R_5 + C_3C_6R_2R_3R_6 + C_4C_5R_2R_3R_6 + C_4C_5R_3R_4R_5 + C_4C_5R_3R_4R_5$
- **9.854** X-INVALID-ORDER-854  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$
- $C_3C_4C_5R_2R_3R_4R_5R_6s^3 + R_2R_6 + s^2(C_3C_4R_2R_3R_4R_6 + C_3C_4C_5R_2R_3R_4R_6 + C_3C_4C_5R_2R_3R_4R_5R_6s^3 + R_2R_6 + s^2(C_3C_4R_2R_3R_4R_6 + C_3C_4R_2R_3R_4R_6 + C_3C_4R_5R_5 + C_3C_4R_5R_5 + C_3C_4R_5R_5 + C_3C_5R_5 + C_3C_5R_5 + C_5R_5 + C_5R_$  $C_{3}C_{4}C_{5}R_{2}R_{3}R_{4}R_{5}R_{6}s^{\circ} + R_{2}R_{6} + s^{\circ} (C_{3}C_{4}R_{2}R_{3}R_{4}R_{6} + s^{\circ}) \\ R_{5} + s^{4} (C_{1}C_{3}C_{4}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6} - C_{1}C_{4}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{4$
- **9.855** X-INVALID-ORDER-855  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3 R_2 R_3 R_4 s + R_2 R_4}{C_6 R_4 R_5 s + s^3 \left(C_1 C_3 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 C_6 R_2 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5 + C_3 C_6 R_3 R_4 R_5\right)}$
- **9.856** X-INVALID-ORDER-856  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_6R_2R_3R_4R_6s^2 + R_2R_4 + s\left(C_3R_2R_3R_4 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right)}$
- **9.857** X-INVALID-ORDER-857  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5, \frac{R_6}{C_6 R_6 s+1}\right)$
- $H(s) = \frac{C_3 R_2 R_3 R_4 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^3 \left(C_1 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_4 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 R_2 R_3 R_4 R_5 + C_1 C_6 R_5 R_5 + C_$
- **9.858** X-INVALID-ORDER-858  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$
- $\frac{C_{3}C_{5}R_{2}R_{3}R_{4}R_{6}s^{2}+C_{5}R_{2}R_{4}R_{6}s}{R_{4}+s^{3}\left(C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{4}R_{6}-C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}+C_{1}C_{6}R_{2}+C_{1}C_{6}R_{2}+C_{1}C_{6}R_{2}+C_{1}C_{6}R_{2}+C_{1}C_{6}R_{2}+C_{1}C$
- **9.859** X-INVALID-ORDER-859  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 
  - $H(s) = \frac{C_3C_5R_2R_3R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^3\left(C_1C_3C_5R_2R_3R_4R_5 + C_1C_4C_5R_2R_3R_4 + C_1C_4R_2R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_5R_3R_4R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_$
- **9.860** X-INVALID-ORDER-860  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $C_3C_5R_2R_3R_4s + C_5R_2R_4$  $\frac{C_3C_5R_2R_3R_4s + C_5R_2R_4}{C_6R_4 + s^3\left(C_1C_3C_5C_6R_2R_3R_4R_5 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_5$

**9.861** X-INVALID-ORDER-861  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_3R_4R_6s^2 + C_5R_2R_4 + s\left(C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^3\left(C_1C_3C_5C_6R_2R_3R_4R_5 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_5C_6R_2R_4 + C_1C_5C_5C_6R_2R_4 + C_1C_5C_5C_6R_2R_4 + C_1C_5C_5C_6R_2R_4 + C_1C_5C_5C_6R_2R$ 

**9.862** X-INVALID-ORDER-862  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2, \ \frac{R_3}{C_3 R_3 s+1}, \ \frac{R_4}{C_4 R_4 s+1}, \ R_5 + \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $\frac{C_3C_5R_4}{R_4 + s^4 \left(C_1C_3C_5C_6R_2R_3R_4R_5R_6 + C_1C_4C_5C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_5R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_5 + C_1C_5C_6R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_5 + C_1C_5C_6R_3R_4R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5$ 

**9.863** X-INVALID-ORDER-863  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2, & \frac{R_3}{C_3 R_3 s+1}, & \frac{R_4}{C_4 R_4 s+1}, & \frac{R_5}{C_5 R_5 s+1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4R_5s^2 + R_2R_4 + s\left(C_3R_2R_3R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right)}$ 

**9.864** X-INVALID-ORDER-864  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_3R_4R_5R_6s^3 + R_2R_4 + s^2\left(C_3C_5R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_6 + C_5C_6R_2R_4R_5R_6\right) + s\left(C_3R_2R_3R_4 + C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right)}$ 

**9.865** X-INVALID-ORDER-865  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^3\left(C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_4C_6R_2R_3R_4R_5R_6 + C_1C_5C_6R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_5R_5 + C_1C_6R_5R$ 

**9.866** X-INVALID-ORDER-866  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{R_4 R_6}{C_1 C_2 R_3 R_4 R_5 s^2 + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.867** X-INVALID-ORDER-867  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & R_4, & R_5, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{R_4}{C_1 C_2 C_6 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5\right)}$$

**9.868** X-INVALID-ORDER-868  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_6 R_4 R_6 s + R_4}{C_1 C_2 C_6 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5\right)}$$

**9.869** X-INVALID-ORDER-869  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{R_4 R_6}{C_1 C_2 C_6 R_3 R_4 R_5 R_6 s^3 + s^2 \left(C_1 C_2 R_3 R_4 R_5 - C_1 C_6 R_3 R_4 R_6 + C_1 C_6 R_3 R_5 R_6 + C_1 C_6 R_4 R_5 R_6 + C_2 C_6 R_4 R_5 R_6\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.870** X-INVALID-ORDER-870  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4 + s \left(C_1 C_2 R_3 R_4 - C_1 C_5 R_3 R_4\right)}$$

**9.871** X-INVALID-ORDER-871 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_4}{s^2 \left( C_1 C_2 C_6 R_3 R_4 - C_1 C_5 C_6 R_3 R_4 \right) + s \left( C_1 C_6 R_3 + C_1 C_6 R_4 + C_2 C_6 R_4 \right)}$$

**9.872** X-INVALID-ORDER-872 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 C_6 R_4 R_6 s + C_5 R_4}{s^2 \left(C_1 C_2 C_6 R_3 R_4 - C_1 C_5 C_6 R_3 R_4\right) + s \left(C_1 C_6 R_3 + C_1 C_6 R_4 + C_2 C_6 R_4\right)}$$

**9.873** X-INVALID-ORDER-873 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_4}{C_1 C_2 C_5 C_6 R_3 R_4 R_5 s^3 + s^2 \left(C_1 C_2 C_6 R_3 R_4 - C_1 C_5 C_6 R_3 R_4 + C_1 C_5 C_6 R_3 R_5 + C_1 C_5 C_6 R_4 R_5 + C_2 C_5 C_6 R_4 R_5\right) + s \left(C_1 C_6 R_3 + C_1 C_6 R_4 + C_2 C_6 R_4\right)}$$

**9.874** X-INVALID-ORDER-874 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_4R_6s + C_5R_4}{C_1C_2C_5C_6R_3R_4R_5s^3 + s^2\left(C_1C_2C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_4R_5 + C_2C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.875** X-INVALID-ORDER-875 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_4 R_6}{C_1 C_2 C_5 C_6 R_3 R_4 R_5 R_6 s^3 + C_1 R_3 + C_1 R_4 + C_2 R_4 + s^2 \left(C_1 C_2 C_5 R_3 R_4 R_5 + C_1 C_5 C_6 R_3 R_4 R_6 + C_1 C_5 C_6 R_3 R_5 R_6 + C_1 C_5 C_6 R_4 R_5 R_6 \right) + s \left(C_1 C_2 R_3 R_4 - C_1 C_5 R_3 R_4 + C_1 C_5 R_3 R_5 + C_1 C_5 R_3 R_5 + C_1 C_5 R_5 R_5 + C$$

**9.876** X-INVALID-ORDER-876  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_5 R_4 R_5 R_6 s + R_4 R_6}{s^2 \left(C_1 C_2 R_3 R_4 R_5 - C_1 C_5 R_3 R_4 R_5\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.877** X-INVALID-ORDER-877  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & R_4, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_5 R_4 R_5 s + R_4}{s^3 \left( C_1 C_2 C_6 R_3 R_4 R_5 - C_1 C_5 C_6 R_3 R_4 R_5 \right) + s^2 \left( -C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5 \right)}$$

**9.878** X-INVALID-ORDER-878  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5C_6R_4R_5R_6s^2 + R_4 + s\left(C_5R_4R_5 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

**9.879** X-INVALID-ORDER-879  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & R_4, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$ 

$$H(s) = \frac{C_5 R_4 R_5 R_6 s + R_4 R_6}{s^3 \left(C_1 C_2 C_6 R_3 R_4 R_5 R_6 - C_1 C_5 C_6 R_3 R_4 R_5 R_6\right) + s^2 \left(C_1 C_2 R_3 R_4 R_5 - C_1 C_5 R_3 R_4 R_5 - C_1 C_6 R_3 R_4 R_6 + C_1 C_6 R_3 R_5 R_6 + C_1 C_6 R_4 R_5 R_6\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.880** X-INVALID-ORDER-880  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{R_6}{s^2 \left( C_1 C_2 R_3 R_5 + C_1 C_4 R_3 R_5 \right) + s \left( -C_1 R_3 + C_1 R_5 + C_2 R_5 \right)}$$

**9.881** X-INVALID-ORDER-881 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{1}{s^3 \left( C_1 C_2 C_6 R_3 R_5 + C_1 C_4 C_6 R_3 R_5 \right) + s^2 \left( -C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5 \right)}$$

**9.882** X-INVALID-ORDER-882 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_6 R_6 s + 1}{s^3 \left( C_1 C_2 C_6 R_3 R_5 + C_1 C_4 C_6 R_3 R_5 \right) + s^2 \left( -C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5 \right)}$$

**9.883** X-INVALID-ORDER-883 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{1}{C_4 s}, & R_5, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$$

$$H(s) = \frac{R_6}{s^3 \left(C_1 C_2 C_6 R_3 R_5 R_6 + C_1 C_4 C_6 R_3 R_5 R_6\right) + s^2 \left(C_1 C_2 R_3 R_5 + C_1 C_4 R_3 R_5 - C_1 C_6 R_3 R_6 + C_1 C_6 R_5 R_6 + C_2 C_6 R_5 R_6\right) + s \left(-C_1 R_3 + C_1 R_5 + C_2 R_5\right)}$$

**9.884** X-INVALID-ORDER-884 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_6}{C_1 + C_2 + s \left(C_1 C_2 R_3 + C_1 C_4 R_3 - C_1 C_5 R_3\right)}$$

**9.885** X-INVALID-ORDER-885 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5}{s^2 \left( C_1 C_2 C_6 R_3 + C_1 C_4 C_6 R_3 - C_1 C_5 C_6 R_3 \right) + s \left( C_1 C_6 + C_2 C_6 \right)}$$

**9.886** X-INVALID-ORDER-886 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 C_6 R_6 s + C_5}{s^2 \left(C_1 C_2 C_6 R_3 + C_1 C_4 C_6 R_3 - C_1 C_5 C_6 R_3\right) + s \left(C_1 C_6 + C_2 C_6\right)}$$

**9.887** X-INVALID-ORDER-887 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5}{s^3 \left(C_1 C_2 C_5 C_6 R_3 R_5 + C_1 C_4 C_5 C_6 R_3 R_5\right) + s^2 \left(C_1 C_2 C_6 R_3 + C_1 C_4 C_6 R_3 - C_1 C_5 C_6 R_3 + C_1 C_5 C_6 R_5 + C_2 C_5 C_6 R_5\right) + s \left(C_1 C_6 + C_2 C_6\right)}$$

**9.888** X-INVALID-ORDER-888 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_6s + C_5}{s^3\left(C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.889** X-INVALID-ORDER-889 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_5 R_6}{C_1 + C_2 + s^3 \left(C_1 C_2 C_5 C_6 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_3 R_5 R_6\right) + s^2 \left(C_1 C_2 C_5 R_3 R_5 + C_1 C_2 C_6 R_3 R_6 + C_1 C_4 C_5 R_3 R_6 + C_1 C_5 C_6 R_5 R_6 + C_1$$

**9.890** X-INVALID-ORDER-890 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_5 R_5 R_6 s + R_6}{s^2 \left( C_1 C_2 R_3 R_5 + C_1 C_4 R_3 R_5 - C_1 C_5 R_3 R_5 \right) + s \left( -C_1 R_3 + C_1 R_5 + C_2 R_5 \right)}$$

**9.891** X-INVALID-ORDER-891 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s+1}, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_5 R_5 s + 1}{s^3 \left( C_1 C_2 C_6 R_3 R_5 + C_1 C_4 C_6 R_3 R_5 - C_1 C_5 C_6 R_3 R_5 \right) + s^2 \left( -C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5 \right)}$$

**9.892** X-INVALID-ORDER-892 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 C_6 R_5 R_6 s^2 + s \left(C_5 R_5 + C_6 R_6\right) + 1}{s^3 \left(C_1 C_2 C_6 R_3 R_5 + C_1 C_4 C_6 R_3 R_5 - C_1 C_5 C_6 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5\right)}$$

**9.893** X-INVALID-ORDER-893 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$$

$$H(s) = \frac{C_5 R_5 R_6 s + R_6}{s^3 \left(C_1 C_2 C_6 R_3 R_5 R_6 + C_1 C_4 C_6 R_3 R_5 R_6 - C_1 C_5 C_6 R_3 R_5 R_6\right) + s^2 \left(C_1 C_2 R_3 R_5 + C_1 C_4 R_3 R_5 - C_1 C_5 R_3 R_6 + C_1 C_6 R_5 R_6 + C_2 C_6 R_5 R_6\right) + s \left(-C_1 R_3 + C_1 R_5 + C_2 R_5\right)}$$

**9.894** X-INVALID-ORDER-894 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_4 R_4 R_6 s + R_6}{C_1 C_2 C_4 R_3 R_4 R_5 s^3 + s^2 \left(C_1 C_2 R_3 R_5 - C_1 C_4 R_3 R_4 + C_1 C_4 R_3 R_5 + C_1 C_4 R_4 R_5 + C_2 C_4 R_4 R_5\right) + s \left(-C_1 R_3 + C_1 R_5 + C_2 R_5\right)}$$

**9.895** X-INVALID-ORDER-895 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_4 R_4 s + 1}{C_1 C_2 C_4 C_6 R_3 R_4 R_5 s^4 + s^3 \left(C_1 C_2 C_6 R_3 R_5 - C_1 C_4 C_6 R_3 R_4 + C_1 C_4 C_6 R_3 R_5 + C_1 C_4 C_6 R_4 R_5 + C_2 C_4 C_6 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5\right)}$$

**9.896** X-INVALID-ORDER-896 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_4C_6R_4R_6s^2 + s\left(C_4R_4 + C_6R_6\right) + 1}{C_1C_2C_4C_6R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_3R_5 - C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_4R_5 + C_2C_4C_6R_4R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$$

**9.897** X-INVALID-ORDER-897  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_4 R_4 R_6 s + R_6}{C_1 C_2 C_4 C_6 R_3 R_4 R_5 R_6 s^4 + s^3 \left(C_1 C_2 C_4 R_3 R_4 R_5 + C_1 C_2 C_6 R_3 R_5 R_6 - C_1 C_4 C_6 R_3 R_4 R_6 + C_1 C_4 C_6 R_3 R_5 R_6 + C_1 C_4 C_6 R_4 R_5 R_6 + C_2 C_4 R_4 R_5 R_6 + C_2$$

**9.898** X-INVALID-ORDER-898  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5R_4s + C_5}{s^3\left(C_1C_2C_4C_6R_3R_4 - C_1C_4C_5C_6R_3R_4\right) + s^2\left(C_1C_2C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_4 - C_1C_5C_6R_3 + C_2C_4C_6R_4\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.899** X-INVALID-ORDER-899  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_5C_6R_4R_6s^2 + C_5 + s\left(C_4C_5R_4 + C_5C_6R_6\right)}{s^3\left(C_1C_2C_4C_6R_3R_4 - C_1C_4C_5C_6R_3R_4\right) + s^2\left(C_1C_2C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_4 - C_1C_5C_6R_3 + C_2C_4C_6R_4\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.900** X-INVALID-ORDER-900  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_4C_5R_4R_6s + C_5R_6}{C_1 + C_2 + s^3\left(C_1C_2C_4C_6R_3R_4R_6 - C_1C_4C_5C_6R_3R_4R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_6R_3R_6 - C_1C_4C_5R_3R_4 + C_1C_4C_6R_3R_6 + C_1C_4C_6R_3R$$

**9.901** X-INVALID-ORDER-901  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_4R_6s + C_5R_6}{C_1C_2C_4C_5R_3R_4R_5s^3 + C_1 + C_2 + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5R_3R_5 - C_1C_4C_5R_3R_4 + C_1C_4C_5R_3R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_1C_5R_5 + C_2C_4R_4 + C_2C_5R_5\right)}$ 

**9.902** X-INVALID-ORDER-902  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_4s + C_5}{C_1C_2C_4C_5C_6R_3R_4R_5s^4 + s^3\left(C_1C_2C_4C_6R_3R_4 + C_1C_2C_5C_6R_3R_5 - C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_4R_5 + C_2C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_5 + C_2C_4C_6R_4 + C_2C_5C_6R_5\right) + s\left(C_1C_6C_6R_3R_4 + C_1C_5C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_5C_6R_5 + C_2C_4C_6R_4 + C_2C_5C_6R_5\right) + s\left(C_1C_4C_5C_6R_3R_4 + C_1C_5C_6R_3 + C_1C_4C_5C_6R_3 + C_1C_4C_5C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_5C_6R_5\right) + s\left(C_1C_4C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_4C_5C_6R_3R_5\right) + s\left(C_1C_4C_5C_6R_3R_4 + C_1C_5C_6R_3 + C_1C_4C_5C_6R_3 + C_1C_4C_5C_6R_3 + C_1C_4C_5C_6R_3\right) + s\left(C_1C_4C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5\right) + s\left(C_1C_4C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s\left(C_1C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s\left(C_1C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s\left(C_1C_5C_6R_3R_5 + C_1C_4C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_4C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_4C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_$ 

**9.903** X-INVALID-ORDER-903  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5C_6R_4R_6s^2 + C_5 + s\left(C_4C_5R_4 + C_5C_6R_6\right)}{C_1C_2C_4C_5C_6R_3R_4 + C_1C_2C_5C_6R_3R_5 - C_1C_4C_5C_6R_3R_4 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_4R_5 + c_2C_4C_5C_6R_4R_5 + c_2C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_5C_6R_5 + C_2C_4C_6R_4 + C_2C_5C_6R_5 + s\left(C_4C_5R_4 + C_5C_6R_4 + C_5C_6R_4 + C_5C_6R_4 + C_5C_6R_5 + c_5C_6R_4 + C_5C_6R_5 + c_5C_6R_4 + C_5C_6R_5 + C_5C_6$ 

**9.904** X-INVALID-ORDER-904  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C}{C_1C_2C_4C_5C_6R_3R_4R_5R_6s^4 + C_1 + C_2 + s^3\left(C_1C_2C_4C_5R_3R_4R_5 + C_1C_2C_4C_6R_3R_4R_6 + C_1C_4C_5C_6R_3R_4R_6 + C_1C_4C_5C_6R_3R_5R_6 + C_1C_4C_5C_6R_4R_5R_6 + C_2C_4C_5C_6R_4R_5R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5R_3R_5 + C_1C_2C_6R_3R_5R_6 + C_1C_4C_5C_6R_3R_5R_6 + C_1C_4C_5C_6R_4R_5R_6 + C_2C_4C_5C_6R_4R_5R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5R_3R_5 + C_1C_2C_5C_6R_3R_5R_6 + C_1C_4C_5C_6R_3R_5R_6 + C_1C_4C_5C_6R_4R_5R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5R_3R_5 + C_1C_2C_5C_6R_3R_5R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5C_6R_3R_5R_6 + C_1C_4C_5C_6R_3R_5R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5C_6R_3R_5R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5C_6R_3R_5R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5R_3R_5 + C_1C_4C_5C_6R_3R_5R_6\right) + s^2\left(C_1C_2C_4R_3R_4 + C_1C_2C_5R_3R_5\right) + s^2\left(C_1C_2C_4R_3R_5\right) + s^2\left(C_1C_2C_4R_5R_5\right) + s^2\left(C_1C_4C_5C_5R_5\right) + s^2\left(C_1C_4C_5C_5C_5R_5\right) + s^2\left(C_1C_4C_5C_5C_5R_5\right) + s^2\left($ 

**9.905** X-INVALID-ORDER-905  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_4R_5R_6s^2 + R_6 + s\left(C_4R_4R_6 + C_5R_5R_6\right)}{s^3\left(C_1C_2C_4R_3R_4R_5 - C_1C_4C_5R_3R_4R_5\right) + s^2\left(C_1C_2R_3R_5 - C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_4R_5 - C_1C_5R_3R_5 + C_2C_4R_4R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ 

**9.906** X-INVALID-ORDER-906  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_4R_5s^2 + s\left(C_4R_4 + C_5R_5\right) + 1}{s^4\left(C_1C_2C_4C_6R_3R_4R_5 - C_1C_4C_5C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_3R_5 - C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 + C_1C_$ 

**9.907** X-INVALID-ORDER-907  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & R_4 + \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s + 1}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{C_4C_5C_6R_4R_5R_6s^3 + s^2\left(C_4C_5R_4R_5 + C_4C_6R_4R_6 + C_5C_6R_5R_6\right) + s\left(C_4R_4 + C_5R_5 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_4C_6R_3R_4R_5 - C_1C_4C_5C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 +$ 

**9.908** X-INVALID-ORDER-908  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_4C_5R_4R_5R_6s^2 + R_6 + s\left(C_4R_4R_6 + C_5R_5R_6\right)}{s^4\left(C_1C_2C_4C_6R_3R_4R_5R_6 - C_1C_4C_5R_3R_4R_5 + C_1C_2C_6R_3R_5R_6 - C_1C_4C_5R_3R_4R_5 - C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_5R_6 + C_1C_4C_6R_5R_5R_6 + C_1C_4C_6R_5R_5R_5 + C_1C_4C_6R_5R_5R_5 + C_1C_4C_6R_5R_5R_5 + C_1C_4C_6R_5R_5R_5 + C_1C_4C_6R_5R_5R_5 + C_1C_4C_6R_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5 + C_1C_5C_6R_5R_5 + C_1C_5C$ 

**9.909** X-INVALID-ORDER-909  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $H(s) = \frac{R_4 R_6}{s^2 \left( C_1 C_2 R_3 R_4 R_5 + C_1 C_4 R_3 R_4 R_5 \right) + s \left( -C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5 \right)}$ 

**9.910** X-INVALID-ORDER-910  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{R_4}{s^3 \left( C_1 C_2 C_6 R_3 R_4 R_5 + C_1 C_4 C_6 R_3 R_4 R_5 \right) + s^2 \left( -C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5 \right)}$ 

**9.911** X-INVALID-ORDER-911 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_6 R_4 R_6 s + R_4}{s^3 \left( C_1 C_2 C_6 R_3 R_4 R_5 + C_1 C_4 C_6 R_3 R_4 R_5 \right) + s^2 \left( -C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5 \right)}$$

**9.912** X-INVALID-ORDER-912 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{R_4 R_6}{s^3 \left(C_1 C_2 C_6 R_3 R_4 R_5 R_6 + C_1 C_4 C_6 R_3 R_4 R_5 R_6\right) + s^2 \left(C_1 C_2 R_3 R_4 R_5 + C_1 C_4 R_3 R_4 R_5 - C_1 C_6 R_3 R_4 R_6 + C_1 C_6 R_3 R_5 R_6 + C_1 C_6 R_4 R_5 R_6\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.913** X-INVALID-ORDER-913 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4 + s \left(C_1 C_2 R_3 R_4 + C_1 C_4 R_3 R_4 - C_1 C_5 R_3 R_4\right)}$$

**9.914** X-INVALID-ORDER-914 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_5 R_4}{s^2 \left(C_1 C_2 C_6 R_3 R_4 + C_1 C_4 C_6 R_3 R_4 - C_1 C_5 C_6 R_3 R_4\right) + s \left(C_1 C_6 R_3 + C_1 C_6 R_4 + C_2 C_6 R_4\right)}$$

**9.915** X-INVALID-ORDER-915 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_5 C_6 R_4 R_6 s + C_5 R_4}{s^2 \left(C_1 C_2 C_6 R_3 R_4 + C_1 C_4 C_6 R_3 R_4 - C_1 C_5 C_6 R_3 R_4\right) + s \left(C_1 C_6 R_3 + C_1 C_6 R_4 + C_2 C_6 R_4\right)}$$

**9.916** X-INVALID-ORDER-916 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & R_5 + \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_5 R_4}{s^3 \left(C_1 C_2 C_5 C_6 R_3 R_4 R_5 + C_1 C_4 C_5 C_6 R_3 R_4 R_5\right) + s^2 \left(C_1 C_2 C_6 R_3 R_4 + C_1 C_4 C_6 R_3 R_4 + C_1 C_5 C_6 R_3 R_5 + C_1 C_5 C_6 R_4 R_5 + C_2 C_5 C_6 R_4 R_5\right) + s \left(C_1 C_6 R_3 + C_1 C_6 R_4 + C_2 C_6 R_4\right)}$$

**9.917** X-INVALID-ORDER-917 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5C_6R_4R_6s + C_5R_4}{s^3\left(C_1C_2C_5C_6R_3R_4R_5 + C_1C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_4R_5 + C_2C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.918** X-INVALID-ORDER-918 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & R_5 + \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$$

$$H(s) = \frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4 + s^3 \left(C_1 C_2 C_5 C_6 R_3 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_3 R_4 R_5 R_6 + C_1 C_2 C_5 R_3 R_4 R_5 + C_1 C_2 C_6 R_3 R_4 R_5 + C_1 C_4 C_5 R_3 R_4 R_6 + C_1 C_5 C_6 R_4 R_5 R_6 + C_1 C_5 C_6 R_5 R_5$$

**9.919** X-INVALID-ORDER-919  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & R_6 \end{pmatrix}$ 

$$H(s) = \frac{C_5 R_4 R_5 R_6 s + R_4 R_6}{s^2 \left(C_1 C_2 R_3 R_4 R_5 + C_1 C_4 R_3 R_4 R_5 - C_1 C_5 R_3 R_4 R_5\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.920** X-INVALID-ORDER-920 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_5 R_4 R_5 s + R_4}{s^3 \left(C_1 C_2 C_6 R_3 R_4 R_5 + C_1 C_4 C_6 R_3 R_4 R_5 - C_1 C_5 C_6 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5\right)}$$

**9.921** X-INVALID-ORDER-921 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_5C_6R_4R_5R_6s^2 + R_4 + s\left(C_5R_4R_5 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

**9.922** X-INVALID-ORDER-922  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_4 R_5 R_6 s + R_4 R_6}{s^3 \left(C_1 C_2 C_6 R_3 R_4 R_5 R_6 + C_1 C_4 C_6 R_3 R_4 R_5 R_6 - C_1 C_5 C_6 R_3 R_4 R_5 + C_1 C_4 R_3 R_4 R_5 - C_1 C_5 R_3 R_4 R_5 - C_1 C_6 R_3 R_4 R_5 + C_1 C_6 R_4 R_5 R_6 + C_1 C_6 R_5 R_6 + C_1 C_6 R_5 R_6 + C_1 C_6 R_6 R_6 R_6 + C_1 C_6$$

**9.923** X-INVALID-ORDER-923  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_4 R_6}{-C_1 R_4 + C_1 R_5 + s \left(C_1 C_2 R_4 R_5 + C_1 C_3 R_4 R_5 + C_2 C_3 R_4 R_5\right)}$$

**9.924** X-INVALID-ORDER-924  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_4}{s^2 \left( C_1 C_2 C_6 R_4 R_5 + C_1 C_3 C_6 R_4 R_5 + C_2 C_3 C_6 R_4 R_5 \right) + s \left( -C_1 C_6 R_4 + C_1 C_6 R_5 \right)}$$

**9.925** X-INVALID-ORDER-925  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_4R_6s + C_3R_4}{s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.926** X-INVALID-ORDER-926  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3 C_5 R_4 R_6 s}{C_1 + s \left(C_1 C_2 R_4 + C_1 C_3 R_4 - C_1 C_5 R_4 + C_2 C_3 R_4\right)}$$

**9.927** X-INVALID-ORDER-927  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_4}{C_1C_6 + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

**9.928** X-INVALID-ORDER-928  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_4R_6s + C_3C_5R_4}{C_1C_6 + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

**9.929** X-INVALID-ORDER-929  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_5C_6R_4R_5R_6 + C_1C_3C_5C_6R_4R_5R_6 + C_2C_3C_5C_6R_4R_5R_6 + C_1C_5C_6R_4R_6 + C_1C_3C_5R_4R_5 + C_1C_3C_6R_4R_6 + C_1C_5C_6R_4R_6 + C_1C_5C_6R_$$

**9.930** X-INVALID-ORDER-930  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_4R_5R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

**9.931** X-INVALID-ORDER-931 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & R_4, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5R_4R_5s + C_3R_4}{s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.932** X-INVALID-ORDER-932 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_4R_5R_6s^2 + C_3R_4 + s\left(C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.933** X-INVALID-ORDER-933 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_6}{-C_1 + s \left(C_1 C_2 R_5 + C_1 C_3 R_5 + C_1 C_4 R_5 + C_2 C_3 R_5\right)}$$

**9.934** X-INVALID-ORDER-934 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3}{-C_1C_6s + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.935** X-INVALID-ORDER-935 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 C_6 R_6 s + C_3}{-C_1 C_6 s + s^2 \left(C_1 C_2 C_6 R_5 + C_1 C_3 C_6 R_5 + C_1 C_4 C_6 R_5 + C_2 C_3 C_6 R_5\right)}$$

**9.936** X-INVALID-ORDER-936 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3 C_5 R_6}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}$$

**9.937** X-INVALID-ORDER-937 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 C_5}{s \left( C_1 C_2 C_6 + C_1 C_3 C_6 + C_1 C_4 C_6 - C_1 C_5 C_6 + C_2 C_3 C_6 \right)}$$

**9.938** X-INVALID-ORDER-938 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5C_6R_6s + C_3C_5}{s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.939** X-INVALID-ORDER-939 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_6R_6 + C_1C_3C_6R_6 + C_1C_4C_6R_6 - C_1C_5C_6R_6 + C_2C_3C_6R_6\right)}$$

**9.940** X-INVALID-ORDER-940 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & R_5 + \frac{1}{C_5 s}, & R_6 \end{pmatrix}$$

$$H(s) = \frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_5R_5 + C_1C_3C_5R_5 + C_1C_4C_5R_5 + C_2C_3C_5R_5\right)}$$

**9.941** X-INVALID-ORDER-941 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & R_5 + \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5}{s^2\left(C_1C_2C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_2C_3C_5C_6R_5\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.942** X-INVALID-ORDER-942 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & R_5 + \frac{1}{C_5 s}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5C_6R_6s + C_3C_5}{s^2\left(C_1C_2C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_2C_3C_5C_6R_5\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.943** X-INVALID-ORDER-943 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_5R_6s + C_3R_6}{-C_1 + s\left(C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 - C_1C_5R_5 + C_2C_3R_5\right)}$$

**9.944** X-INVALID-ORDER-944 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_5s + C_3}{-C_1C_6s + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.945** X-INVALID-ORDER-945 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s + 1}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5C_6R_5R_6s^2 + C_3 + s\left(C_3C_5R_5 + C_3C_6R_6\right)}{-C_1C_6s + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.946** X-INVALID-ORDER-946 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & R_4 + \frac{1}{C_4 s}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_4R_4s + C_3}{-C_1C_6s + s^3\left(C_1C_2C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.947** X-INVALID-ORDER-947 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_4C_6R_4R_6s^2 + C_3 + s\left(C_3C_4R_4 + C_3C_6R_6\right)}{-C_1C_6s + s^3\left(C_1C_2C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.948** X-INVALID-ORDER-948 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3C_4R_4R_6s + C_3R_6}{-C_1 + s^3\left(C_1C_2C_4C_6R_4R_5R_6 + C_1C_3C_4C_6R_4R_5R_6 + C_2C_3C_4C_6R_4R_5R_6 + C_1C_2C_4R_4R_5 + C_1C_3C_6R_5R_6 + C_1C_4C_6R_5R_6 + C_1C_4C_6R_5R_6 + C_1C_4C_6R_5R_6 + C_2C_3C_4R_4R_5 + C_2C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_4C_6R_5R_6 + C_1C_4C_6R_5R_6 + C_2C_3C_4R_4R_5 + C$$

**9.949** X-INVALID-ORDER-949  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_4R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_4R_4 + C_1C_3C_4R_4 - C_1C_4C_5R_4 + C_2C_3C_4R_4\right)}$$

**9.950** X-INVALID-ORDER-950 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & R_4 + \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_4C_5R_4s + C_3C_5}{s^2\left(C_1C_2C_4C_6R_4 + C_1C_3C_4C_6R_4 - C_1C_4C_5C_6R_4 + C_2C_3C_4C_6R_4\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.951** X-INVALID-ORDER-951 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_4C_5C_6R_4R_6s^2 + C_3C_5 + s\left(C_3C_4C_5R_4 + C_3C_5C_6R_6\right)}{s^2\left(C_1C_2C_4C_6R_4 + C_1C_3C_4C_6R_4 - C_1C_4C_5C_6R_4 + C_2C_3C_4C_6R_4\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.952** X-INVALID-ORDER-952 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

**9.953** X-INVALID-ORDER-953 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

**9.954** X-INVALID-ORDER-954  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_4R_6s}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(C_1C_2C_4C_5C_6R_4R_5R_6 + C_2C_3C_4C_5C_6R_4R_5R_6 + C_2C_3C_4C_5C_6R_4R_5 + C_1C_2C_4C_5R_4R_5 + C_1C_3C_4C_5R_4R_5 +$ 

**9.955** X-INVALID-ORDER-955  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & R_4 + \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_4C_5R_4R_5s^2 + C_3 + s\left(C_3C_4R_4 + C_3C_5R_5\right)}{-C_1C_6s + s^3\left(C_1C_2C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.956** X-INVALID-ORDER-956  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_4R_5R_6s^3 + C_3 + s^2\left(C_3C_4C_5R_4R_5 + C_3C_4C_6R_4R_6 + C_3C_5C_6R_5R_6\right) + s\left(C_3C_4R_4 + C_3C_5R_5 + C_3C_6R_6\right)}{-C_1C_6s + s^3\left(C_1C_2C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$$

9.957 X-INVALID-ORDER-957  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_4C_5R_4R_5R_6s^2 + C_3R_6 + s\left(C_3C_4R_4R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^3\left(C_1C_2C_4C_6R_4R_5R_6 + C_1C_3C_4C_6R_4R_5R_6 + C_2C_3C_4C_6R_4R_5R_6\right) + s^2\left(C_1C_2C_4R_4R_5 + C_1C_3C_6R_5R_6 + C_1C_4C_5R_4R_5 - C_1C_4C_6R_4R_6 + C_1C_4C_6R_5R_6 - C_1C_4C_6R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_6R_5R_6 - C_1C_4C_5R_4R_5 - C_1C_4C_6R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 - C_1C_4C_5R_4R_5 - C_1C_4C_6R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_$$

**9.958** X-INVALID-ORDER-958  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_4 R_6}{-C_1 R_4 + C_1 R_5 + s (C_1 C_2 R_4 R_5 + C_1 C_3 R_4 R_5 + C_1 C_4 R_4 R_5 + C_2 C_3 R_4 R_5)}$$

**9.959** X-INVALID-ORDER-959  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3 R_4}{s^2 \left( C_1 C_2 C_6 R_4 R_5 + C_1 C_3 C_6 R_4 R_5 + C_1 C_4 C_6 R_4 R_5 + C_2 C_3 C_6 R_4 R_5 \right) + s \left( -C_1 C_6 R_4 + C_1 C_6 R_5 \right)}$$

**9.960** X-INVALID-ORDER-960  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_4R_6s + C_3R_4}{s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.961** X-INVALID-ORDER-961 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3 C_5 R_4 R_6 s}{C_1 + s \left( C_1 C_2 R_4 + C_1 C_3 R_4 + C_1 C_4 R_4 - C_1 C_5 R_4 + C_2 C_3 R_4 \right)}$$

**9.962** X-INVALID-ORDER-962 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 C_5 R_4}{C_1 C_6 + s \left(C_1 C_2 C_6 R_4 + C_1 C_3 C_6 R_4 + C_1 C_4 C_6 R_4 - C_1 C_5 C_6 R_4 + C_2 C_3 C_6 R_4\right)}$$

**9.963** X-INVALID-ORDER-963 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5C_6R_4R_6s + C_3C_5R_4}{C_1C_6 + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

**9.964** X-INVALID-ORDER-964 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_4}{C_4 R_4 s + 1}, & R_5 + \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_5C_6R_4R_5R_6 + C_1C_3C_5C_6R_4R_5R_6 + C_1C_4C_5C_6R_4R_5R_6 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_$$

**9.965** X-INVALID-ORDER-965 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_4R_5R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

**9.966** X-INVALID-ORDER-966 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5R_4R_5s + C_3R_4}{s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.967** X-INVALID-ORDER-967 
$$Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$$

$$H(s) = \frac{C_3C_5C_6R_4R_5R_6s^2 + C_3R_4 + s\left(C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.968** X-INVALID-ORDER-968 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3 R_4}{C_1 C_2 C_3 C_6 R_3 R_4 R_5 s^3 + s^2 \left(C_1 C_2 C_6 R_4 R_5 - C_1 C_3 C_6 R_3 R_4 + C_1 C_3 C_6 R_3 R_5 + C_1 C_3 C_6 R_4 R_5 + C_2 C_3 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 + C_1 C_6 R_5\right)}$$

**9.969** X-INVALID-ORDER-969 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_4R_6s + C_3R_4}{C_1C_2C_3C_6R_3R_4R_5s^3 + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.970** X-INVALID-ORDER-970 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_4 R_6}{C_1 C_2 C_3 C_6 R_3 R_4 R_5 R_6 s^3 - C_1 R_4 + C_1 R_5 + s^2 \left(C_1 C_2 C_3 R_3 R_4 R_5 + C_1 C_2 C_6 R_4 R_5 R_6 - C_1 C_3 C_6 R_3 R_4 R_6 + C_1 C_3 C_6 R_3 R_5 R_6 + C_1 C_3 C_6 R_4 R_5 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_3 R_3 R_4 + C_1 C_3 R_4 R_5 - C_1 C_6 R_4 R_6 + C_1 C_6 R_5 R_6 + C_2 C_3 R_4 R_5 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_3 R_3 R_4 + C_1 C_3 R_4 R_5 - C_1 C_6 R_4 R_6 + C_1 C_6 R_5 R_6 + C_2 C_3 R_4 R_5 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_3 R_4 R_5 - C_1 C_6 R_4 R_6 + C_1 C_6 R_5 R_6 + C_2 C_3 R_4 R_5 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_3 R_4 R_5 - C_1 C_6 R_4 R_6 + C_1 C_6 R_5 R_6 + C_2 C_3 R_4 R_5 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_3 R_4 R_5 - C_1 C_6 R_4 R_6 + C_1 C_6 R_5 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_6 R_4 R_6 + C_1 C_6 R_5 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_6 R_4 R_6 + C_1 C_6 R_5 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_6 R_4 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_6 R_4 R_6 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_5 R_4 R_5 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_5 R_4 R_5 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_5 R_4 R_5 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_5 R_4 R_5 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_5 R_4 R_5 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_4 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_4 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_4 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_5 R_5 R_5 \right) + s \left(C_1 C_2 R_5 R_5 - C_1 C_5 R_5 R_5 - C_1 C_$$

9.971 X-INVALID-ORDER-971  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_6R_3R_4R_6 - C_1C_3C_5C_6R_3R_4R_6\right) + s^2\left(C_1C_2C_3R_3R_4 + C_1C_2C_6R_4R_6 - C_1C_3C_5R_3R_4 + C_1C_3C_6R_4R_6 + C_2C_3C_6R_4R_6\right) + s\left(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4\right)}$ 

**9.972** X-INVALID-ORDER-972  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_4R_6s}{C_1C_2C_3C_5R_3R_4R_5s^3 + C_1 + s^2\left(C_1C_2C_3R_3R_4 + C_1C_2C_5R_4R_5 - C_1C_3C_5R_3R_4 + C_1C_3C_5R_3R_5 + C_1C_3C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_1C_5R_5 + C_2C_3R_4\right)}$ 

**9.973** X-INVALID-ORDER-973  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_4}{C_1C_2C_3C_5C_6R_3R_4R_5s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_3R_4 + C_1C_2C_5C_6R_4R_5 - C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_4R_5 + C_2C_3C_5C_6R_4R_5 \right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4\right)}$ 

**9.974** X-INVALID-ORDER-974  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

**9.975** X-INVALID-ORDER-975  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.976** X-INVALID-ORDER-976  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_4R_5s + C_3R_4}{s^3\left(C_1C_2C_3C_6R_3R_4R_5 - C_1C_3C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ 

**9.977** X-INVALID-ORDER-977  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_4R_5R_6s^2 + C_3R_4 + s\left(C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_3R_4R_5 - C_1C_3C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ 

**9.978** X-INVALID-ORDER-978  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_4R_5R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_3R_4R_5R_6 - C_1C_3C_5C_6R_3R_4R_5 + C_1C_2C_6R_4R_5R_6 - C_1C_3C_6R_3R_4R_5 - C_1C_3C_6R_3R_4R_5 - C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_4R_5R_6 - C_1C_5C_6R_4R_5R_6 - C_1C_3C_6R_4R_5R_6 - C_1C_3C_6R_4R_5R_6$ 

**9.979** X-INVALID-ORDER-979  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.980** X-INVALID-ORDER-980  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_6s + C_3}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.981** X-INVALID-ORDER-981 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_6}{-C_1 + s^3 \left(C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_3 C_4 C_6 R_3 R_5 R_6\right) + s^2 \left(C_1 C_2 C_3 R_3 R_5 + C_1 C_2 C_6 R_5 R_6 + C_1 C_3 C_4 R_3 R_5 - C_1 C_3 C_6 R_5 R_6 + C_1 C_5 C_6 R_5 R_6 + C_1 C_5 C_6 R_5 R_6 + C_1 C_5 C$$

**9.982** X-INVALID-ORDER-982  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_3R_3 + C_1C_3C_4R_3 - C_1C_3C_5R_3\right)}$$

**9.983** X-INVALID-ORDER-983  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5}{s^2\left(C_1C_2C_3C_6R_3 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_3\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.984** X-INVALID-ORDER-984  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_6s + C_3C_5}{s^2\left(C_1C_2C_3C_6R_3 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_3\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.985** X-INVALID-ORDER-985  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5}{s^3\left(C_1C_2C_3C_5C_6R_3R_5 + C_1C_3C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_3C_6R_3 + C_1C_2C_5C_6R_5 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_2C_3C_5C_6R_5\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.986** X-INVALID-ORDER-986  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_6s + C_3C_5}{s^3\left(C_1C_2C_3C_5C_6R_3R_5 + C_1C_3C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_3C_6R_3 + C_1C_2C_5C_6R_5 + C_1C_3C_5C_6R_3 + C_1C_3C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_1C_4C$$

**9.987** X-INVALID-ORDER-987  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(C_1C_2C_3C_5C_6R_3R_5R_6 + C_1C_3C_4C_5R_3R_5 + C_1C_2C_3C_6R_3R_6 + C_1C_3C_4C_5R_3R_6 + C_1C_3C_4C_6R_3R_6 + C_1C_3C_5C_6R_3R_6 + C_1C_3C_5C_6R_5R_6 + C_1C_3C_5C_6R_5R_6 + C_1C_3C_5C_6R_5R_6 + C_1C_3C_5C_6R_5R_6 + C_1C_5C_5C_6R_5R_6 + C_1C_5C_5C_6R_5R_6 + C_1C_5C_5C_6R_5R_6 + C_1C_5C_5C_6R_5R_6 + C_1C_5C_5C_6R_5R_6 + C_1C_5C_5C_6R_5$$

**9.988** X-INVALID-ORDER-988  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_5s + C_3}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_3R_5 - C_1C_3C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.989** X-INVALID-ORDER-989  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_5R_6s^2 + C_3 + s\left(C_3C_5R_5 + C_3C_6R_6\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_3R_5 - C_1C_3C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.990** X-INVALID-ORDER-990  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_5R_6s + C_3R_6}{-C_1 + s^3\left(C_1C_2C_3C_6R_3R_5R_6 + C_1C_3C_4C_6R_3R_5R_6 - C_1C_3C_5C_6R_3R_5R_6 + C_1C_3C_6R_5R_6 + C$$

**9.991** X-INVALID-ORDER-991  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3C_4R_4R_6s + C_3R_6}{C_1C_2C_3C_4R_3R_4R_5s^3 - C_1 + s^2\left(C_1C_2C_3R_3R_5 + C_1C_2C_4R_4R_5 - C_1C_3C_4R_3R_4 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_4R_5 + C_2C_3C_4R_4R_5\right) + s\left(C_1C_2R_5 - C_1C_3R_3 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 + C_2C_3R_5\right)}$ 

**9.992** X-INVALID-ORDER-992  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4R_4s + C_3}{C_1C_2C_3C_4C_6R_3R_4R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_3R_5 + C_1C_2C_4C_6R_4R_5 - C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_5 + C_1C_3C_4C_6R_4R_5 \right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 + C_2C_3C_6R_5 \right)}$ 

**9.993** X-INVALID-ORDER-993  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_6R_4R_6s^2 + C_3 + s\left(C_3C_4R_4 + C_3C_6R_6\right)}{C_1C_2C_3C_4C_6R_3R_4R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_4R_5 - C_1C_3C_4C_6R_3R_5 + C_1C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$ 

**9.994** X-INVALID-ORDER-994  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4R_4R_6s + C_3R_6}{C_1C_2C_3C_4C_6R_3R_4R_5R_6s^4 - C_1 + s^3\left(C_1C_2C_3C_4R_3R_4R_5 + C_1C_2C_4C_6R_4R_5R_6 + C_1C_3C_4C_6R_3R_5R_6 + C_1C_3C_4C_6R_5R_5R_6 + C_1C_3C_4C_6R_5R_5R_5 + C_1C_3C_4C_5R_5R_5 + C_1C_3C_4C_5R_5R_5 + C_1C_3C_4C_5R_5R_5 + C_1C_3C_4C_5R_5R_5 + C_1C_3C_4C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_$ 

**9.995** X-INVALID-ORDER-995  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_4s + C_3C_5}{s^3\left(C_1C_2C_3C_4C_6R_3R_4 - C_1C_3C_4C_5C_6R_3R_4\right) + s^2\left(C_1C_2C_3C_6R_3 + C_1C_2C_4C_6R_4 + C_1C_3C_4C_6R_3 + C_1C_3C_5C_6R_3 - C_1C_4C_5C_6R_4 + C_2C_3C_4C_6R_4\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$ 

**9.996** X-INVALID-ORDER-996  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_4R_6s^2 + C_3C_5 + s\left(C_3C_4C_5R_4 + C_3C_5C_6R_6\right)}{s^3\left(C_1C_2C_3C_4C_5R_3R_4 - C_1C_3C_4C_5R_3R_4\right) + s^2\left(C_1C_2C_3C_6R_3 + C_1C_2C_4C_6R_4 + C_1C_3C_4C_6R_3 + C_1C_3C_5C_6R_3 - C_1C_4C_5C_6R_4 + C_2C_3C_4C_6R_4\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$ 

**9.997** X-INVALID-ORDER-997  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_4R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(C_1C_2C_3C_4C_6R_3R_4R_6 - C_1C_3C_4C_5R_3R_4 + C_1C_2C_3C_6R_3R_6 + C_1C_3C_4C_6R_3R_6 + C_1C_3C_4C_6R_3R_$ 

**9.998** X-INVALID-ORDER-998  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_4R_6s + C_3C_5R_6}{C_1C_2C_3C_4C_5R_3R_4R_5s^3 + C_1C_2 + C_1C_3 + C_1C_2 + C_1C_3 + s^2\left(C_1C_2C_3C_4R_3R_4 + C_1C_2C_4C_5R_4R_5 - C_1C_3C_4C_5R_3R_4 + C_1C_3C_4C_5R_3R_5 + C_1C_3C_4C_5R_4R_5 + C_2C_3C_4C_5R_4R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_4 + C_1C_2C_5R_5 + C_1C_3C_4C_5R_3R_4 + C_1C_3C_4C_5R_3R_4 + C_1C_3C_4C_5R_3R_4 + C_1C_3C_4C_5R_4R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_4 + C_1C_2C_5R_5 + C_1C_3C_4C_5R_4R_5 + C_1C_3C_4C_5R_4R_5 + C_1C_3C_4C_5R_4R_5 + C_1C_3C_4C_5R_4R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_4 + C_1C_2C_5R_5 + C_1C_3C_4R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_4 + C_1C_2C_5R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_4 + C_1C_2C_5R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_4 + C_1C_2C_5R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_5\right) + s\left(C_1C_2C_3R_5\right) + s\left(C_1C_2C_3R_$ 

**9.999** X-INVALID-ORDER-999  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.1000** X-INVALID-ORDER-1000  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_4R_6s^2 + C_3C_5 + s\left(C_3C_4C_5R_4 + C_3C_5C_6R_6\right)}{C_1C_2C_3C_4C_5C_6R_3R_4 + C_1C_2C_3C_5C_6R_3R_5 + C_1C_3C_4C_5C_6R_3R_5 + C_1C_3C_4C_5C_6R_5 + C_1C_3C_4C_5C_5C_6R_5 + C_1C_3C_5C_5C_6R_5 + C_1C_3C_5C_5C_6R_5 + C_1C_3C_5C_5C_6R_5 + C_1C_3$ 

```
 9.1001 \quad \textbf{X-INVALID-ORDER-1001} \ Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \ R_3 + \frac{1}{C_3 s}, \ R_4 + \frac{1}{C_4 s}, \ R_5 + \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right) 
 H(s) = \frac{1}{C_1 C_2 C_3 C_4 C_5 C_6 R_3 R_4 R_5 R_6 s^4 + C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3 + s^3 (C_1 C_2 C_3 C_4 C_5 R_3 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_3 R_4 R_6 + C_1 C_2 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_4 R_6 + C_1 C_3 C_4 C_5 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_4 R_6 + C_1 C_3 C_4 C_5 R_4 R_6 + C_1 C_3 C_4
```

**9.1004** X-INVALID-ORDER-1004  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_4R_5R_6s^3 + C_3 + s^2\left(C_3C_4C_5R_4R_5 + C_3C_4C_6R_4R_6 + C_3C_5C_6R_5R_6\right) + s\left(C_3C_4R_4 + C_3C_5R_5 + C_3C_6R_6\right)}{-C_1C_6s + s^4\left(C_1C_2C_3C_4C_6R_3R_4R_5 - C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_5 + C_1C_3C_4C_6R_5 + C_1C_3C_4C_5C_6R_5 + C_1C_3C_4C_5C_5C_6R_5 + C_1C_3C_5C_5C_6R_5 + C_1C_3C_5C_5C_6R_5 + C_1C$$

**9.1005** X-INVALID-ORDER-1005  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{-}{-C_1 + s^4 \left(C_1 C_2 C_3 C_4 C_6 R_3 R_4 R_5 R_6 - C_1 C_3 C_4 C_5 R_3 R_4 R_5 R_6 - C_1 C_3 C_4 C_6 R_3 R_4 R_5 R_6 - C_1 C_3 C_4 C_6 R_3 R_4 R_5 R_6 - C_1 C_3 C_4 C_6 R_3 R_4 R_5 - C_1 C_3 C_4 C_6 R_3 R_5 R_6 - C_1 C_3 C_4 C_6 R_5 R_5 R_6 - C_1 C_3 C_4 C_6 R_5 R_5 R_6 - C_1 C_3 C_4 C_6 R_5 R_5 R_6 - C_1 C_3 C_5 C_6 R_5 R_5 R_6 - C_1 C_3 C_5 C_6 R_5 R_5 R_6 - C_1 C_3 C_5 C_6 R_5 R_5 R_6 - C_1 C_5 C_6 R_5 R_5 R_6 - C_1$$

**9.1006** X-INVALID-ORDER-1006  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_4}{s^3 \left(C_1 C_2 C_3 C_6 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_3 R_4 R_5\right) + s^2 \left(C_1 C_2 C_6 R_4 R_5 - C_1 C_3 C_6 R_3 R_4 + C_1 C_3 C_6 R_3 R_5 + C_1 C_3 C_6 R_4 R_5 + C_1 C_4 C_6 R_4 R_5 + C_2 C_3 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 + C_1 C_6 R_5\right)}$$

**9.1007** X-INVALID-ORDER-1007  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_4R_6s + C_3R_4}{s^3\left(C_1C_2C_3C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.1008** X-INVALID-ORDER-1008  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1009** X-INVALID-ORDER-1009  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3 + \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 - C_1C_3C_5C_6R_3R_4R_6\right) + s^2\left(C_1C_2C_3R_3R_4 + C_1C_3C_6R_4R_6 + C_1C$$

**9.1010** X-INVALID-ORDER-1010  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_5R_3R_4R_5 + C_1C_3C_4C_5R_3R_4R_5\right) + s^2\left(C_1C_2C_3R_3R_4 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_3R_4 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R$$

```
9.1011 X-INVALID-ORDER-1011 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_5R_4}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_3R_4R_5 + C_1C_3C_4C_5C_6R_3R_4 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_4R_5 + C_1C_5$ 

**9.1012** X-INVALID-ORDER-1012  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_4R_6s + C_3C_5R_4}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_3R_4R_5 + C_1C_3C_4C_5C_6R_3R_4 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_3R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_$ 

**9.1013** X-INVALID-ORDER-1013  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 + C_1 C_2 C_5 C_6 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_3 R_4 R_6 + C_1 C_3 C_5 C_6 R_3 R_4 R_5 + C_1 C_3 C_5 C_6 R_3 R_5 + C_1 C_3 C_5 C_6 R_5 R_5 + C_1 C_3 C_5 C_6 R_5 R_5 + C_1 C_5 C$ 

**9.1014** X-INVALID-ORDER-1014  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & R_3 + \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{C_3C_5R_4R_5s + C_3R_4}{s^3\left(C_1C_2C_3C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5 - C_1C_3C_5C_6R_3R_4R_5 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_$ 

**9.1015** X-INVALID-ORDER-1015  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_4R_5R_6s^2 + C_3R_4 + s\left(C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5 - C_1C_3C_5C_6R_3R_4R_5 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C$ 

**9.1016** X-INVALID-ORDER-1016  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_3C_5R_4R_5R_6s + C_3R_4R_6$ 

 $\frac{\cup_{3}\cup_{5}R_{4}R_{5}R_{6}s+\cup_{3}R_{4}R_{5}}{-C_{1}R_{4}+C_{1}R_{5}+s^{3}\left(C_{1}C_{2}C_{3}C_{6}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{3}R_{4}R_{5}R_{6}-C_{1}C_{3}C_{5}C_{6}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{2}C_{6}R_{4}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{3}R_{4}R_{5}-C_{1}C_{3}C_{6}R_{3}R_{4}R_{5}-C_{1}C_{3}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{4}R_{5}+C_{1}$ 

**9.1017** X-INVALID-ORDER-1017  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_3 R_4 R_6 s + R_4 R_6}{s^2 \left(C_1 C_2 R_3 R_4 R_5 + C_1 C_3 R_3 R_4 R_5 + C_2 C_3 R_3 R_4 R_5\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.1018** X-INVALID-ORDER-1018  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_3 R_4 s + R_4}{s^3 \left( C_1 C_2 C_6 R_3 R_4 R_5 + C_1 C_3 C_6 R_3 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^2 \left( -C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5 \right)}$$

**9.1019** X-INVALID-ORDER-1019  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_3R_4R_6s^2 + R_4 + s\left(C_3R_3R_4 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

**9.1020** X-INVALID-ORDER-1020  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1021** X-INVALID-ORDER-1021  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & R_4, & \frac{1}{C_5 s}, & R_6 \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_3R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s\left(C_1C_2R_3R_4 + C_1C_3R_3R_4 - C_1C_5R_3R_4 + C_2C_3R_3R_4\right)}$$

**9.1022** X-INVALID-ORDER-1022  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_3R_4s + C_5R_4}{s^2\left(C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1023** X-INVALID-ORDER-1023  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_3R_4R_6s^2 + C_5R_4 + s\left(C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{s^2\left(C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1024** X-INVALID-ORDER-1024  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_3R_4s + C_5R_4}{s^3\left(C_1C_2C_5C_6R_3R_4R_5 + C_1C_3C_5C_6R_3R_4R_5 + C_2C_3C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_3R_4 + C_2C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1025** X-INVALID-ORDER-1025  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_3R_4R_6s^2 + C_5R_4 + s\left(C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{s^3\left(C_1C_2C_5C_6R_3R_4R_5 + C_1C_3C_5C_6R_3R_4R_5 + C_2C_3C_5C_6R_3R_4R_5 + C_1C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_5C_5C_5C_5C_5C_5C_5C$$

9.1026 X-INVALID-ORDER-1026  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

**9.1027** X-INVALID-ORDER-1027  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_3R_4R_5R_6s^2 + R_4R_6 + s\left(C_3R_3R_4R_6 + C_5R_4R_5R_6\right)}{s^2\left(C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 - C_1C_5R_3R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$$

**9.1028** X-INVALID-ORDER-1028  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & R_4, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_3R_4R_5s^2 + R_4 + s\left(C_3R_3R_4 + C_5R_4R_5\right)}{s^3\left(C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

**9.1029** X-INVALID-ORDER-1029  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_3R_4R_5R_6s^3 + R_4 + s^2\left(C_3C_5R_3R_4R_5 + C_3C_6R_3R_4R_6 + C_5C_6R_4R_5R_6\right) + s\left(C_3R_3R_4 + C_5R_4R_5 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

**9.1030** X-INVALID-ORDER-1030  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_3C_5R_3R_4R_5R_6s^2 + R_4R_6 + s\left(C_3R_3R_4R_5 + C_5R_4R_5R_6\right)}{s^3\left(C_1C_2C_6R_3R_4R_5R_6 + C_1C_3C_6R_3R_4R_5R_6 + C_1C_5C_6R_3R_4R_5R_6 + C_1C_5R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_4R_5R_6 + C$$

**9.1031** X-INVALID-ORDER-1031  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_3 R_6 s + R_6}{s^2 \left( C_1 C_2 R_3 R_5 + C_1 C_3 R_3 R_5 + C_1 C_4 R_3 R_5 + C_2 C_3 R_3 R_5 \right) + s \left( -C_1 R_3 + C_1 R_5 + C_2 R_5 \right)}$$

**9.1032** X-INVALID-ORDER-1032  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_3 s + 1}{s^3 \left(C_1 C_2 C_6 R_3 R_5 + C_1 C_3 C_6 R_3 R_5 + C_1 C_4 C_6 R_3 R_5 + C_2 C_3 C_6 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5\right)}$$

**9.1033** X-INVALID-ORDER-1033  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_3R_6s^2 + s\left(C_3R_3 + C_6R_6\right) + 1}{s^3\left(C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$$

**9.1034** X-INVALID-ORDER-1034  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{1}{C_4 s}, & R_5, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$ 

$$H(s) = \frac{C_3 R_3 R_6 s + R_6}{s^3 \left(C_1 C_2 C_6 R_3 R_5 R_6 + C_1 C_3 C_6 R_3 R_5 R_6 + C_2 C_3 C_6 R_3 R_5 R_6 + C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_4 R_3 R_5 + C_1 C_3 R_3 R_5 + C_1 C_4 R_3 R_5 + C_1 C_6 R_3 R_6 + C_1 C_6 R_5 R_6 + C_2 C_3 R_3 R_5 + C_2 C_6 R_5 R_6 \right) + s \left(-C_1 R_3 + C_1 R_5 + C_2 R_5 R_6 + C_1 C_4 R_3 R_5 + C_1 C_4 R_5 R_5 + C_1 C_5 R_5 R_5 + C_1 C_5$$

**9.1035** X-INVALID-ORDER-1035  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_3R_6s + C_5R_6}{C_1 + C_2 + s\left(C_1C_2R_3 + C_1C_3R_3 + C_1C_4R_3 - C_1C_5R_3 + C_2C_3R_3\right)}$$

**9.1036** X-INVALID-ORDER-1036  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_3s + C_5}{s^2\left(C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_2C_3C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.1037** X-INVALID-ORDER-1037  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_3R_6s^2 + C_5 + s\left(C_3C_5R_3 + C_5C_6R_6\right)}{s^2\left(C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_2C_3C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.1038** X-INVALID-ORDER-1038  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_3s + C_5}{s^3\left(C_1C_2C_5C_6R_3R_5 + C_1C_3C_5C_6R_3R_5 + C_2C_3C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_2C_3C_6R_3 + C_2C_5C_6R_5\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.1039** X-INVALID-ORDER-1039  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{1}{C_4 s}, & R_5 + \frac{1}{C_5 s}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5C_6R_3R_6s^2 + C_5 + s\left(C_3C_5R_3 + C_5C_6R_6\right)}{s^3\left(C_1C_2C_5C_6R_3R_5 + C_1C_3C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_2C_3C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_2C_5C_6R_5\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.1040** X-INVALID-ORDER-1040  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_3R_6s + C_5R_6}{C_1 + C_2 + s^3\left(C_1C_2C_5C_6R_3R_5R_6 + C_1C_3C_5C_6R_3R_5R_6 + C_1C_4C_5C_6R_3R_5R_6 + C_1C_3C_5R_3R_5 + C_1C_2C_6R_3R_6 + C_1C_3C_5R_3R_5 + C_1C_4C_6R_3R_6 + C_1C_5C_6R_3R_6 + C_1C_5C_6R_3R_5R_6 + C_1C_5C_6R_3R_5R_6 + C_1C_5C_6R_5R_6 + C_1C_5C_6R_5R_5 + C_1C_5C_$$

**9.1041** X-INVALID-ORDER-1041  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$  $H(s) = \frac{C_3C_5R_3R_5R_6s^2 + R_6 + s\left(C_3R_3R_6 + C_5R_5R_6\right)}{s^2\left(C_1C_2R_3R_5 + C_1C_3R_3R_5 + C_1C_4R_3R_5 - C_1C_5R_3R_5 + C_2C_3R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ **9.1042** X-INVALID-ORDER-1042  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5R_3R_5s^2 + s\left(C_3R_3 + C_5R_5\right) + 1}{s^3\left(C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 - C_1C_5C_6R_3R_5 + C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ **9.1043** X-INVALID-ORDER-1043  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5C_6R_3R_5R_6s^3 + s^2\left(C_3C_5R_3R_5 + C_3C_6R_3R_6 + C_5C_6R_5R_6\right) + s\left(C_3R_3 + C_5R_5 + C_6R_6\right) + 1}{s^3\left(C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 - C_1C_5C_6R_3R_5 + C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ **9.1044** X-INVALID-ORDER-1044  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$  $H(s) = \frac{C_3C_5R_3R_5R_6s^2 + R_6 + s\left(C_3R_3R_6 + C_5R_5R_6\right)}{s^3\left(C_1C_2C_6R_3R_5R_6 + C_1C_3C_6R_3R_5R_6 + C_1C_5C_6R_3R_5R_6 + C_2C_3C_6R_3R_5R_6\right) + s^2\left(C_1C_2R_3R_5 + C_1C_4R_3R_5 - C_1C_5R_3R_5 - C_1C_6R_3R_6 + C_2C_3R_3R_5 + C_2C_6R_5R_6\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ **9.1045** X-INVALID-ORDER-1045  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$  $H(s) = \frac{C_3C_4R_3R_4R_6s^2 + R_6 + s\left(C_3R_3R_6 + C_4R_4R_6\right)}{s^3\left(C_1C_2C_4R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + c_2C_3C_4R_3R_4R_5\right) + s^2\left(C_1C_2R_3R_5 + C_1C_3R_3R_5 - C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_2C_3R_3R_5 + C_2C_4R_4R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ **9.1046** X-INVALID-ORDER-1046  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_4R_3R_4s^2 + s\left(C_3R_3 + C_4R_4\right) + 1}{s^4\left(C_1C_2C_4C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5 + C_2C_3C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_2C_3C_6R_3R_5 + C_2C_4C_6R_4R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ **9.1047** X-INVALID-ORDER-1047  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_4C_6R_3R_4R_6s^3 + s^2\left(C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_4R_6\right) + s\left(C_3R_3 + C_4R_4 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_4C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5 + C_2C_3C_4C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 +$ **9.1048** X-INVALID-ORDER-1048  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $\frac{C_{3}C_{4}R_{3}R_{4}R_{6}s^{2} + R_{6} + s\left(C_{3}R_{3}R_{6} + C_{4}R_{4}R_{6}\right)}{s^{4}\left(C_{1}C_{2}C_{4}C_{6}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{3}C_{4}C_{6}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{3}C_{4}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{6}R_{3}R_{5}R_{6} + C_{1}C_{3}C_{4}R_{3}R_{4}R_{5} + C_{1}C_{4}C_{6}R_{3}R_{4}R_{5} + C_{1}C_{4}C_{6}R_{3}$ **9.1049** X-INVALID-ORDER-1049  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.1049** X-INVALID-ORDER-1049 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_2 R_{2s+1}}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_4C_5R_3R_4s^2 + C_5 + s\left(C_3C_5R_3 + C_4C_5R_4\right)}{s^3\left(C_1C_2C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 + C_2C_3C_4C_6R_3R_4 + C_2C_3C_4C_6R_3R_4 + C_1C_3C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_2C_3C_6R_3 + C_2C_3C_6R_3 + C_2C_4C_6R_4\right) + s\left(C_1C_6 + C_2C_6\right)}$$

9.1050 X-INVALID-ORDER-1050 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$C_3 C_4 C_5 C_6 R_3 R_4 R_6 s^3 + C_5 + s^2 \left(C_3 C_4 C_5 R_3 R_4 + C_3 C_5 C_6 R_3 R_6 + C_4 C_5 C_6 R_4 R_6\right) + s \left(C_3 C_5 R_3 + C_4 C_5 R_4 + C_5 C_6 R_6\right)$$

$$H(s) = \frac{C_3C_4C_5C_6R_3R_4R_6s^3 + C_5 + s^2\left(C_3C_4C_5R_3R_4 + C_3C_5C_6R_3R_6 + C_4C_5C_6R_4R_6\right) + s\left(C_3C_5R_3 + C_4C_5R_4 + C_5C_6R_6\right)}{s^3\left(C_1C_2C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 + C_1C_4C_5C_6R_3R_4 + C_2C_3C_4C_6R_3R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_4 - C_1C_5C_6R_3 + C_2C_3C_6R_3 + C_2C_4C_6R_4\right) + s\left(C_1C_6 + C_2C_6\right)}$$

```
9.1051 X-INVALID-ORDER-1051 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
H(s) = \frac{C_3C_4C_5R_3R_4R_6s^2 + C_5R_6 + s\left(C_3C_5R_3R_6 + C_4C_5R_4R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_4C_5R_3R_4 + C_1C_2C_6R_3R_6 + C_1C_4C_5R_3R_4 + C_1C_4C_6R_3R_6 + C_1C_4C_6R_3R_6 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_6 + C_1C_4C_6R_3R
9.1052 X-INVALID-ORDER-1052 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_4C_5R_3R_4R_6s^2 + C_5R_6 + s\left(C_3C_5R_3R_6 + C_4C_5R_4R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_4C_5R_3R_4R_5 + C_1C_3C_4C_5R_3R_4R_5 + C_1C_4C_5R_3R_4 + C_1C_3C_5R_3R_5 + C_1C_4C_5R_3R_4 + C_1C_4C_5R_4R_5 + C_2C_4C_5R_4R_5 + C_2C_4C_5R_5R_5 + C_2C_4C_5R_5R
9.1053 X-INVALID-ORDER-1053 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5R_3R_4s^2 + C_5 + s\left(C_3C_5R_3 + C_4C_5R_4\right)}{s^4\left(C_1C_2C_4C_5C_6R_3R_4R_5 + C_1C_3C_4C_5C_6R_3R_4 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_5 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_3R_5 + C
9.1054 X-INVALID-ORDER-1054 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5C_6R_3R_4R_6s^3 + C_5 + s^2\left(C_3C_4C_5R_3R_4 + C_3C_5C_6R_3R_6 + C_4C_5C_6R_4R_6\right) + s\left(C_3C_5R_3 + C_4C_5C_6R_3R_4 + 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C_{3}C_{4}C_{5}C_{6}R_{3}R_{4}R_{6}s^{3} + C_{5} + s^{2}\left(C_{3}C_{4}C_{5}R_{3}R_{4} + C_{3}C_{5}C_{6}R_{3}R_{6} + C_{4}C_{5}C_{6}R_{4}R_{6}\right) + s\left(C_{3}C_{5}R_{3} + C_{4}C_{5}R_{4} + C_{5}C_{6}R_{3}R_{6} + C_{4}C_{5}C_{6}R_{4}R_{6}\right) + s\left(C_{3}C_{5}R_{3} + C_{4}C_{5}R_{4} + C_{5}C_{6}R_{3}R_{6}\right) + s\left(C_{3}C_{5}R_{3} + C_{4}C_{5}R_{6}\right) + s\left(C_{3}C_{5}R_{5} + C_{5}C_{5}R_{5}\right) + s\left(C_{5}C_{5}R_{5} + C_{5}C_{5}R_{5}\right) + s\left(C_{5
9.1055 X-INVALID-ORDER-1055 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
H(s) = \frac{1}{C_1 + C_2 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_5 R_5 + C_1 C_3 C_5 C_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 + C
9.1056 X-INVALID-ORDER-1056 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                        H(s) = \frac{C_3C_4C_5R_3R_4R_5R_6s^3 + R_6 + s^2\left(C_3C_4R_3R_4R_6 + C_3C_5R_3R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_3R_3R_6 + C_4R_4R_6 + C_5R_5R_6\right)}{s^3\left(C_1C_2C_4R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + C_1C_4R_3R_5 + C_1C_4R_3R_5 + C_1C_4R_3R_5 + C_1C_4R_3R_5 + C_1C_5R_3R_5 + C_2C_4R_4R_5\right) + s\left(C_1R_3C_4R_3R_4R_5 + C_1C_4R_3R_5 + C_1C_4R_5R_5 
9.1057 X-INVALID-ORDER-1057 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5R_3R_4R_5s^3 + s^2\left(C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s\left(C_3R_3 + C_4R_4 + C_5R_5\right) + 1}{s^4\left(C_1C_2C_4C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 +
9.1058 X-INVALID-ORDER-1058 Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_4C_5C_6R_3R_4R_5R_6s^4 + s^3\left(C_3C_4C_5R_3R_4R_5 + C_3C_4C_6R_3R_4R_5 + C_3C_5C_6R_3R_5R_6 + C_4C_5C_6R_4R_5R_6\right) + s^2\left(C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_6R_4R_5 + C_4C_6R_4R_6 + C_5C_6R_5R_6\right) + s\left(C_3R_3 + C_4R_4 + C_5R_5 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_4C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C$ 

**9.1059** X-INVALID-ORDER-1059  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_3R_4R_5R_6s^3 + R_6 + s^2\left(C_3C_4R_3R_4R_5R_6 + C_3C_5R_3R_4R_5R_6 + C_3C_4R_3R_4R_5R_6 + C_3C_4R_5R_5R_6 + C_3C_4R_5R_5R_6 + C_3C_4R_$ 

**9.1060** X-INVALID-ORDER-1060 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_3 R_3 R_4 R_6 s + R_4 R_6}{s^2 \left(C_1 C_2 R_3 R_4 R_5 + C_1 C_3 R_3 R_4 R_5 + C_1 C_4 R_3 R_4 R_5 + C_2 C_3 R_3 R_4 R_5\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.1061** X-INVALID-ORDER-1061  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_3 R_4 s + R_4}{s^3 \left(C_1 C_2 C_6 R_3 R_4 R_5 + C_1 C_3 C_6 R_3 R_4 R_5 + C_1 C_4 C_6 R_3 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5\right)}$$

**9.1062** X-INVALID-ORDER-1062  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_3R_4R_6s^2 + R_4 + s\left(C_3R_3R_4 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1063** X-INVALID-ORDER-1063  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5, \frac{R_6}{C_6 R_6 s+1}\right)$ 

**9.1064** X-INVALID-ORDER-1064  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_3R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s\left(C_1C_2R_3R_4 + C_1C_3R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_2C_3R_3R_4\right)}$$

**9.1065** X-INVALID-ORDER-1065  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_3R_4s + C_5R_4}{s^2\left(C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1066** X-INVALID-ORDER-1066  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_3R_4R_6s^2 + C_5R_4 + s\left(C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{s^2\left(C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1067** X-INVALID-ORDER-1067  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_3R_4s + C_5R_4}{s^3\left(C_1C_2C_5C_6R_3R_4R_5 + C_1C_3C_5C_6R_3R_4R_5 + C_1C_4C_5C_6R_3R_4R_5 + C_2C_3C_5C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_$ 

**9.1068** X-INVALID-ORDER-1068  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $\frac{C_{3}C_{5}C_{6}R_{3}R_{4}R_{6}s^{2}+C_{5}R_{4}+s\left(C_{3}C_{5}R_{3}R_{4}+C_{5}C_{6}R_{4}R_{6}\right)}{s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{5}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{2}C_{5}C_{6}R_{3}R_{4}+C$ 

**9.1069** X-INVALID-ORDER-1069  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_3R_4R_6s_5}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_5C_6R_3R_4R_5R_6 + C_1C_3C_5C_6R_3R_4R_5R_6 + C_2C_3C_5C_6R_3R_4R_5R_6 + C_2C_3C_5C_6R_3R_4R_5R_6 + C_2C_3C_5C_6R_3R_4R_5 + C_1C_2C_5R_3R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5$ 

**9.1070** X-INVALID-ORDER-1070  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_3R_4R_5R_6s^2 + R_4R_6 + s\left(C_3R_3R_4R_6 + C_5R_4R_5R_6\right)}{s^2\left(C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_3R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$$

**9.1071** X-INVALID-ORDER-1071  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5R_3R_4R_5s^2 + R_4 + s\left(C_3R_3R_4 + C_5R_4R_5\right)}{s^3\left(C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ **9.1072** X-INVALID-ORDER-1072  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5C_6R_3R_4R_5R_6s^3 + R_4 + s^2\left(C_3C_5R_3R_4R_5 + C_3C_6R_3R_4R_6 + C_5C_6R_4R_5R_6\right) + s\left(C_3R_3R_4 + C_5R_4R_5 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ **9.1073** X-INVALID-ORDER-1073  $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$  $H(s) = \frac{C_3C_5R_3R_4R_5R_6s^2 + R_4R_6 + s\left(C_3R_3R_4R_5R_6 + C_5R_4R_5R_6\right)}{s^3\left(C_1C_2C_6R_3R_4R_5R_6 + C_1C_3C_6R_3R_4R_5R_6 + C_1C_5C_6R_3R_4R_5R_6 + C_2C_3C_6R_3R_4R_5R_6\right) + s^2\left(C_1C_2R_3R_4R_5 + C_1C_4R_3R_4R_5 + C_1C_4R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1$ **9.1074** X-INVALID-ORDER-1074  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, R_6\right)$  $H(s) = \frac{C_2R_2R_4R_6s + R_4R_6}{s^2\left(-C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ **9.1075** X-INVALID-ORDER-1075  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2 R_2 R_4 s + R_4}{s^3 \left(-C_1 C_2 C_6 R_2 R_3 R_4 + C_1 C_2 C_6 R_2 R_3 R_5 + C_1 C_2 C_6 R_2 R_4 R_5 + C_1 C_2 C_6 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5\right)}$ **9.1076** X-INVALID-ORDER-1076  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_6R_2R_4R_6s^2 + R_4 + s\left(C_2R_2R_4 + C_6R_4R_6\right)}{s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ **9.1077** X-INVALID-ORDER-1077  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_2 R_2 R_4 R_6 s + R_4 R_6}{s^3 \left(-C_1 C_2 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 R_2 R_3 R_4 + C_1 C_2 R_2 R_3 R_4 + C_1 C_2 R_2 R_4 R_5 + C_1 C_2 R_3 R_4 R_6 + C_1 C_6 R_3 R_5 R_6 + C_1 C_6 R_4 R_5 R$ **9.1078** X-INVALID-ORDER-1078  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_5R_2R_4s + C_5R_4}{-C_1C_2C_5C_6R_2R_3R_4s^3 + s^2\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$ **9.1079** X-INVALID-ORDER-1079  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_5R_2R_4R_6s + C_5R_4R_6}{-C_1C_2C_5C_6R_2R_3R_4R_6s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(-C_1C_2C_5R_2R_3R_4 + C_1C_2C_6R_2R_3R_6 + C_1C_2C_6R_2R_4R_6 + C_1C_2C_6R_3R_4R_6\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6 + C_2C_6R_4R_6\right)}$ 

 $H(s) = \frac{C_2C_5C_6R_2R_4R_6s^2 + C_5R_4 + s\left(C_2C_5R_2R_4 + C_5C_6R_4R_6\right)}{-C_1C_2C_5C_6R_2R_3R_4s^3 + s^2\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$ 

**9.1080** X-INVALID-ORDER-1080  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

```
9.1081 X-INVALID-ORDER-1081 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
       H(s) = \frac{C_2C_5R_2R_4s + C_5R_4}{s^3\left(-C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_5 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5C_6R_3R_4 + C_1C_2C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C
9.1082 X-INVALID-ORDER-1082 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
       H(s) = \frac{C_2C_5C_6R_2R_4R_6s^2 + C_5R_4 + s\left(C_2C_5R_2R_4 + C_5C_6R_4R_6\right)}{s^3\left(-C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_5 + C_1C_2C_5C_6R_2R_4R_5 + c_1C_2C_5C_6R_3R_4 + C_1C_2C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4R_5\right) + s\left(C_1C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6
9.1083 X-INVALID-ORDER-1083 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_5R_2R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(-C_1C_2C_5C_6R_2R_3R_4R_6 + C_1C_2C_5C_6R_2R_3R_5R_6 + C_1C_2C_5C_6R_2R_4R_5R_6 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_2R_4R_5 + C
9.1084 X-INVALID-ORDER-1084 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                                 H(s) = \frac{C_2C_5R_2R_4R_5R_6s^2 + R_4R_6 + s\left(C_2R_2R_4R_6 + C_5R_4R_5R_6\right)}{-C_1C_2C_5R_2R_3R_4R_5s^3 + s^2\left(-C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 - C_1C_5R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}
9.1085 X-INVALID-ORDER-1085 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                         H(s) = \frac{C_2C_5R_2R_4R_5s^2 + R_4 + s\left(C_2R_2R_4 + C_5R_4R_5\right)}{-C_1C_2C_5C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}
9.1086 X-INVALID-ORDER-1086 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                         H(s) = \frac{C_2C_5C_6R_2R_4R_5R_6s^3 + R_4 + s^2\left(C_2C_5R_2R_4R_5 + C_2C_6R_2R_4R_6 + C_5C_6R_4R_5R_6\right) + s\left(C_2R_2R_4 + C_5R_4R_5 + C_6R_4R_6\right)}{-C_1C_2C_5C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}
```

9.1087 X-INVALID-ORDER-1087 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_2C_5R_2R_4R_5R_6s^2 + R_4R_6 + s\left(C_2R_2R_4R_6 + C_5R_4R_5R_6\right)}{-C_1C_2C_5C_6R_2R_3R_4R_5R_6s^4 + s^3\left(-C_1C_2C_5R_2R_3R_4R_5 - C_1C_2C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_4 + C_1C_2R_3R_4R_5 + C_1C_2R_3R_4R_5 - C_1C_5R_3R_4R_5 - C_1C_5R_5R_5R_5 -$ 

**9.1088** X-INVALID-ORDER-1088 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_2 R_2 R_6 s + R_6}{C_1 C_2 C_4 R_2 R_3 R_5 s^3 + s^2 \left(-C_1 C_2 R_2 R_3 + C_1 C_2 R_2 R_5 + C_1 C_2 R_3 R_5 + C_1 C_4 R_3 R_5\right) + s \left(-C_1 R_3 + C_1 R_5 + C_2 R_5\right)}$$

9.1089 X-INVALID-ORDER-1089 
$$Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ R_3, \ \frac{1}{C_4 s}, \ R_5, \ \frac{1}{C_6 s}\right)$$
 
$$H(s) = \frac{C_2 R_2 s + 1}{C_1 C_2 C_4 C_6 R_2 R_3 R_5 s^4 + s^3 \left(-C_1 C_2 C_6 R_2 R_3 + C_1 C_2 C_6 R_2 R_5 + C_1 C_2 C_6 R_3 R_5 + C_1 C_4 C_6 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5\right)}$$

**9.1090** X-INVALID-ORDER-1090 
$$Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ R_3, \ \frac{1}{C_4 s}, \ R_5, \ R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_6R_2R_6s^2 + s\left(C_2R_2 + C_6R_6\right) + 1}{C_1C_2C_4C_6R_2R_3R_5s^4 + s^3\left(-C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$$

**9.1091** X-INVALID-ORDER-1091  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2 R_2 R_6 s + R_6}{C_1 C_2 C_4 C_6 R_2 R_3 R_5 R_6 s^4 + s^3 \left(C_1 C_2 C_4 R_2 R_3 R_5 - C_1 C_2 C_6 R_2 R_3 R_6 + C_1 C_2 C_6 R_2 R_5 R_6 + C_1 C_2 C_6 R_3 R_5 R_6 + C_1 C_4 C_6 R_3 R_5 R_6 \right) + s^2 \left(-C_1 C_2 R_2 R_3 + C_1 C_2 R_3 R_5 + C_1 C_4 R_3 R_5 - C_1 C_6 R_3 R_6 + C_1 C_6 R_5 R_6 + C_2 C_6 R_5 R_6 \right) + s \left(-C_1 R_3 + C_1 R_5 + C_2 R_5 R_6 + C_1 C_4 R_3 R_5 - C_1 C_4 R_5 R_5 - C_1 C_4 R_5 R_5 - C_1 C_5 R_5 R_6 + C_1 C_$ 

**9.1092** X-INVALID-ORDER-1092  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_5R_2s + C_5}{s^3\left(C_1C_2C_4C_6R_2R_3 - C_1C_2C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}$ 

**9.1093** X-INVALID-ORDER-1093  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_5C_6R_2R_6s^2 + C_5 + s\left(C_2C_5R_2 + C_5C_6R_6\right)}{s^3\left(C_1C_2C_4C_6R_2R_3 - C_1C_2C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}$ 

**9.1094** X-INVALID-ORDER-1094  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_5R_2R_6s + C_5R_6}{C_1 + C_2 + s^3\left(C_1C_2C_4C_6R_2R_3R_6 - C_1C_2C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3 + C_1C_2C_6R_2R_6 + C_1C_2C_6R_3R_6 + C_1C_4C_6R_3R_6 - C_1C_5C_6R_3R_6\right) + s\left(C_1C_2R_2 + C_1C_2R_3 + C_1C_4R_3 - C_1C_5R_3 + C_1C_6R_6 + C_2C_6R_6\right)}$ 

**9.1095** X-INVALID-ORDER-1095  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_5R_2R_6s + C_5R_6}{C_1C_2C_4C_5R_2R_3R_5s^3 + C_1 + C_2 + s^2\left(C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_3R_5 + C_1C_4C_5R_3R_5\right) + s\left(C_1C_2R_2 + C_1C_2R_3 + C_1C_4R_3 - C_1C_5R_3 + C_1C_5R_5 + C_2C_5R_5\right)}$ 

**9.1096** X-INVALID-ORDER-1096  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_5R_2s + C_5}{C_1C_2C_4C_5C_6R_2R_3R_5s^4 + s^3\left(C_1C_2C_4C_6R_2R_3 - C_1C_2C_5C_6R_2R_3 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_3R_5 + c_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_5 + c_2C_5C_6R_5\right) + s\left(C_1C_6C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_5\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_5\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_5\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_1C_5C_5C_6R_5\right) + s\left(C_1C_5C_6R_5 + C_1C_5C_5C_6R_5\right) + s\left(C_1C_5C_5C_6R_5\right) + s\left(C_1C_5C_5C_6R_5\right) + s\left(C_1C_5C_5C_6R_5\right)$ 

9.1097 X-INVALID-ORDER-1097  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_5C_6R_2R_6s^2 + C_5 + s\left(C_2C_5R_2 + C_5C_6R_6\right)}{C_1C_2C_4C_5C_6R_2R_3R_5s^4 + s^3\left(C_1C_2C_4C_6R_2R_3 - C_1C_2C_5C_6R_2R_3 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_6 + C_2C_6\right)}$ 

9.1098 X-INVALID-ORDER-1098  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_5R_2R_3R_5R_6s^4 + C_1 + C_2 + s^3\left(C_1C_2C_4C_5R_2R_3R_5 + C_1C_2C_5C_6R_2R_3R_6 + C_1C_2C_5C_6R_2R_3R_6 + C_1C_2C_5C_6R_2R_3R_5R_6 + C_1C_2C_5C_6R_3R_5R_6 + C_1C_2C_5R_3R_5R_6 + C_1C_2C_5R_3R_5 + C_1C_$ 

**9.1099** X-INVALID-ORDER-1099  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_5R_2R_5R_6s^2 + R_6 + s\left(C_2R_2R_6 + C_5R_5R_6\right)}{s^3\left(C_1C_2C_4R_2R_3R_5 - C_1C_2C_5R_2R_3R_5\right) + s^2\left(-C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_2R_3R_5 + C_1C_4R_3R_5 - C_1C_5R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ 

**9.1100** X-INVALID-ORDER-1100  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_5R_2R_5s^2 + s\left(C_2R_2 + C_5R_5\right) + 1}{s^4\left(C_1C_2C_4C_6R_2R_3R_5 - C_1C_2C_5C_6R_2R_3R_5\right) + s^3\left(-C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5 - C_1C_5C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ 

```
9.1101 X-INVALID-ORDER-1101 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                            H(s) = \frac{C_2C_5C_6R_2R_5R_6s^3 + s^2\left(C_2C_5R_2R_5 + C_2C_6R_2R_6 + C_5C_6R_5R_6\right) + s\left(C_2R_2 + C_5R_5 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_4C_6R_2R_3R_5 - C_1C_2C_5C_6R_2R_3R_5\right) + s^3\left(-C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5 - C_1C_5C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}
9.1102 X-INVALID-ORDER-1102 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_5R_2R_5R_6s^2 + R_6 + s\left(C_2R_2R_6 + C_5R_5R_6\right)}{s^4\left(C_1C_2C_4C_6R_2R_3R_5R_6 - C_1C_2C_5C_6R_2R_3R_5 - C_1C_2C_5R_2R_3R_5 - C_1C_2C_6R_2R_3R_6 + C_1C_2C_6R_2R_3R_6 + C_1C_2C_6R_2R_3R_5 + C_1C_2C_6R_2R_3R_5 - C_1C_2C_4R_2R_3R_5 - C_1C_2C_4R_2R
9.1103 X-INVALID-ORDER-1103 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
                                                                            H(s) = \frac{C_2C_4R_2R_4R_6s^2 + R_6 + s\left(C_2R_2R_6 + C_4R_4R_6\right)}{s^3\left(-C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_5 + C_1C_2C_4R_2R_4R_5 + C_1C_2C_4R_3R_4R_5\right) + s^2\left(-C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_4R_5 + C_2C_4R_4R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}
9.1104 X-INVALID-ORDER-1104 Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ R_3, \ R_4 + \frac{1}{C_4 s}, \ R_5, \ \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_4R_2R_4s^2 + s\left(C_2R_2 + C_4R_4\right) + 1}{s^4\left(-C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 + C_
9.1105 X-INVALID-ORDER-1105 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_4C_6R_2R_4R_6s^3 + s^2\left(C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_4C_6R_4R_6\right) + s\left(C_2R_2 + C_4R_4 + C_6R_6\right) + 1}{s^4\left(-C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 + C
9.1106 X-INVALID-ORDER-1106 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_4R_2R_4R_6s^2 + R_6 + s\left(C_2R_2R_3R_4R_6 + C_1C_2C_4C_6R_2R_3R_4R_6 + C_1C_2C_4C_6R_2R_3R_4R_6 + s\left(C_2R_2R_3R_4R_6 + C_1C_2C_4R_3R_4R_6 + C_1C_2C_4R_4R_5R_6 + C
9.1107 X-INVALID-ORDER-1107 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                          H(s) = \frac{C_2C_4C_5R_2R_4R_6s^2 + C_5R_6 + s\left(C_2C_5R_2R_6 + C_4C_5R_4R_6\right)}{-C_1C_2C_4C_5R_2R_3R_4s^3 + C_1 + C_2 + s^2\left(C_1C_2C_4R_2R_3 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_3R_4 - C_1C_2C_5R_2R_3 - C_1C_4C_5R_3R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_2C_4R_4\right)}
9.1108 X-INVALID-ORDER-1108 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                      H(s) = \frac{C_2C_4C_5R_2R_4s^2 + C_5 + s\left(C_2C_5R_2 + C_4C_5R_4\right)}{-C_1C_2C_4C_5R_2R_3R_4s^4 + s^3\left(C_1C_2C_4C_6R_2R_3 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_3R_4 - C_1C_2C_5C_6R_2R_3 - C_1C_4C_5C_6R_3R_4\right) + s^2\left(C_1C_2C_6R_3 + C_1C_4C_6R_3 + C_1C_
9.1109 X-INVALID-ORDER-1109 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                      H(s) = \frac{C_2C_4C_5C_6R_2R_4R_6s^3 + C_5 + s^2\left(C_2C_4C_5R_2R_4 + C_2C_5C_6R_2R_6 + C_4C_5C_6R_4R_6\right) + s\left(C_2C_5R_2 + C_4C_5R_4 + C_5C_6R_6\right)}{-C_1C_2C_4C_5C_6R_2R_3R_4s^4 + s^3\left(C_1C_2C_4C_6R_2R_3 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_5C_6R_2R_3 - C_1C_4C_5C_6R_3R_4\right) + s^2\left(C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_4C_6R_4 - C_1C_5C_6R_3 + C_2C_4C_6R_4\right) + s\left(C_1C_6 + C_2C_6\right)}
9.1110 X-INVALID-ORDER-1110 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_2C_4C_5R_2R_3R_4R_6s^4 + C_1C_2C_4C_5R_2R_3R_4R_6s^4 + C_1C_2C_4C_6R_2R_3R_6 + C_1C_2C_4C_6R_2R_3R_6 + C_1C_2C_4C_6R_2R_3R_6 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_3R_4 + C_1C_2C_4R$ 

 $C_2C_4C_5R_2R_4R_6s^2 + C_5R_6 + s\left(C_2C_5R_2R_6 + C_4C_5R_4R_6\right)$ 

```
9.1111 X-INVALID-ORDER-1111 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_2C_4C_5R_2R_4R_6s^2 + C_5R_6 + s(C_2C_5R_2R_6 + C_4C_5R_4R_6)
H(s) = \frac{C_2C_4C_5R_2R_4R_6s^2 + C_5R_6 + s\left(C_2C_5R_2R_6 + C_4C_5R_4R_6\right)}{C_1 + C_2 + s^3\left(-C_1C_2C_4C_5R_2R_3R_4 + C_1C_2C_4C_5R_2R_4R_5 + C_1C_2C_4C_5R_3R_4 + C_1C_2C_4R_2R_3 + C_1C_2C_4R_2R_4 + C_1C_2C_5R_2R_3 + C_1C_2C_5R_2R_5 + C_1C_4C_5R_3R_4 + C_1C_4C_5R_4R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5
9.1112 X-INVALID-ORDER-1112 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_4C_5R_2R_4s^2 + C_5 + s\left(C_2C_5R_2 + C_4C_5R_4\right)}{s^4\left(-C_1C_2C_4C_5C_6R_2R_3R_4 + C_1C_2C_4C_5C_6R_2R_3R_5 + C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_3R_4 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_2R_3 + C_1C_2C_5C_6R_2R_5 + C_1C_4C_5C_6R_3R_4 + 
9.1113 X-INVALID-ORDER-1113 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_4C_5C_6R_2R_4R_6s^3 + C_5 + s^2\left(C_2C_4C_5R_2R_4 + C_2C_5C_6R_2R_6 + C_4C_5C_6R_4R_6\right) + s\left(C_2C_5R_2 + C_4C_5C_6R_2R_4 + C_4C_5C_6R_3R_4 + 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_{2}C_{4}C_{5}C_{6}R_{2}R_{4}R_{6}s^{3} + C_{5} + s^{2}\left(C_{2}C_{4}C_{5}R_{2}R_{4} + C_{2}C_{5}C_{6}R_{2}R_{6} + C_{4}C_{5}C_{6}R_{4}R_{6}\right) + s\left(C_{2}C_{5}R_{2} + C_{4}C_{5}R_{2}R_{4} + C_{2}C_{5}C_{6}R_{2}R_{6} + C_{4}C_{5}C_{6}R_{4}R_{6}\right) + s\left(C_{2}C_{5}R_{2} + C_{4}C_{5}R_{2}R_{4} + C_{2}C_{5}C_{6}R_{2}R_{6} + C_{4}C_{5}C_{6}R_{4}R_{6}\right) + s\left(C_{2}C_{5}R_{2} + C_{4}C_{5}R_{2}R_{4} + C_{2}C_{5}C_{6}R_{2}R_{6} + C_{4}C_{5}C_{6}R_{4}R_{6}\right) + s\left(C_{2}C_{5}R_{2} + C_{4}C_{5}R_{2}R_{6} + C_{4}C_{5}C_{6}R_{4}R_{6}\right) + s\left(C_{2}C_{5}R_{2} + C_{4}C_{5}R_{2}R_{6} + C_{4}C_{5}C_{6}R_{4}R_{6}\right) + s\left(C_{2}C_{5}R_{2} + C_{4}C_{5}R_{6}R_{4}R_{6}\right) + s\left(C_{2}C_{5}R_{2} + C_{4}C_{5}R_{6}R_{6}\right) + s\left(C_{2}C_{5}R_{2} + C_{4}C_{5}R_{6}\right) + s\left(C_{2}C_{5}R_{6}R_{6} + C_{4}C_{5}R_{6}\right) + s\left(C_{2}C_{5}R_{6}R_{6}\right) + s\left(C_{2}
9.1114 X-INVALID-ORDER-1114 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1 + C_2 + s^4 \left(-C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_3 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_5 R_5 +
9.1115 X-INVALID-ORDER-1115 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_2C_4C_5R_2R_4R_5R_6s^3 + R_6 + s^2\left(C_2C_4R_2R_4R_6 + C_2C_5R_2R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_2R_2R_6 + C_4R_4R_6 + C_5R_5R_6\right)}{-C_1C_2C_4R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_5 + C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_5 + C_1C_4C_5R_3R_4R_5\right) + s^2\left(-C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_5R_5 +
9.1116 X-INVALID-ORDER-1116 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_4C_5R_2R_4R_5s^3 + s^2\left(C_2C_4R_2R_4 + C_2C_5R_2R_5 + C_4C_5R_4R_5\right) + s\left(C_2R_2 + C_4R_4 + C_5R_5\right) + 1}{-C_1C_2C_4C_5R_2R_3R_4R_5s^5 + s^4\left(-C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_4R_4 + C_1C_4C_6
9.1117 X-INVALID-ORDER-1117 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_4C_5C_6R_2R_4R_5R_6s^4 + s^3\left(C_2C_4C_5R_2R_4R_5 + C_2C_4C_6R_2R_4R_6 + C_2C_5C_6R_2R_5R_6 + C_4C_5R_4R_5 + C_2C_6R_2R_5 + C_2C_6R_2R_6 + C_4C_5R_4R_5 + C_4C_6R_4R_6 + C_5C_6R_5R_6\right) + s\left(C_2R_2C_4C_5R_2R_3R_4R_5s^5 + s^4\left(-C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_3R_5 + C_1C_2
9.1118 X-INVALID-ORDER-1118 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1C_2C_4C_5C_6R_2R_3R_4R_5R_6s^5 + s^4\left(-C_1C_2C_4C_5R_2R_3R_4R_5 - C_1C_2C_4C_6R_2R_3R_4R_6 + C_1C_2C_4C_6R_2R_3R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 - C_1C_2C_5C_6R_2R_3R_5R_6 - C_1C_4C_5C_6R_3R_4R_5R_6\right) + s^3\left(-C_1C_2C_4R_2R_3R_4R_5 - C_1C_2C_4C_6R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6\right) + s^3\left(-C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_2C_4C_6R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6\right) + s^3\left(-C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_2C_4C_6R_2R_3R_4R_5 + C_1
9.1119 X-INVALID-ORDER-1119 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)
                                                                                                                                                                                                                                                                    H(s) = \frac{C_2R_2R_4R_6s + R_4R_6}{C_1C_2C_4R_2R_3R_4R_5s^3 + s^2\left(-C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_4R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}
9.1120 X-INVALID-ORDER-1120 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
```

322

 $H(s) = \frac{C_2 R_2 R_4 s + R_4}{C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 s^4 + s^3 \left(-C_1 C_2 C_6 R_2 R_3 R_4 + C_1 C_2 C_6 R_2 R_3 R_5 + C_1 C_2 C_6 R_2 R_4 R_5 + C_1 C_2 C_6 R_2 R_4 R_5 + C_1 C_4 C_6 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5\right)}$ 

**9.1121** X-INVALID-ORDER-1121  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_6R_2R_4R_6s^2 + R_4 + s\left(C_2R_2R_4 + C_6R_4R_6\right)}{C_1C_2C_4C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ **9.1122** X-INVALID-ORDER-1122  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_2 R_2 R_4 R_6 s + R_4 R_6}{C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 R_6 s^4 + s^3 \left(C_1 C_2 C_4 R_2 R_3 R_4 R_5 - C_1 C_2 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_6 R_2 R_4 R_5 R_6 + C_1 C_2$ **9.1123** X-INVALID-ORDER-1123  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_5R_2R_4s + C_5R_4}{s^3\left(C_1C_2C_4C_6R_2R_3R_4 - C_1C_2C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$ **9.1124** X-INVALID-ORDER-1124  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_5C_6R_2R_4R_6s^2 + C_5R_4 + s\left(C_2C_5R_2R_4 + C_5C_6R_4R_6\right)}{s^3\left(C_1C_2C_4C_6R_2R_3R_4 - C_1C_2C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$ **9.1125** X-INVALID-ORDER-1125  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_2C_5R_2R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_4C_6R_2R_3R_4R_6 - C_1C_2C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_4 + C_1C_2C_6R_2R_3R_6 + C_1C_2C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 - C_1C_5C_6R_3R_4R_6\right) + s\left(C_1C_2R_2R_3 + C_1C_2C_4R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6\right) + s\left(C_1C_2R_2R_3R_4 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6\right) + s\left(C_1C_2R_2R_3R_4 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6\right) + s\left(C_1C_4R_2R_3R_4 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6\right) + s\left(C_1C_4R_4R_3R_4 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6\right) + s\left(C_1C_4R_4R_3R_4 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6\right) + s\left(C_1C_4R_4R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_4R_4R_4 + C_$ 

**9.1126** X-INVALID-ORDER-1126  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_5R_2R_4R_6s + C_5R_4R_6}{C_1C_2C_4C_5R_2R_3R_4R_5s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_3R_4R_5\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_4C_5R_3R_4R_5\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_4C_5R_3R_4R_5\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_4C_5R_3R_4R_5\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_4C_5R_3R_4R_5\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_4C_5R_3R_4R_5\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_$ 

**9.1127** X-INVALID-ORDER-1127  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.1128** X-INVALID-ORDER-1128  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_5C_6R_2R_4R_6s^2 + C_5R_4 + s\left(C_2C_5R_2R_4 + C_5C_6R_4R_6\right)}{C_1C_2C_4C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5C_6R_2R_4 +$ 

**9.1129** X-INVALID-ORDER-1129  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1130** X-INVALID-ORDER-1130  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_5R_2R_4R_5R_6s^2 + R_4R_6 + s\left(C_2R_2R_4R_6 + C_5R_4R_5R_6\right)}{s^3\left(C_1C_2C_4R_2R_3R_4R_5 - C_1C_2C_5R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ 

```
9.1131 X-INVALID-ORDER-1131 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                        H(s) = \frac{C_2C_5R_2R_4R_5s^2 + R_4 + s\left(C_2R_2R_4 + C_5R_4R_5\right)}{s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_2C_5C_6R_2R_3R_4R_5\right) + s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_4 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}
9.1132 X-INVALID-ORDER-1132 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                        H(s) = \frac{C_2C_5C_6R_2R_4R_5R_6s^3 + R_4 + s^2\left(C_2C_5R_2R_4R_5 + C_2C_6R_2R_4R_6 + C_5C_6R_4R_5R_6\right) + s\left(C_2R_2R_4 + C_5R_4R_5 + C_6R_4R_6\right)}{s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_2C_5C_6R_2R_3R_4R_5\right) + s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}
9.1133 X-INVALID-ORDER-1133 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_2C_5R_2R_4R_5R_6s^2 + R_4R_6 + s(C_2R_2R_4R_6 + C_5R_4R_5R_6)
H(s) = \frac{C_2C_5R_2R_4R_5R_6s^2 + R_4R_6 + s\left(C_2R_2R_4R_6 + C_5R_4R_5R_6\right)}{s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5R_6 - C_1C_2C_5C_6R_2R_3R_4R_5 - C_1C_2C_5R_2R_3R_4R_5 - C_1C_2C_6R_2R_3R_4R_5 - C_1C_2C_4R_4R_5 
9.1134 X-INVALID-ORDER-1134 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                    H(s) = \frac{C_2C_3R_2R_4s + C_3R_4}{C_1C_2C_3C_6R_2R_4R_5s^3 + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.1135 X-INVALID-ORDER-1135 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                    H(s) = \frac{C_2C_3C_6R_2R_4R_6s^2 + C_3R_4 + s\left(C_2C_3R_2R_4 + C_3C_6R_4R_6\right)}{C_1C_2C_3C_6R_2R_4R_5s^3 + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.1136 X-INVALID-ORDER-1136 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3R_2R_4R_6s + C_3R_4R_6}{C_1C_2C_3C_6R_2R_4R_5R_6s^3 - C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_2R_4R_5 - C_1C_2C_6R_2R_4R_6 + C_1C_2C_6R_2R_5R_6 + C_1C_2C_6R_4R_5R_6 + C_1C_3C_6R_4R_5R_6 + C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_6R_4R_6 + C_1C_6R_5R_6 + C_2C_3R_4R_5 + C_1C_2R_4R_5 + C_
9.1137 X-INVALID-ORDER-1137 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
               H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_6R_2R_4R_6 - C_1C_2C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3R_2R_4 - C_1C_2C_5R_2R_4 + C_1C_2C_6R_2R_6 + C_1C_2C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_2C_3C_6R_4R_6\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4\right)}
9.1138 X-INVALID-ORDER-1138 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                           H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3C_5R_2R_4R_5s^3 + C_1 + s^2\left(C_1C_2C_3R_2R_4 - C_1C_2C_5R_2R_4 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_2C_3C_5R_4R_5\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_5R_5 + C_2C_3R_4\right)}
9.1139 X-INVALID-ORDER-1139 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                    H(s) = \frac{C_2C_3C_5R_2R_4s + C_3C_5R_4}{C_1C_2C_3C_5C_6R_2R_4R_5s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_4 - C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4\right)}
9.1140 X-INVALID-ORDER-1140 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                    H(s) = \frac{C_2C_3C_5C_6R_2R_4R_6s^2 + C_3C_5R_4 + s\left(C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_2C_3C_5C_6R_2R_4R_5s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_4 - C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4 + C_1C_3C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4 + C_1C_3C_5C_6R
```

**9.1141** X-INVALID-ORDER-1141 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3C_5C_6R_2R_4R_5R_6s^4 + C_1 + s^3\left(C_1C_2C_3C_5R_2R_4R_6 + C_1C_2C_5C_6R_2R_4R_6 + C_1C_2C_5C_6R_2R_4R_5R_6 + C_1C_2C_5C_6R_4R_5R_6 + C_1C_2C_5C_6R_4R_5R_6 + C_1C_2C_5R_2R_4 + C_1C_2C_5R_2R_4 + C_1C_2C_5R_2R_4 + C_1C_2C_5R_2R_4 + C_1C_2C_5R_4R_5R_6 + C_1C_2C_5R_4R_5R_5 + C_1C_2C_5R_4R_5R_5 + C_1C_2C_5R_4R_5R_5 + C_1C_2C_5R_5R_5R_5 + C_1C_2C_5R_5R_5R_5 + C_1C_2C_5R_5R_5R_5 + C_1C_2C_5R_5R_$ 

**9.1142** X-INVALID-ORDER-1142  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_2R_4R_5s^2 + C_3R_4 + s\left(C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}{s^3\left(C_1C_2C_3C_6R_2R_4R_5 - C_1C_2C_5C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.1143** X-INVALID-ORDER-1143  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5C_6R_2R_4R_5R_6s^3 + C_3R_4 + s^2\left(C_2C_3C_5R_2R_4R_5 + C_2C_3C_6R_2R_4R_6 + C_3C_5C_6R_4R_5R_6\right) + s\left(C_2C_3R_2R_4 + C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_4R_5 - C_1C_2C_5C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.1144** X-INVALID-ORDER-1144  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_2R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_2R_4R_5R_6 - C_1C_2C_5C_6R_2R_4R_5 - C_1C_2C_5R_2R_4R_5 - C_1C_2C_6R_2R_4R_6 + C_1C_2C_6R_2R_4R_5R_6 + C_1C_3C_6R_4R_5R_6 - C_1C_5C_6R_4R_5R_6 + C_1C_3C_6R_4R_5R_6 + C_1C_3C_6$$

**9.1145** X-INVALID-ORDER-1145  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3R_2s + C_3}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.1146** X-INVALID-ORDER-1146  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_6R_2R_6s^2 + C_3 + s\left(C_2C_3R_2 + C_3C_6R_6\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.1147** X-INVALID-ORDER-1147  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_3R_2R_6s + C_3R_6}{-C_1 + s^3\left(C_1C_2C_3C_6R_2R_5R_6 + C_1C_2C_4C_6R_2R_5R_6\right) + s^2\left(C_1C_2C_3R_2R_5 + C_1C_2C_4R_2R_5 - C_1C_2C_6R_2R_6 + C_1C_2C_6R_5R_6 + C_1C_4C_6R_5R_6 + C_1C_4C_6R_5R_6 + C_1C_4C_6R_5R_6\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 - C_1C_6R_6 + C_2C_3R_5\right)}$$

**9.1148** X-INVALID-ORDER-1148  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_2C_3C_5R_2R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_3R_2 + C_1C_2C_4R_2 - C_1C_2C_5R_2\right)}$$

**9.1149** X-INVALID-ORDER-1149  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_2s + C_3C_5}{s^2\left(C_1C_2C_3C_6R_2 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_2\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.1150** X-INVALID-ORDER-1150  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5C_6R_2R_6s^2 + C_3C_5 + s\left(C_2C_3C_5R_2 + C_3C_5C_6R_6\right)}{s^2\left(C_1C_2C_3C_6R_2 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_2\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.1151** X-INVALID-ORDER-1151  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5R_2s + C_3C_5}{s^3\left(C_1C_2C_3C_5C_6R_2R_5 + C_1C_2C_4C_5C_6R_2R_5\right) + s^2\left(C_1C_2C_3C_6R_2 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_1C_5C_6C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C$ **9.1152** X-INVALID-ORDER-1152  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5C_6R_2R_6s^2 + C_3C_5 + s\left(C_2C_3C_5R_2 + C_3C_5C_6R_6\right)}{s^3\left(C_1C_2C_3C_5C_6R_2R_5 + C_1C_2C_4C_5C_6R_2 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_2 + C_1C_2C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_1C_4C_5C_6R_5 + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$ **9.1153** X-INVALID-ORDER-1153  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $C_2C_3C_5R_2R_6s + C_3C_5R_6$  $H(s) = \frac{C_2C_3C_5R_2R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(C_1C_2C_3C_5R_2R_5 + C_1C_2C_4C_5R_2R_5 + C_1C_2C_3C_5R_2R_5 + C_1C_2C_4C_5R_2R_5 + C_1C_4C_5C_5R_2R_5 + C_1C_4C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5C_5R_5R_5 + C_1C_5C_5C_5R_5R_5 + C_1C_$ **9.1154** X-INVALID-ORDER-1154  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5R_2R_5s^2 + C_3 + s\left(C_2C_3R_2 + C_3C_5R_5\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5 - C_1C_2C_5C_6R_2R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$ **9.1155** X-INVALID-ORDER-1155  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5C_6R_2R_5R_6s^3 + C_3 + s^2\left(C_2C_3C_5R_2R_5 + C_2C_3C_6R_2R_6 + C_3C_5C_6R_5R_6\right) + s\left(C_2C_3R_2 + C_3C_5R_5 + C_3C_6R_6\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5 - C_1C_2C_5C_6R_2R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$ **9.1156** X-INVALID-ORDER-1156  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_2C_3C_5R_2R_5R_6s^2 + C_3R_6 + s\left(C_2C_3R_2R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_6R_2R_5R_6 + C_1C_2C_4C_6R_2R_5R_6 - C_1C_2C_5C_6R_2R_5R_6\right) + s\left(C_1C_2C_3R_2R_5 + C_1C_2C_4R_2R_5 - C_1C_2C_6R_2R_6 + C_1C_3C_6R_5R_6 + C_1C_3C$ **9.1157** X-INVALID-ORDER-1157  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$  $H(s) = \frac{C_2C_3C_4R_2R_4R_6s^2 + C_3R_6 + s\left(C_2C_3R_2R_6 + C_3C_4R_4R_6\right)}{C_1C_2C_3C_4R_2R_4R_5s^3 - C_1 + s^2\left(C_1C_2C_3R_2R_5 - C_1C_2C_4R_2R_4 + C_1C_2C_4R_2R_5 + C_1C_3C_4R_4R_5 + C_2C_3C_4R_4R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 + C_2C_3R_5\right)}$ **9.1158** X-INVALID-ORDER-1158  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_4R_2R_4s^2 + C_3 + s\left(C_2C_3R_2 + C_3C_4R_4\right)}{C_1C_2C_3C_4C_6R_2R_4R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_2R_5 - C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_2R_5 + C_1C_3C_4C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$ **9.1159** X-INVALID-ORDER-1159  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_4C_6R_2R_4R_6s^3 + C_3 + s^2\left(C_2C_3C_4R_2R_4 + C_2C_3C_6R_2R_6 + C_3C_4C_6R_4R_6\right) + s\left(C_2C_3R_2 + C_3C_4R_4 + C_3C_6R_6\right)}{C_1C_2C_3C_4C_6R_2R_4R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_2R_5 - C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(-C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_4 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$ **9.1160** X-INVALID-ORDER-1160  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_2C_3C_4R_2R_4R_6s^2 + C_3R_6 + s\left(C_2C_3R_2R_6 + C_3C_4R_2R_6\right)$ 

 $H(s) = \frac{C_2C_3C_4R_2R_4R_5R_6s^4 - C_1 + s^3\left(C_1C_2C_3C_4R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_6 + C_1C_2C_4C_6R_2R_5R_6 + C_1C_2C_4C_6R_4R_5R_6 + C_1C_2C_4C_6R_4R_5R_5 + C_1C_2C_4C_6R_4R_5R_5 + C_1C_2C_4C_6R_4R_5R_5 + C_1C_2C_4C_6R_5R_5 + C_1C_2C_4C_6R_5R_5 + C_1C_2C_4C_6R_5R_5 + C_1C_2C_4C_6R_$ 

```
9.1161 X-INVALID-ORDER-1161 Z(s) = \left(\frac{1}{C_{12}}, R_2 + \frac{1}{C_{13}}, \frac{1}{C_{23}}, R_4 + \frac{1}{C_{12}}, \frac{1}{C_{23}}, \frac{1}{C_{23}}, \frac{1}{C_{23}}\right)
E(C_1C_2C_1C_2R_2R_4s^2 + C_3C_3C_3R_2 + C_3C_4C_3R_4)
E(C_1C_2C_3C_3R_4 + C_1C_2C_3C_6R_4 + C_1C_3C_3C_6R_4 + C_2C_3C_4C_6R_4) + s(C_1C_2C_6 + C_1C_3C_6 + C_1C_3C_
```

9.1165 X-INVALID-ORDER-1165  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5R_2R_4s^2 + C_3C_5 + s\left(C_2C_3C_5R_2 + C_3C_4C_5R_4\right)}{C_1C_2C_3C_4C_5R_2R_4 + S^4 + s^3\left(C_1C_2C_3C_4C_5R_2R_4 + C_1C_2C_4C_5C_6R_2R_5 + C_1C_2C_4C_5C_6R_4R_5 + C_1C_3C_4C_5C_6R_4R_5 + C_1C_3C_4C_5C_6R_4R_5 + C_1C_2C_4C_5C_6R_4R_5 + C_1C_2C_4C_5C_6R_5 + C_1C_2C_4C_5C_6R_5 + C_1C_2C_4C_5C_6R_5 + C_1C_2C_4C_5C_6R_5 + C_1C_2C_4C_5C_6R_5 + C_1C_2C_4C_5C_6R_5 + C_1C_2C$ 

**9.1166** X-INVALID-ORDER-1166  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_2R_4R_6s^3 + C_3C_5 + s^2\left(C_2C_3C_4C_5R_2R_4 + C_2C_3C_5C_6R_2R_6 + C_3C_4C_5C_6R_4R_6\right) + s\left(C_2C_3C_5R_2 + C_3C_4C_5C_6R_2R_4 + C_3C_4C_5C_6R_4R_5 + C_3C_4C_5C_6R_4R_5 + C_3C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_3C_4C_6R_2 + C_1C_2C_4C_6R_2 + C_1C_2C_4C_5C_6R_2 + C_1C_2C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_3C_4C_5R_4R_5 + C_1C_2C_4C_5C_6R_4R_5 + C_1C_2C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_3C_4C_5R_4R_5 + C_1C_2C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_3C_4C_5R_4R_5\right) + s^2\left(C_1C_2C_3C_4C_5R_5R_5\right) + s^2\left(C_1C_2C_3C_4C_5R_5R_5\right) + s^2\left(C_1C_2C_3C_5R_5R_5\right) + s^2\left(C_1C_2C_3C_5R_5R_5\right) +$ 

**9.1167** X-INVALID-ORDER-1167  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_2R_4R_5R_6s^4 + C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(C_1C_2C_3C_4C_5R_2R_4R_6 + C_1C_2C_3C_4C_5R_2R_4R_6 + C_1C_2C_4C_5C_6R_2R_4R_6 + C_1C_2C_4C_5C_6R_2R_4R_6 + C_1C_2C_4C_5C_6R_2R_4R_6 + C_1C_2C_4C_5C_6R_2R_4R_6 + C_1C_2C_4C_5C_6R_2R_4R_6 + C_1C_2C_4C_5C_6R_2R_4R_6 + C_1C_2C_4C_5C_6R_4R_5R_6 + C_1C_2C_4C_5C_6R_4R_5R_5C_6R_4R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5C_6R_5R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_$ 

**9.1168** X-INVALID-ORDER-1168  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5R_2R_4R_5R_6s^3 + C_3R_6 + s^2\left(C_2C_3C_4R_2R_4R_6 + C_2C_3C_5R_2R_5R_6 + C_3C_4R_4R_6 + C_3C_5R_5R_6\right) + s\left(C_2C_3R_2R_6 + C_3C_4R_4R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_4R_2R_4R_5 - C_1C_2C_4R_2R_5 + C_1C_2C_4R_2R_5 + C_1C_2C_4R_4R_5 - C_1C_2C_5R_2R_5 + C_1C_3C_4R_4R_5 + C_2C_3C_4R_4R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 - C_1C_5R_5\right)}$ 

**9.1169** X-INVALID-ORDER-1169  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5R_2R_4R_5s^3 + C_3 + s^2\left(C_2C_3C_4R_2R_4 + C_2C_3C_5R_2R_5 + C_3C_4C_5R_4R_5\right) + s\left(C_2C_3R_2 + C_3C_4R_4 + C_3C_5R_5\right)}{-C_1C_6s + s^4\left(C_1C_2C_3C_4C_6R_2R_4R_5 - C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_2R_5 + C_1C_2C_4C_6R_2R_5 + C_1C_2C_4C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_2R_5 + C_1C_2C_4C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5\right) + s^2\left(-C_1C_4C_5C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5 + C_1C_5C_6R_5 + C_1C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5$ 

**9.1170** X-INVALID-ORDER-1170  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_2R_4R_5R_6s^4 + C_3 + s^3\left(C_2C_3C_4C_5R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_6 + C_2C_3C_5C_6R_2R_5R_6 + C_3C_4C_5R_4R_5 + C_2C_3C_4R_2R_4 + C_2C_3C_5R_2R_5 + C_2C_3C_4R_2R_4 + C_2C_3C_5R_2R_5 + C_2C_3C_4R_2R_4 + C_3C_4C_6R_4R_5 + C_3C_4C_6R_$ 

```
9.1171 X-INVALID-ORDER-1171 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

**9.1172** X-INVALID-ORDER-1172  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3R_2R_4s + C_3R_4}{s^3\left(C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.1173** X-INVALID-ORDER-1173  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_6R_2R_4R_6s^2 + C_3R_4 + s\left(C_2C_3R_2R_4 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.1174** X-INVALID-ORDER-1174  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_3R_2R_4R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_2C_4R_2R_4R_5 - C_1C_2C_6R_2R_4R_6 + C_1C_2C_6R_2R_4R_5 + C_1C_4C_6R_4R_5R_6 + C_1C_4C_6R_4R_5R_6$$

**9.1175** X-INVALID-ORDER-1175  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_6R_2R_4R_6 + C_1C_2C_4C_6R_2R_4R_6 - C_1C_2C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3R_2R_4 + C_1C_2C_4R_2R_4 - C_1C_2C_5R_2R_4 + C_1C_2C_6R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_6 + C_2C_3C_6R_4R_6\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_2C_4R_2R_4 - C_1C_2C_6R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_$$

**9.1176** X-INVALID-ORDER-1176  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_5R_2R_4R_5 + C_1C_2C_4C_5R_2R_4R_5\right) + s^2\left(C_1C_2C_3R_2R_4 + C_1C_2C_4R_2R_4 - C_1C_2C_5R_2R_4 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_4R_5 + C_1C_4C_5R_4R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 + C_1C_5R_4 + C_1C_5R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 + C_1C_5R_4 + C_1C_5R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_2 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_5R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_5R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_4R_4 + C_1C_4R_$$

**9.1177** X-INVALID-ORDER-1177  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_2R_4s + C_3C_5R_4}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_2R_4 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_$$

**9.1178** X-INVALID-ORDER-1178  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5C_6R_2R_4R_6s^2 + C_3C_5R_4 + s\left(C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C$$

9.1179 X-INVALID-ORDER-1179 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{1}{C_1 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_3 C_6 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_3 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_5 C_6 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_5 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_5 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_5 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_5 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_5 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_5 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_5 C_5 R_5 R_5$$

**9.1180** X-INVALID-ORDER-1180  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_2R_4R_5s^2 + C_3R_4 + s\left(C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}{s^3\left(C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5 - C_1C_2C_5C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_$$

```
9.1181 X-INVALID-ORDER-1181 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                      H(s) = \frac{C_2C_3C_5C_6R_2R_4R_5R_6s^3 + C_3R_4 + s^2\left(C_2C_3C_5R_2R_4R_5 + C_2C_3C_6R_2R_4R_6 + C_3C_5C_6R_4R_5R_6\right) + s\left(C_2C_3R_2R_4 + C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3
9.1182 X-INVALID-ORDER-1182 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_2C_3C_5R_2R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)
H(s) = \frac{C_2C_3C_5R_2R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_4C_6R_2R_4R_5R_6 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5R_2R_4R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_2R_4R_5R_6 + C_1C_2C_6R_2
9.1183 X-INVALID-ORDER-1183 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
                      H(s) = \frac{C_2C_3R_2R_4s + C_3R_4}{s^3\left(-C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_2R_5 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5 \right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right) + s\left(-C_1C_6R_4R_5 + C_1C_6R_5\right) + s\left(-C_1C_6R_5\right) 
9.1184 X-INVALID-ORDER-1184 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                      H(s) = \frac{C_2C_3C_6R_2R_4R_6s^2 + C_3R_4 + s\left(C_2C_3R_2R_4 + C_3C_6R_4R_6\right)}{s^3\left(-C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_2R_5 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.1185 X-INVALID-ORDER-1185 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3R_2R_4R_6s + C_3R_4R_6s + C
9.1186 X-INVALID-ORDER-1186 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                      H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{-C_1C_2C_3C_5R_2R_3R_4s^3 + C_1 + s^2\left(C_1C_2C_3R_2R_3 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_3R_4 - C_1C_2C_5R_2R_4 - C_1C_3C_5R_3R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4\right)}
9.1187 X-INVALID-ORDER-1187 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                               H(s) = \frac{C_2C_3C_5R_2R_4s + C_3C_5R_4}{-C_1C_2C_3C_5C_6R_2R_3R_4s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 + C_1C_3C_6R_
9.1188 X-INVALID-ORDER-1188 Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ R_3 + \frac{1}{C_3 s}, \ R_4, \ \frac{1}{C_5 s}, \ R_6 + \frac{1}{C_6 s}\right)
                                                               H(s) = \frac{C_2C_3C_5C_6R_2R_4R_6s^2 + C_3C_5R_4 + s\left(C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{-C_1C_2C_3C_5C_6R_2R_3R_4s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4\right)}
9.1189 X-INVALID-ORDER-1189 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s
```

 $\frac{C_2C_3C_5R_2R_4R_6s + C_3C_5R_4R_6s}{C_1 + s^3\left(-C_1C_2C_3C_5R_2R_3R_4 + C_1C_2C_3C_5R_2R_3R_5 + C_1C_2C_3C_5R_2R_4R_5 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_5R_2R_4 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_2R_4 + C_1C_2C_5R_3R_4 + C_1C_2C_5R_3R_4 + C_1C_2C_5R_3R_4 + C_1C_2C_5R_3R_4 + C_1C_2C_5R_2R_4 + C_1C_2C_5R_2R_5 + C_1C_3C_5R_3R_4 + C_1C_3C_5R_3R$ 

 $C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s$ 

**9.1190** X-INVALID-ORDER-1190  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

```
9.1191 X-INVALID-ORDER-1191 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C_2C_3C_5R_2R_4s + C_3C_5R_4
H(s) = \frac{C_2C_3C_5R_2R_4s + C_3C_5R_4}{C_1C_6 + s^3\left(-C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_5 + C_1C_2C_3C_5C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_4R_5 + C
9.1192 X-INVALID-ORDER-1192 Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ R_3 + \frac{1}{C_3 s}, \ R_4, \ R_5 + \frac{1}{C_5 s}, \ R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_2R_4R_6s^2 + C_3C_5R_4 + s\left(C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^3\left(-C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_5 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_5C_6R_2R_4 + C_1C_2C_3C_5C_6R_4 + C_1C_2C_3C_5C_6R_4 + C_1C_2C_3C_5C_6R_4 + C_1C_2C_3C_5C_6R_4 + C_1C_2C_3C_5C_6R_4 + C_1C_2C_3C_5C_6R_4 + C_1C_2
9.1193 X-INVALID-ORDER-1193 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1 + s^4 \left(-C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 R_2 R_3 R_4 + C_1 C_2 C_3 C_5 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_3 C_5 R_5 R_5 + C_1 C_2 C_5 C_5 R_5 R_5 + C_1 C_2 C_3 C_5 R_5 R_5 + C_1 C_2 C_5 C_5
9.1194 X-INVALID-ORDER-1194 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_2C_3C_5R_2R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1C_2C_3C_5R_2R_3R_4R_5s^3 - C_1R_4 + C_1R_5 + s^2\left(-C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_3R_5 + C_1C_2C_3R_2R_4R_5 - C_1C_2C_5R_2R_4R_5 - C_1C_2C_3R_2R_4R_5 - C_1C_2C_3R_
9.1195 X-INVALID-ORDER-1195 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5R_2R_4R_5s^2 + C_3R_4 + s\left(C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}{-C_1C_2C_3C_5C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_3C_6R_2R_4R_5 - C_1C_2C_5C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3
9.1196 X-INVALID-ORDER-1196 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_2R_4R_5R_6s^3 + C_3R_4 + s^2\left(C_2C_3C_5R_2R_4R_5 + C_2C_3C_6R_2R_4R_6 + C_3C_5C_6R_4R_5R_6\right) + s\left(C_2C_3R_2R_4 + C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{-C_1C_2C_3C_5C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_3C_6R_2R_4R_5 - C_1C_2C_5C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 - C_1C_2C_6R_4R_5\right)}
9.1197 X-INVALID-ORDER-1197 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1C_2C_3C_5C_6R_2R_3R_4R_5R_6s^4 - C_1R_4 + C_1R_5 + s^3\left(-C_1C_2C_3C_5R_2R_3R_4R_5 - C_1C_2C_3C_6R_2R_3R_4R_6 + C_1C_2C_3C_6R_2R_3R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 - C_1C_2C_5C_6R_2R_4R_5R_6 - C_1C_3C_5C_6R_3R_4R_5R_6 + C_1C_2C_3C_6R_2R_3R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 - C_1C_2C_5C_6R_2R_4R_5R_6 - C_1C_3C_5C_6R_3R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 - C_1C_2C_5C_6R_2R_4R_5R_6 - C_1C_3C_5C_6R_3R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_5 + C_1C_2C_3C_6R_2R_4R_5R_5 + C_1C_2C_3C_6R_2R_4R_5R_5 + C_1C_2C_3C_5R_5R_5R_5 + C_1C_2C_3C_5R_5R_5R_5 + C_1C_2C_3C_5R_5R_5R_5 + C_1C_2
9.1198 X-INVALID-ORDER-1198 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)
                                                                                                                                           H(s) = \frac{C_2C_3R_2R_6s + C_3R_6}{C_1C_2C_3C_4R_2R_3R_5s^3 - C_1 + s^2\left(-C_1C_2C_3R_2R_3 + C_1C_2C_3R_2R_5 + C_1C_2C_3R_3R_5 + C_1C_2C_4R_2R_5 + C_1C_3C_4R_3R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 - C_1C_3R_3 + C_1C_3R_5 + C_1C_4R_5 + C_2C_3R_5\right)}
9.1199 X-INVALID-ORDER-1199 Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ R_3 + \frac{1}{C_3 s}, \ \frac{1}{C_4 s}, \ R_5, \ \frac{1}{C_6 s}\right)
                                                            H(s) = \frac{C_2C_3R_2s + C_3}{C_1C_2C_3C_4C_6R_2R_3R_5s^4 - C_1C_6s + s^3\left(-C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5 + C_1C_3C_4C_6R_3R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}
9.1200 X-INVALID-ORDER-1200 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_2C_3C_6R_2R_6s^2 + C_3 + s\left(C_2C_3R_2 + C_3C_6R_6\right)}{C_1C_2C_3C_4C_6R_2R_3R_5s^4 - C_1C_6s + s^3\left(-C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5 + C_1C_3C_4C_6R_3R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$ 

```
9.1201 X-INVALID-ORDER-1201 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3R_2R_6s + C_3R_6}{C_1C_2C_3C_4C_6R_2R_3R_5R_6s^4 - C_1 + s^3\left(C_1C_2C_3C_4R_2R_3R_5 - C_1C_2C_3C_6R_2R_3R_6 + C_1C_2C_3C_6R_2R_5R_6 + C_1C_2C_4C_6R_2R_5R_6 + C_1C_2C_4R_3R_5R_6\right) + s^2\left(-C_1C_2C_3R_2R_3 + C_1C_2C_3R_2R_5 + C_1C_2C_3R_3R_5 + C_1C_2C_4R_2R_5 - C_1C_2C_4R_2R_5 + C_1C_2C_3R_3R_5 + C_1C_2
9.1202 X-INVALID-ORDER-1202 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                       H(s) = \frac{C_2C_3C_5R_2s + C_3C_5}{s^3\left(C_1C_2C_3C_4C_6R_2R_3 - C_1C_2C_3C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_3C_6R_2 + C_1C_2C_3C_6R_3 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_2 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_3\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}
9.1203 X-INVALID-ORDER-1203 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                       H(s) = \frac{C_2C_3C_5C_6R_2R_6s^2 + C_3C_5 + s\left(C_2C_3C_5R_2 + C_3C_5C_6R_6\right)}{s^3\left(C_1C_2C_3C_4C_6R_2R_3 - C_1C_2C_3C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_3C_6R_2 + C_1C_2C_3C_6R_3 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_2 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_3\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}
9.1204 X-INVALID-ORDER-1204 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3C_5R_2R_6s + C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(C_1C_2C_3C_4C_6R_2R_3R_6 - C_1C_2C_3C_5R_2R_3 + C_1C_2C_3C_5R_2R_3 + C_1C_2C_3C_6R_2R_6 + C_1C_3C_4C_6R_2R_6 + C_1C_3C_4C_6R_2R_6 + C_1C_3C_4C_6R_4 + C_1C_3C_5C_6R_4 + C_
9.1205 X-INVALID-ORDER-1205 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_2C_3C_5R_2R_6s + C_3C_5R_6}{C_1C_2C_3C_4C_5R_2R_3R_5s^3 + C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_2R_3 - C_1C_2C_3C_5R_2R_3 + C_1C_2C_3C_5R_2R_5 + C_1C_2C_4C_5R_2R_5 + C_1C_2C_4C_5R_3R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_2 - C_1C_2C_5R_2 + C_1C_2C_5R_5 + C_1C_2C_3C_5R_3R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_4R_2 - C_1C_2C_5R_3 + C_1C_2C_3C_5R_3R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3C_5R_3R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3C_5R_3 + C_1C_2C_3C_5R_3R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3C_5R_3 + C_1C_2C_3C_5R_3R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3C_5R_3 + C_1C_2C_3C_5R_3R_5\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3R_3\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3R_3 + C_1C_2C_3R_3\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_3R_3\right) 
9.1206 X-INVALID-ORDER-1206 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
9.1207 X-INVALID-ORDER-1207 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
9.1208 X-INVALID-ORDER-1208 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

**9.1209** X-INVALID-ORDER-1209  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_2R_5R_6s^2 + C_3R_6 + s\left(C_2C_3R_2R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_4R_2R_3R_5 - C_1C_2C_3C_5R_2R_3R_5\right) + s^2\left(-C_1C_2C_3R_2R_3 + C_1C_2C_3R_2R_5 + C_1C_2C_4R_2R_5 - C_1C_2C_5R_2R_5 + C_1C_3C_4R_3R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 - C_1C_3R_3 + C_1C_3R_5 + C_1C_3R_5 + C_1C_3R_5\right)}$ 

**9.1210** X-INVALID-ORDER-1210  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_2R_5s^2 + C_3 + s\left(C_2C_3R_2 + C_3C_5R_5\right)}{-C_1C_6s + s^4\left(C_1C_2C_3C_4C_6R_2R_3R_5 - C_1C_2C_3C_5C_6R_2R_3R_5\right) + s^3\left(-C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_4C_6R_2R_5 - C_1C_3C_4C_6R_3R_5 - C_1C_3C_5C_6R_3R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_5 + C_1C_3C_6R_5$ 

```
9.1211 X-INVALID-ORDER-1211 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_2R_5R_6s^3 + C_3 + s^2\left(C_2C_3C_5R_2R_5 + C_2C_3C_6R_2R_6 + C_3C_5C_6R_5R_6\right) + s\left(C_2C_3R_2 + C_3C_5R_5 + C_3C_6R_6\right)}{-C_1C_6s + s^4\left(C_1C_2C_3C_4C_6R_2R_3 + C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_2R_5 + C_1C_3C_4C_6R_3R_5 - C_1C_3C_5C_6R_3R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_3
9.1212 X-INVALID-ORDER-1212 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1 + s^4 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_5 R_6 - C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6\right) + s^3 \left(C_1 C_2 C_3 C_4 R_2 R_3 R_5 - C_1 C_2 C_3 C_5 R_2 R_3 R_5 - C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_5 R_6 + C_1 C_2 C_3 C_6 R_2 R_5 R_6 - C_1 C_2 C_5 C_6 R_2 R_5 R_6 + C_1 C_2 C_3 C_6 R_5 R_5 R_6 + C_1 C_2 C_5 C_6 R_
9.1213 X-INVALID-ORDER-1213 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C_2C_3C_4R_2R_4R_6s^2 + C_3R_6 + s\left(C_2C_3R_2R_6 + C_3C_4R_4R_6\right)
H(s) = \frac{C_2C_3C_4R_2R_4R_6s^2 + C_3R_6 + s\left(C_2C_3R_2R_6 + C_3C_4R_4R_6\right)}{-C_1 + s^3\left(-C_1C_2C_3C_4R_2R_3R_4 + C_1C_2C_3C_4R_2R_3R_5 + C_1C_2C_3R_2R_3 + C_1C_2C_3R_2R_3 + C_1C_2C_3R_2R_5 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_2R_5 + C_1C_2C_4R_4R_5 - C_1C_3C_4R_3R_4 + C_1C_3C_4R_3R_5 +
9.1214 X-INVALID-ORDER-1214 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C_2C_3C_4R_2R_4s^2 + C_3 + s\left(C_2C_3R_2 + C_3C_4R_4\right)
H(s) = \frac{C_2C_3C_4R_2R_4s^2 + C_3 + s\left(C_2C_3R_2 + C_3C_4R_4\right)}{-C_1C_6s + s^4\left(-C_1C_2C_3C_4C_6R_2R_3R_4 + C_1C_2C_3C_4C_6R_2R_3 + C_1C_2C_3C_4C_6R_2R_3 + C_1C_2C_3C_4C_6R_2R_3 + C_1C_2C_3C_4C_6R_2R_4 + C_1C_2C_3C_4C_6R_4 + C_1C_2C_3C_4C
9.1215 X-INVALID-ORDER-1215 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_2C_3C_4C_6R_2R_4R_6s^3 + C_3 + s^2(C_2C_3C_4R_2R_4 + C_2C_3C_6R_2R_6 + C_3C_4C_6R_4R_6) + s(C_2C_3R_2 + C_3C_4R_4 + C_3C_4R_6) + s(C_2C_3R_4 + C_3C_4R_4 + C_3
H(s) = \frac{C_2C_3C_4C_6R_2R_4R_6s^3 + C_3 + s^2\left(C_2C_3C_4R_2R_4 + C_2C_3C_6R_2R_6 + C_3C_4C_6R_4R_6\right) + s\left(C_2C_3R_2 + C_3C_4R_4 + C_3C_4C_6R_2R_4 + C_3C_4C_6R_4R_4 + C_3C_4
9.1216 X-INVALID-ORDER-1216 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1 + s^4 \left(-C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_3 R_4 R_5 R_6 \right) + s^3 \left(-C_1 C_2 C_3 C_4 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_5 R_5 + C_1 C_2 C_3 C_4 R_5
9.1217 X-INVALID-ORDER-1217 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_2C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_6 + s(C_2C_3C_5R_2R_6 + C_3C_4C_5R_4R_6)
H(s) = \frac{C_2C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_6 + s\left(C_2C_3C_5R_2R_6 + C_3C_4C_5R_4R_6\right)}{-C_1C_2C_3C_4C_5R_2R_3R_4s^3 + C_1C_2 + C_1C_3 + c_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_2R_4 + C_1C_2C_3C_4R_3R_4 - C_1C_2C_3C_5R_2R_4 - C_1C_3C_4C_5R_3R_4\right) + s\left(C_1C_2C_3R_3 + C_1C_2C_4R_2 + C_1C_2C_4R_4 - C_1C_2C_5R_2 + C_1C_2C_3C_4R_3R_4 - C_1C_2C_3C_4R_4 - C_1C
```

9.1218 X-INVALID-ORDER-1218 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

**9.1219** X-INVALID-ORDER-1219 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_2C_3C_4C_5C_6R_2R_4R_6s^3 + C_3C_5 + s^2\left(C_2C_3C_4C_5R_2R_4 + C_2C_3C_5C_6R_2R_6 + C_3C_4C_5C_6R_4R_6\right) + s\left(C_2C_3C_5R_2 + C_3C_4C_5R_4 + C_3C_5C_6R_2R_4 + C_3C_4C_5R_4 +$ 

**9.1220** X-INVALID-ORDER-1220 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{-C_1C_2C_3C_4C_5C_6R_2R_3R_4R_6s^4 + C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(-C_1C_2C_3C_4C_6R_2R_3R_6 + C_1C_2C_3C_4C_6R_2R_4R_6 + C_1C_2C_3C_4C_6R_2R_4R_6 - C_1C_2C_4C_5C_6R_4R_4R_6 - C_1$ 

- **9.1221** X-INVALID-ORDER-1221  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{1}{C_1C_2 + C_1C_3 + C_1C_4 C_1C_5 + C_2C_3 + s^3\left(-C_1C_2C_3C_4C_5R_2R_3R_4 + C_1C_2C_3C_4C_5R_2R_3R_5 + C_1C_2C_3C_4C_5R_2R_4R_5 + C_1C_2C_3C_4R_2R_4 + C_1C_2C_3C_4R_2R_4 + C_1C_2C_3C_4R_3R_4 C_1C_2C_3C_4R_3R_4 + C_1C_2C_3C$
- **9.1222** X-INVALID-ORDER-1222  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{s^4 \left(-C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 C_6 R_3 R_4 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_3 + C_1 C_2 C_3 C_4 C_6 R_2 R_3 + C_1 C_2 C_3 C_5 C_6 R_3 R_4 + C_1 C$
- **9.1223** X-INVALID-ORDER-1223  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{s^4 \left(-C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 C_6 R_3 R_4 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_4 + C_1 C_2 C_3 C_4 C_6 R_2 R_4 + C_1 C_2 C_3 C_5 C_6 R_2 R_3 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_4 + C_1 C_2 C_3 C_4 C_6 R_2 R_4 + C_1 C_2 C_3 C_5 C_6 R_2 R_3 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_4 + C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_4 + C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_5 C_5 C_6 R_2 R_5\right) + s^3 \left(C_1 C_2 C_5 C_5$
- 9.1224 X-INVALID-ORDER-1224  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- **9.1225** X-INVALID-ORDER-1225  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_2R_4R_5R_6s^3 + C_3R_6 + s^2\left(C_2C_3C_4R_2R_4R_6 + C_2C_3C_5R_2R_5R_6 + C_3C_4C_5R_2R_3R_4R_5s^4 C_1 + s^3\left(-C_1C_2C_3C_4R_2R_3R_4 + C_1C_2C_3C_4R_2R_4R_5 + C_1C_2C_3C_4R_2R_4R_5 C_1C_2C_4C_5R_2R_4R_5 C_1C_2C_4C_5R_2R_4R_5 C_1C_2C_3R_2R_3 + C_1C_2C_3R_3R_3 + C_1C_2C_$
- **9.1226** X-INVALID-ORDER-1226  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_2R_3R_4R_5s^5}{-C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5s^5 C_1C_6s + s^4\left(-C_1C_2C_3C_4C_6R_2R_3R_4 + C_1C_2C_3C_4C_6R_2R_3R_5 + C_1C_2C_3C_4C_6R_2R_4R_5 C_1C_2C_3C_4C_5R_2R_4R_5 C_1C_2C_4C_5C_6R_2R_4R_5 C_1C_2C_4C_5C_6R_2R_4R_5 C_1C_2C_3C_4C_6R_3R_4R_5) + s^3\left(-C_1C_2C_3C_4C_6R_2R_3R_4 + C_1C_2C_3C_4C_6R_2R_4R_5 + C_1C_2C_3C_4C_6R_2R_4R_5 C_$
- **9.1227** X-INVALID-ORDER-1227  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5C_6R_2R_4R_5R_6s^4 + C_3 + s^3\left(C_2C_3C_4C_5R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_6 + C_2C_3C_5C_6R_2R_5R_6s^4 + C_3 + s^3\left(C_2C_3C_4C_5R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_6 + C_2C_3C_5C_6R_2R_5R_6s^4 + C_3 + s^3\left(C_2C_3C_4C_5R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R$
- 9.1228 X-INVALID-ORDER-1228  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{-C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5R_6s^5 C_1 + s^4\left(-C_1C_2C_3C_4C_5R_2R_3R_4R_5 C_1C_2C_3C_4C_6R_2R_3R_5R_6 + C_1C_2C_3C_4C_6R_2R_4R_5R_6 + C_1C_2C_3C_4C_6R_2R_3R_4R_5R_6 C_1C_2C_3C_4C_5R_2R_3R_5R_6 C_1C_2C_3C_4C_5R_2R_3R_4R_5 C_1C_2C_3C_4C_6R_2R_3R_4R_5 C_1C_2C_3C_4C_6R_2R_4R_5R_5 C_1C_2C_3C_4C_5R_5R_5 C_1C_2C_3C_4C_5R_5R_5 C_1C_2C_3C_4C_5R_5R_5R_5 C_1C_2C_3C_4C_5R_5R_5R_5 C_1C_2C_3C_4C_5R_5R_5R_5 C_1C_2C_3C_4C_5R_5R_5R_5 C_1C_2C_3C_5C_5R_5R_5R_5 C_1C_2C_3C_5C_5R_5R_5R_5 C_1C_2C_3C_5C_5R_5R_5R_5 C_1C_3C_5C_5R_5R_5R_5 C_1C_3C_5C_5R_5R_5R_5 C_1C_3C_5C_5R_5R_5R_5R_5 C_1C_3C_5C_5R_5R_5R_5 C_1C_3C_5C_5R_5R_5R_5R_5 C_1C_3C_5C_5R_5R_5R_5 C_1$
- **9.1229** X-INVALID-ORDER-1229  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$
- $H(s) = \frac{C_2C_3R_2R_4R_6s + C_3R_4R_6}{C_1C_2C_3C_4R_2R_3R_4R_5s^3 C_1R_4 + C_1R_5 + s^2\left(-C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_3R_5 + C_1C_2C_3R_2R_4R_5 + C_1C_2C_4R_2R_4R_5 + C_1C_2C_4R_2R_4R_5 + C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_3R_3R_4 + C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R$
- **9.1230** X-INVALID-ORDER-1230  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3R_2R_4s + C_3R_4}{C_1C_2C_3C_4C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R$

```
9.1231 X-INVALID-ORDER-1231 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_2C_3C_6R_2R_4R_6s^2 + C_3R_4 + s\left(C_2C_3R_2R_4 + C_3C_6R_4R_6\right)}{C_1C_2C_3C_4C_6R_2R_3R_4 + S^2\left(-C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_2R_4 + C_1$ 

- **9.1232** X-INVALID-ORDER-1232  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$
- **9.1233** X-INVALID-ORDER-1233  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_4R_2R_3R_4 C_1C_2C_3C_5R_2R_3R_4\right) + s^2\left(C_1C_2C_3R_2R_3 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_4R_2R_4 C_1C_3C_5R_3R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 + C_1C_5R_4 + C_2C_3R_4\right)}$
- **9.1234** X-INVALID-ORDER-1234  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_5R_2R_4s + C_3C_5R_4}{C_1C_6 + s^3\left(C_1C_2C_3C_4C_6R_2R_3R_4 C_1C_2C_3C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_3R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_$
- **9.1235** X-INVALID-ORDER-1235  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_5C_6R_2R_4R_6s^2 + C_3C_5R_4 + s\left(C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_4C_6R_2R_3R_4 C_1C_2C_3C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 +$
- **9.1236** X-INVALID-ORDER-1236  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{C_1 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_2 R_3 R_4 C_1 C_2 C_3 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_2 R_4 R_6 + C_1 C_2 C_3 C$
- **9.1237** X-INVALID-ORDER-1237  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{C_2C_3C_5R_2R_4R_6s^2 + C_3C_3C_5R_2R_4R_6s^2 + C_3C_3C_5R_2R_4R_5 + C_1C_2C_3C_5R_2R_4R_5 + C_1C_2C_3C_5R_2R_4R_5$
- **9.1238** X-INVALID-ORDER-1238  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- **9.1239** X-INVALID-ORDER-1239  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C}{C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5s^4 + C_1C_6 + s^3\left(C_1C_2C_3C_4C_6R_2R_3R_4 C_1C_2C_3C_5C_6R_2R_3R_5 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_$
- **9.1240** X-INVALID-ORDER-1240  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

```
9.1241 X-INVALID-ORDER-1241 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_2C_3C_5R_2R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_4R_2R_3R_4R_5 - C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_4R_5 + C_1C_2C_3R_2R_4
9.1242 X-INVALID-ORDER-1242 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5R_2R_4R_5s^2 + C_3R_4 + s\left(C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}{s^4\left(C_1C_2C_3C_4C_6R_2R_3R_4R_5 - C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_3C_6R
9.1243 X-INVALID-ORDER-1243 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_2R_4R_5R_6s^3 + C_3R_4 + s^2\left(C_2C_3C_5R_2R_4R_5 + C_2C_3C_6R_2R_4R_6 + C_3C_5C_6R_4R_5R_6\right) + s\left(C_2C_3R_2R_4 + C_3C_5C_6R_2R_4R_5 + C_3C_5C_6R_4R_5 + C_3C_5
```

**9.1244** X-INVALID-ORDER-1244  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ R_3 + \frac{1}{C_3 s}, \ \frac{R_4}{C_4 R_4 s + 1}, \ \frac{R_5}{C_5 R_5 s + 1}, \ \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-C_1R_4 + C_1R_5 + s^4 \left(C_1C_2C_3C_4C_6R_2R_3R_4R_5R_6 - C_1C_2C_3C_5R_2R_3R_4R_5 - C_1C_2C_3C_5R_2R_3R_4R_5 - C_1C_2C_3C_6R_2R_3R_4R_5 - C_1C_2C_3C_4R_2R_3R_4R_5 - C_1C_2C_3C_4R_2R_3R_4R_5 - C_1C_2C_3C_4R_2R_3R_4R_5 - C_1C_2C_3C_4R_2R_3R_4R_5 - C_1C_2C_3C_4R_2R_3R_4R_5 - C_1C_2C_3C_4R_4R_5R_5 - C_1C_2C_3C_4R_4R_5R_5 - C_1C_2C_3C_4R_4R_5R_5 - C_1C_2C_3C_4R_4R_5R_5 - C_1C_2C_3C_4R_4R_5$ 

**9.1245** X-INVALID-ORDER-1245  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$ 

 $H(s) = \frac{C_2C_3R_2R_3R_4R_6s^2 + R_4R_6 + s\left(C_2R_2R_4R_6 + C_3R_3R_4R_6\right)}{C_1C_2C_3R_2R_3R_4R_5s^3 + s^2\left(-C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ 

**9.1246** X-INVALID-ORDER-1246  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3R_2R_3R_4s^2 + R_4 + s\left(C_2R_2R_4 + C_3R_3R_4\right)}{C_1C_2C_3C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1247** X-INVALID-ORDER-1247  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_6R_2R_3R_4R_6s^3 + R_4 + s^2\left(C_2C_3R_2R_3R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_2R_4 + C_3R_3R_4 + C_6R_4R_6\right)}{C_1C_2C_3C_6R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1248** X-INVALID-ORDER-1248  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_2C_3R_2R_3R_4R_6s^2 + R_4R_6 + s\left(C_2R_2R_4R_6 + C_3R_3R_4R_6\right)$  $\frac{C_2C_3R_2R_3R_4R_6s^2 + R_4R_6 + s\left(C_2R_2R_4R_6 + C_3R_3R_4R_6\right)}{C_1C_2C_3C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6 + C_1C_2C_6R_3R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_2C$ 

**9.1249** X-INVALID-ORDER-1249  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_2R_3R_4s^2 + C_5R_4 + s\left(C_2C_5R_2R_4 + C_3C_5R_3R_4\right)}{s^3\left(C_1C_2C_3C_6R_2R_3R_4 - C_1C_2C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$ 

**9.1250** X-INVALID-ORDER-1250  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_2R_3R_4R_6s^3 + C_5R_4 + s^2\left(C_2C_3C_5R_2R_3R_4 + C_2C_5C_6R_2R_4R_6 + C_3C_5C_6R_3R_4R_6\right) + s\left(C_2C_5R_2R_4 + C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_3R_4 - C_1C_2C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3R_4 + C_2C_6R_4R_6\right)}$ 

```
9.1251 X-INVALID-ORDER-1251 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C_2C_3C_5R_2R_3R_4R_6s^2 + C_5R_4R_6 + s(C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6)
H(s) = \frac{C_2C_3C_5R_2R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_3C_6R_2R_3R_4R_6 - C_1C_2C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2C_3R_2R_3R_4 - C_1C_2C_5R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6\right) + s\left(C_1C_2C_3R_2R_3R_4 - C_1C_2C_5R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6\right) + s\left(C_1C_2C_3R_2R_3R_4 - C_1C_2C_5R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6\right) + s\left(C_1C_2C_3R_2R_3R_4 - C_1C_2C_5R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6
9.1252 X-INVALID-ORDER-1252 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_2C_3C_5R_2R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1C_2C_3C_5R_2R_3R_4R_5s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_2R_3R_4 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_2R_4R_5 + C_1C_2C_5R_3R_4R_5 + C_1C_3C_5R_3R_4R_5\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_3R_3R_4 +
9.1253 X-INVALID-ORDER-1253 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5R_2R_3R_4s^2 + C_5R_4 + s\left(C_2C_5R_2R_4 + C_3C_5R_3R_4\right)}{C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_3R_4R_5 + C_1C_2C_5C_6R_3R_4 + C_1C_2C_5C_6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_2C_3C_5R_2R_3R_4s^2 + C_5R_4 + s\left(C_2C_5R_2R_4 + C_3C_5R_3R_4\right)
```

**9.1254** X-INVALID-ORDER-1254  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_2R_3R_4R_6s^3 + C_5R_4 + s^2\left(C_2C_3C_5R_2R_3R_4 + C_2C_5C_6R_2R_4R_6 + C_3C_5C_6R_3R_4R_6\right) + s\left(C_2C_5R_2R_4 + C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{C_1C_2C_3C_5C_6R_2R_3R_4R_5s^4 + s^3\left(C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_2C_6R_3R_4 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_3R_4 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_3R_4 + C_1C_2C_6R_3R_4 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_3R_4 + C_1C_2C_6R_3R_4$ 

**9.1255** X-INVALID-ORDER-1255  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1256** X-INVALID-ORDER-1256  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_2R_3R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_2C_3R_2R_3R_4R_6 + C_2C_5R_2R_4R_5R_6 + C_3C_5R_3R_4R_5R_6\right) + s\left(C_2R_2R_4R_6 + C_3R_3R_4R_6 + C_5R_4R_5R_6\right)}{s^3\left(C_1C_2C_3R_2R_3R_4R_5 - C_1C_2C_5R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 - C_1C_5R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ 

**9.1257** X-INVALID-ORDER-1257  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_2R_3R_4R_5s^3 + R_4 + s^2\left(C_2C_3R_2R_3R_4 + C_2C_5R_2R_4R_5 + C_3C_5R_3R_4R_5\right) + s\left(C_2R_2R_4 + C_3R_3R_4 + C_5R_4R_5\right)}{s^4\left(C_1C_2C_3C_6R_2R_3R_4R_5 - C_1C_2C_5C_6R_2R_3R_4R_5\right) + s^3\left(-C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_1C_5C_6R_3R_4R_5 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_5R_5 + C_1C_5$ 

**9.1258** X-INVALID-ORDER-1258  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_2R_3R_4R_5R_6s^4 + R_4 + s^3\left(C_2C_3C_5R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 + C_2C_5C_6R_2R_4R_5R_6 + C_3C_5C_6R_2R_4R_5 + C_2C_5R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_$ 

**9.1259** X-INVALID-ORDER-1259  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_2C_3C_5R_2R_3R_4R_5R_6s^3 + R_4R_6 + s^2(C_2C_3R_2R_3R_4R_6 + C_2C_5R_2R_4R_5R_6 + C_3R_3R_4R_6 + C_3R_3R_4R_5R_6 + C_3R_3R_5R_5 + C_3R_3R_5R_5 + C_3R_5R_5R_5 + C_3R_5R_5 + C_3R_5 + C_3R_5R_5 + C_3R_5R_5 + C_5R_5 + C_5$ 

 $H(s) = \frac{C_2C_3C_5R_2R_3R_4R_5R_6 - C_1C_2C_5C_6R_2R_3R_4R_5R_6 + C_1C_2C_5R_2R_3R_4R_5 + C_2C_5R_2R_3R_4R_5 + C$ 

**9.1260** X-INVALID-ORDER-1260  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_2C_3R_2R_3R_6s^2 + R_6 + s\left(C_2R_2R_6 + C_3R_3R_6\right)}{s^3\left(C_1C_2C_3R_2R_3R_5 + C_1C_2C_4R_2R_3R_5\right) + s^2\left(-C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_2R_3R_5 + C_1C_3R_3R_5 + C_1C_4R_3R_5 + C_2C_3R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ 

**9.1262** X-INVALID-ORDER-1262  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_6R_2R_3R_6s^3 + s^2\left(C_2C_3R_2R_3 + C_2C_6R_2R_6 + C_3C_6R_3R_6\right) + s\left(C_2R_2 + C_3R_3 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ **9.1263** X-INVALID-ORDER-1263  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ **9.1264** X-INVALID-ORDER-1264  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{R_3}{C_3 R_3 s + 1}, \ \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5R_2R_3s^2 + C_5 + s\left(C_2C_5R_2 + C_3C_5R_3\right)}{s^3\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_4C_6R_2R_3 - C_1C_2C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_2C_3C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}$ **9.1265** X-INVALID-ORDER-1265  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5C_6R_2R_3R_6s^3 + C_5 + s^2\left(C_2C_3C_5R_2R_3 + C_2C_5C_6R_2R_6 + C_3C_5C_6R_3R_6\right) + s\left(C_2C_5R_2 + C_3C_5R_3 + C_5C_6R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_4C_6R_2R_3 - C_1C_2C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_2C_3C_6R_3\right) + s\left(C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3\right) + s\left(C_1C_4C_6R_3 + C_1C_4C_6R_3 + C$ **9.1266** X-INVALID-ORDER-1266  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_2C_3C_5R_2R_3R_6s^2 + C_5R_6 + s\left(C_2C_5R_2R_6 + C_3C_5R_3R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_3C_6R_2R_3R_6 + C_1C_2C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_2C_3R_2R_3 + C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3 + C_1C_2C_6R_3R_6 + C_1C_3C_6R_3R_6 + C_1C_4C_6R_3R_6 + C_1C_4$ **9.1267** X-INVALID-ORDER-1267  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_2C_3C_5R_2R_3R_6s^2 + C_5R_6 + s\left(C_2C_5R_2R_6 + C_3C_5R_3R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_3C_5R_2R_3R_5 + C_1C_2C_4C_5R_2R_3 + C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_3R_5 + C_1C_4C_5R_3R_5 + C_1C_4C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 + C$ **9.1268** X-INVALID-ORDER-1268  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_2C_3C_5R_2R_3s^2 + C_5 + s\left(C_2C_5R_2 + C_3C_5R_3\right)}{s^4\left(C_1C_2C_3C_5C_6R_2R_3R_5 + C_1C_2C_4C_5R_2R_3R_5\right) + s^3\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_5C_6R_2R_3 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_2C_5C_6R_2R_3 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_1C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_5C_5C_5C_5C_5C_5C_$ **9.1269** X-INVALID-ORDER-1269  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{R_3}{C_3 R_3 s + 1}, \ \frac{1}{C_4 s}, \ R_5 + \frac{1}{C_5 s}, \ R_6 + \frac{1}{C_6 s}\right)$ **9.1270** X-INVALID-ORDER-1270  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 337

 $H(s) = \frac{C_2C_3R_2R_3s^2 + s\left(C_2R_2 + C_3R_3\right) + 1}{s^4\left(C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3R_5\right) + s^3\left(-C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ 

**9.1261** X-INVALID-ORDER-1261  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

```
9.1271 X-INVALID-ORDER-1271 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                           H(s) = \frac{C_2C_3C_5R_2R_3R_5R_6s^3 + R_6 + s^2\left(C_2C_3R_2R_3R_6 + C_2C_5R_2R_5R_6 + C_3C_5R_3R_5R_6\right) + s\left(C_2R_2R_6 + C_3R_3R_6 + C_5R_5R_6\right)}{s^3\left(C_1C_2C_3R_2R_3R_5 + C_1C_2C_4R_2R_3R_5 - C_1C_2C_5R_2R_3R_5\right) + s^2\left(-C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_2R_3R_5 + C_1C_4R_3R_5 - C_1C_5R_3R_5 + C_2C_3R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}
9.1272 X-INVALID-ORDER-1272 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                  H(s) = \frac{C_2C_3C_5R_2R_3R_5s^3 + s^2\left(C_2C_3R_2R_3 + C_2C_5R_2R_5 + C_3C_5R_3R_5\right) + s\left(C_2R_2 + C_3R_3 + C_5R_5\right) + 1}{s^4\left(C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3R_5 - C_1C_2C_5C_6R_2R_3R_5\right) + s^3\left(-C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 + C_1C_4
9.1273 X-INVALID-ORDER-1273 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                     H(s) = \frac{C_2C_3C_5C_6R_2R_3R_5R_6s^4 + s^3\left(C_2C_3C_5R_2R_3R_5 + C_2C_3C_6R_2R_3R_6 + C_2C_5C_6R_2R_5R_6 + C_3C_5C_6R_3R_5R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_5R_2R_5 + C_2C_6R_2R_6 + C_3C_5R_3R_5 + C_3C_6R_3R_6 + C_5C_6R_3R_6\right) + s\left(C_2R_2 + C_3R_3 + C_5R_5 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_3C_6R
9.1274 X-INVALID-ORDER-1274 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_{2}C_{3}C_{5}R_{2}R_{3}R_{5}R_{6}s^{3}+R_{6}+s^{2}\left(C_{2}C_{3}R_{2}R_{3}R_{6}+C_{2}C_{5}R_{2}R_{5}R_{6}+C_{3}C_{5}R_{3}R_{5}R_{6}\right)+s\left(C_{2}R_{2}R_{6}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}R_{5}R_{6}+C_{3}R_{5}R_{6}R_{6}+C_{3}R_{5}R_{6}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}R_{5}R_{6}+C_{3}
                                              \frac{C_2C_3C_5R_2R_3R_5R_6s^3 + R_6 + s^2\left(C_2C_3R_2R_3R_6 + C_2C_5R_2R_5R_6 + C_3C_5R_3R_5R_6\right) + s\left(C_2R_2R_6r_6\right)}{s^4\left(C_1C_2C_3C_6R_2R_3R_5R_6 + C_1C_2C_4R_2R_3R_5 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_6R_2R_3R_5R_6 + C_1C_2C
9.1275 X-INVALID-ORDER-1275 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
H(s) = \frac{C_2C_3C_4R_2R_3R_4R_6s^3 + R_6 + s^2\left(C_2C_3R_2R_3R_6 + C_2C_4R_2R_4R_6 + C_3C_4R_3R_4R_6\right) + s\left(C_2R_2R_6 + C_3R_3R_6 + C_4R_4R_6\right)}{C_1C_2C_3C_4R_2R_3R_4R_5s^4 + s^3\left(C_1C_2C_3R_2R_3R_5 - C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_5 + C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_3R_4R_5\right) + s^2\left(-C_1C_2R_2R_3 + C_1C_2R_2R_3 + C_1C_2R_3R_5 + C_1C_2R_3R
9.1276 X-INVALID-ORDER-1276 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_4R_2R_3R_4s^3 + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_3C_4R_3R_4\right) + s\left(C_2R_2 + C_3R_3 + C_4R_4\right) + 1}{C_1C_2C_3C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_4R_3R_5 + C_1C_2C_4C_4R_5 + C_1C_2C_4C_4R_5 + C_1C_2C_4C_4R_5 + C_1C_2C_4C_4C_4R_5 
9.1277 X-INVALID-ORDER-1277 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_2C_3C_4C_6R_2R_3R_4R_6s^4 + s^3\left(C_2C_3C_4R_2R_3R_4 + C_2C_3C_6R_2R_3R_6 + C_2C_4C_6R_2R_4R_6 + C_3C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_4 + C_3C_6R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_6R_2R_3R_4 + C_3C_6R_3R_4 + C_3C_4R_3R_4 +$ 

**9.1278** X-INVALID-ORDER-1278  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_2R_3R_4R_5R_6s^5 + s^4\left(C_1C_2C_3C_4R_2R_3R_4R_5 + C_1C_2C_3C_6R_2R_3R_5R_6 - C_1C_2C_4C_6R_2R_3R_5R_6 + C_1C_2C_4C_6R_2R_4R_5R_6 + C_1C_2C_4C_6R_3R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_5 + C_1C_3C_4C_6R_3R_4R_5R_5 + C_1C_3C_4C_6R_5R_5R_5 + C_1C_3C_4C_6R_5R_5R_5 + C_1C_3C_4C_6R_5R_5R_5 + C_$ 

**9.1279** X-INVALID-ORDER-1279  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5R_2R_3R_4R_6s^3 + C_5R_6 + s^2\left(C_2C_3C_5R_2R_3R_6 + C_2C_4C_5R_2R_4R_6 + C_3C_4C_5R_3R_4R_6\right) + s\left(C_2C_5R_2R_6 + C_3C_5R_3R_6 + C_4C_5R_4R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_3C_4R_2R_3R_4 - C_1C_2C_4R_2R_3 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_2R_4 + C_1C_2C_5R_2R_3 + C_1C_3C_4R_3R_4 - C_1C_4C_5R_3R_4 + C_2C_3C_4R_3R_4 + C_2C_3C_3C_4R_3R_4 + C_2C_3C_3C_4R_3R_4 + C_2C_3C_3C_4R_3R_4 + C_2C_3C_3C_4R_3R_4 + C_2C_3C_3C_3C_3C_3C_3C_3$ 

**9.1280** X-INVALID-ORDER-1280  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_2C_3C_4C_5R_2R_3R_4s^3 + C_5 + s^2\left(C_2C_3C_5R_2R_3 + C_2C_4C_5R_2R_4 + C_3C_4C_5R_3R_4\right) + s\left(C_2C_5R_2 + C_3C_5R_3 + C_4C_5R_4\right)}{s^4\left(C_1C_2C_3C_4C_6R_2R_3 + C_1C_2C_4C_6R_2R_3 + C_1C_2C_4C_6R_2R_4 + C_1C_2C_4C_6R_3R_4 - C_1C_2C_5C_6R_2R_3 + C_1C_3C_4C_6R_3R_4 + C_1C_2C_4C_6R_3R_4 + C_1C_4C_5C_6R_3R_4 + C_1C_4C_5C$ 

- **9.1281** X-INVALID-ORDER-1281  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5C_6R_2R_3R_4R_6s^4 + C_5 + s^3\left(C_2C_3C_4C_5R_2R_3R_4 + C_2C_3C_5C_6R_2R_3R_6 + C_2C_4C_5C_6R_2R_4R_6 + C_3C_4C_5C_6R_2R_3 + C_2C_4C_5R_2R_4 + C_2C_5C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_2C_5C_6R_2R_4 + C_3C_4C_5R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_5C_6R_3R_4 + C_3C_4C_5R_3R_4 + C_3C_5C_6R_2R_3 + C_3C_4C_5R_3R_4 + C_3C_5C_6R_2R_3 + C_3C_4C_5R_3R_4 + C_3C_4C_$
- **9.1282** X-INVALID-ORDER-1282  $Z(s) = \left(\frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{R_3}{C_3 R_3 s + 1}, \ R_4 + \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{C_1 + C_2 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_4 C_6 R_2 R_3 R_6 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_6 C_1 C_2 C_4 C_6 R_2 R_3 R_4 + C_1$
- **9.1283** X-INVALID-ORDER-1283  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_2R_3R_4R_6s^2 + C_5R_6s^2 + C$
- **9.1284** X-INVALID-ORDER-1284  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5s^5 + s^4\left(C_1C_2C_3C_4C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_4C_5C_6R_2R_3R_5 + C_1C_2C_4C_5C_6R_2R_3R_5 + C_1C_2C_4C_5C_6R_3R_4R_5 + C_1C_3C_4C_5C_6R_3R_4R_5 + C_1C_3C_4C_5C_6R_3R_4C_5C_6R_3R_4C_5C_6R_3R_4C_5C_6R_3R_4C_5C_6R_$
- **9.1285** X-INVALID-ORDER-1285  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5C_6R_2R_3R_4R_6s^4 + C_5 + s^3\left(C_2C_3C_4C_5R_2R_3R_4 + C_1C_2C_3C_4C_5R_2R_3R_4 + C_1C_2C_4C_5C_6R_2R_3R_5 + C_1C_2C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_$
- **9.1286** X-INVALID-ORDER-1286  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5R_6s^5 + C_1 + C_2 + s^4(C_1C_2C_3C_4C_5R_2R_3R_4R_5 + C_1C_2C_3C_4C_6R_2R_3R_4R_6 + C_1C_2C_4C_5C_6R_2R_3R_4R_6 + C_1C_2C_4C_5C_6R_2R_4R_5R_4C_5C_6R_2R_4R_5C_6R_2R_4R_5C_6R_2R_4R_5C_6R_2R_4R_5C_6R_2R_4R_5C_6R_5C_6R_5R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5$
- **9.1287** X-INVALID-ORDER-1287  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_2R_3R_4R_5R_6s^4 + R_6 + s^3\left(C_2C_3C_4R_2R_3R_4R_6 + C_2C_4C_5R_2R_4R_5R_6 + C_3C_4C_5R_3R_4R_5R_6\right) + s^2\left(C_2C_3R_2R_3R_6 + C_2C_4R_2R_4R_6 + C_2C_5R_2R_5R_6 + C_3C_4R_3R_4R_6\right) + s^2\left(C_2C_3R_2R_3R_6 + C_2C_4R_2R_4R_6 + C_2C_5R_2R_3R_6 + C_2C_4R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_3R_6 + C_2C_4R_2R_4R_6 + C_2C_4R_2R_4R_6 + C_2C_4R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_3R_6 + C_2C_4R_2R_4R_6 + C_2C_5R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_3R_6 + C_2C_4R_2R_4R_6 + C_2C_5R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_3R_4R_6 + C_2C_4R_2R_4R_6 + C_2C_4R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_3R_4R_6 + C_2C_4R_2R_4R_6 + C_2C_4R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_3R_4R_6 + C_2C_4R_2R_4R_6 + C_2C_4R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_3R_4R_6 + C_2C_4R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_4R_4R_6 + C_2C_4R_2R_4R_6\right) + s^2\left(C_2C_3R_2R_4R_4R_6 + C_2C_4R_2R_4R_6\right) + s^2\left(C_2C_4R_2R_4R_4R_6 + C_2C_4R_4R_4R_6\right) + s^2\left(C_2C_4R_3R_4R_6\right) + s^2\left(C_2C$
- **9.1288** X-INVALID-ORDER-1288  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_2R_3R_4R_5s^4 + s^3\left(C_2C_3C_4R_2R_3R_4 + C_2C_3C_5R_2R_3R_5 + C_2C_4C_5R_2R_4R_5 + C_3C_4C_5R_3R_4R_5\right) + s^2\left(C_2C_3R_2R_3 + C_2C_4R_2R_4 + C_2C_3C_5R_2R_3R_5 + C_2C_4C_5R_2R_3R_4 + C_2C_3C_4C_5R_2R_3R_4 + C_2C_4C_5R_2R_3R_4 + C_2C_4C_5R_2R_4R_5 + C_2C_4C_5R_3R_4R_5 + C_2C_4C$
- **9.1289** X-INVALID-ORDER-1289  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5C_6R_2R_3R_4R_5R_6s^5 + s^4\left(C_2C_3C_4C_5R_2R_3R_4R_5 + C_2C_3C_4C_6R_2R_3R_4R_6 + C_2C_3C_5C_6R_2R_3R_5R_6 + C_2C_4C_5C_6R_2R_4R_5R_6 + C_3C_4C_5C_6R_2R_4R_5R_6 + C_3C_4C_5C_6R_2R_3R_4 + C_2C_3C_5R_2R_3R_5 + C_2C_3C_6R_2R_3R_6 + C_2C_4C_5R_2R_4R_5 + C_2C_4C_6R_2R_4R_5 + C_2C_4C_6R_2R_3R_4 + C_2C_3C_5R_2R_3R_5 + C_2C_3C_6R_2R_3R_6 + C_2C_4C_5R_2R_4R_5 + C_2C_4C_6R_2R_3R_4 + C_2C_3C_5R_2R_3R_5 + C_2C_3C_6R_2R_3R_6 + C_2C_4C_5R_2R_3R_4 + C_2C_3C_5R_2R_3R_5 + C_2C_3C_6R_2R_3R_4 + C_2C_3C_$
- **9.1290** X-INVALID-ORDER-1290  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_5 R_6 C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 C_1 C_2 C_4 C_6 R_2 R_4 R_5 R_6 C_1 C_2 C_4 C_6 R_4 R_4 R_5$

```
H(s) = \frac{C_2C_3R_2R_3R_4R_6s^2 + R_4R_6 + s\left(C_2R_2R_4R_6 + C_3R_3R_4R_6\right)}{s^3\left(C_1C_2C_3R_2R_3R_4R_5 + C_1C_2C_4R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_4R_3R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}
9.1292 X-INVALID-ORDER-1292 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3R_2R_3R_4s^2 + R_4 + s\left(C_2R_2R_4 + C_3R_3R_4\right)}{s^4\left(C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R
9.1293 X-INVALID-ORDER-1293 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_6R_2R_3R_4R_6s^3 + R_4 + s^2\left(C_2C_3R_2R_3R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_2R_2R_4 + C_3R_3R_4 + C_6R_4R_6\right)}{s^4\left(C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3
9.1294 X-INVALID-ORDER-1294 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_2C_3R_2R_3R_4R_6s^2 + R_4R_6 + s(C_2R_2R_3R_4R_6s^2 + R_4R_6 + s(C_2R_2R_4R_6s^2 + R_4R_6s^2 + R_5R_6s^2 + R_5R_6s^
                                          \frac{C_2C_3R_2R_3R_4R_6s^2 + R_4R_6 + s\left(C_2R_2R_3R_4R_5R_6 + C_1C_2C_4R_2R_3R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_5R_5 + C_1C_2C_
9.1295 X-INVALID-ORDER-1295 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                       H(s) = \frac{C_2C_3C_5R_2R_3R_4s^2 + C_5R_4 + s\left(C_2C_5R_2R_4 + C_3C_5R_3R_4\right)}{s^3\left(C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_4 - C_1C_2C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_4 + C_1
9.1296 X-INVALID-ORDER-1296 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                       H(s) = \frac{C_2C_3C_5C_6R_2R_3R_4R_6s^3 + C_5R_4 + s^2\left(C_2C_3C_5R_2R_3R_4 + C_2C_5C_6R_2R_4R_6 + C_3C_5C_6R_3R_4R_6\right) + s\left(C_2C_5R_2R_4 + C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5
9.1297 X-INVALID-ORDER-1297 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3C_5R_2R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_3C_6R_2R_3R_4R_6 + C_1C_2C_5C_6R_2R_3R_4R_6 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_6R_2R_3R_6 + C_1C_2C_6R_2R_3R_4R_6 + C_1C_2C_6R_3R_4R_6 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_2C_3C_5R_2R_3R_4R_6s^2 + C_5R_4R_6 + s(C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6)
9.1298 X-INVALID-ORDER-1298 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_2C_3C_5R_2R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_3C_5R_2R_3R_4R_5 + C_1C_2C_4R_2R_3R_4 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_3R_4R_5 + C_1C_2C
9.1299 X-INVALID-ORDER-1299 Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & R_2 + \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{R_4}{C_4 R_4 s + 1}, & R_5 + \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C_2C_3C_5R_2R_3R_4s^2 + C_5R_4 + s(C_2C_5R_2R_4 + C_3C_5R_3R_4)
9.1300 X-INVALID-ORDER-1300 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

**9.1291** X-INVALID-ORDER-1291  $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $\frac{c_2c_3c_5c_6R_2R_3R_4R_6s + c_5R_4 + s + c_2c_3c_5c_6R_2R_3R_4R_6 + c_3c_5c_6R_2R_3R_4 + c_2c_5c_6R_2R_3R_4 + c_3c_5c_6R_3R_4R_6 +$ 

```
9.1301 X-INVALID-ORDER-1301 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1R_3 + C_1R_4 + C_2R_4 + s^4\left(C_1C_2C_3C_5C_6R_2R_3R_4R_5R_6 + C_1C_2C_4C_5R_2R_3R_4R_5 + C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_2C_4C_5R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4R_5 + C_1C_2C_4C_5C_6R_2R_3R_4R_5 + C_1C_2C_4C_5C_6R_2R_3R_4R_5 + C_1C_2C_4C_5C_6R_2R_3R_4R_5 + C_1C_2C_4C_5C_6R_2R_3R_4R_5 + C_1C_2C_4C_
9.1302 X-INVALID-ORDER-1302 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_2C_3C_5R_2R_3R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_2C_3R_2R_3R_4R_6 + C_2C_5R_2R_4R_5R_6 + C_3C_5R_3R_4R_5 + C_1C_2R_2R_4R_6 + C_3R_3R_4R_6 + C_5R_4R_5R_6\right)}{s^3\left(C_1C_2C_3R_2R_3R_4R_5 + C_1C_2C_4R_2R_3R_4R_5 + C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_4 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_3R_3R_
9.1303 X-INVALID-ORDER-1303 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5R_2R_3R_4R_5s^3 + R_4 + s^2\left(C_2C_3R_2R_3R_4 + C_2C_5R_2R_4R_5 + C_3C_5R_3R_4R_5\right) + s\left(C_2R_2R_4 + C_3R_3R_4 + C_5R_4R_5\right)}{s^4\left(C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_2C_4C_4R_4 + C_1C_2C_4C_4C_4R_4 + C_1C_2C_4C_4C_4R_4
9.1304 X-INVALID-ORDER-1304 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_3C_5C_6R_2R_3R_4R_5R_6s^4 + R_4 + s^3\left(C_2C_3C_5R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_6 + C_2C_5C_6R_2R_4R_5R_6 + C_3C_5C_6R_3R_4R_5 + C_2C_5R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_
9.1305 X-INVALID-ORDER-1305 Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)
H(s) = \frac{\frac{C_2C_3C_5R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 - C_1C_2C_5C_6R_2R_3R_4R_5 - C_1C_2C_5R_2R_3R_4R_5 - C_1C_2C_5R_2R_3R_4R_5 - C_1C_2C_6R_2R_3R_4R_5 - C_1C_2C_6R_2R_4R_5 - C_1C_2C_6R_2R_4R_5 - C_1C_2C_6R_2R_4R_5 - C_1C_2C_6R_2R_
9.1306 X-INVALID-ORDER-1306 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                            H(s) = \frac{R_2 R_4}{C_1 C_2 C_6 R_2 R_3 R_4 R_5 s^3 + C_6 R_4 R_5 s + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5 + C_2 C_6 R_2 R_4 R_5\right)}
9.1307 X-INVALID-ORDER-1307 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                            H(s) = \frac{C_6R_2R_4R_6s + R_2R_4}{C_1C_2C_6R_2R_3R_4R_5s^3 + C_6R_4R_5s + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5\right)}
9.1308 X-INVALID-ORDER-1308 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                           \frac{R_2R_4R_6}{C_1C_2C_6R_2R_3R_4R_5R_6s^3 + R_4R_5 + s^2\left(C_1C_2R_2R_3R_4R_5 - C_1C_6R_2R_3R_4R_6 + C_1C_6R_2R_3R_5R_6 + C_1C_6R_2R_4R_5R_6\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5 + C_1R_3R_4R_5 + C_1R_3R_5 + C_1R_3R_5 + C_1R_3R_5 + C_1R_3R_5 + C_1R_3R_5 + C_1R_3R
9.1309 X-INVALID-ORDER-1309 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                      H(s) = \frac{C_5 R_2 R_4 R_6 s}{R_4 + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_4 R_6 - C_1 C_5 C_6 R_2 R_3 R_4 R_6\right) + s^2 \left(C_1 C_2 R_2 R_3 R_4 - C_1 C_5 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_6 + C_1 C_6 R_2 R_4 R_6 + C_1 C_6 R_2 R_4 R_6\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_2 R_2 R_4 + C_6 R_4 R_6\right)}
```

9.1310 X-INVALID-ORDER-1310  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_5 R_2 R_4 R_6 s}{C_1 C_2 C_5 R_2 R_3 R_4 R_5 s^3 + R_4 + s^2 \left(C_1 C_2 R_2 R_3 R_4 - C_1 C_5 R_2 R_3 R_4 + C_1 C_5 R_2 R_3 R_5 + C_1 C_5 R_2 R_4 R_5 + C_1 C_5 R_3 R_4 R_5 + C_2 C_5 R_2 R_4 R_5\right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_2 R_2 R_4 + C_5 R_4 R_5\right)}$ 

**9.1311** X-INVALID-ORDER-1311  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_2 R_4}{C_1 C_2 C_5 C_6 R_2 R_3 R_4 R_5 s^3 + C_6 R_4 + s^2 \left(C_1 C_2 C_6 R_2 R_3 R_4 - C_1 C_5 C_6 R_2 R_3 R_4 + C_1 C_5 C_6 R_2 R_3 R_5 + C_1 C_5 C_6 R_2 R_4 R_5 + C_1 C_5 C_6 R_2 R_4 R_5 \right) + s \left(C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_4 + C_1 C_5 C_6 R_2 R_4 R_5 \right) + s \left(C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_4 R_5 + C_1 C_6 R_5 R_5$ 

**9.1312** X-INVALID-ORDER-1312  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_2R_4R_6s + C_5R_2R_4}{C_1C_2C_5C_6R_2R_3R_4R_5s^3 + C_6R_4 + s^2\left(C_1C_2C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_5 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_$ 

**9.1313** X-INVALID-ORDER-1313  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1314** X-INVALID-ORDER-1314  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_2 R_4 R_5 s + R_2 R_4}{C_6 R_4 R_5 s + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_4 R_5 - C_1 C_5 C_6 R_2 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5 + C_2 C_6 R_2 R_4 R_5\right)}$ 

**9.1315** X-INVALID-ORDER-1315  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_2R_4R_5R_6s^2 + R_2R_4 + s\left(C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5\right)}$ 

**9.1316** X-INVALID-ORDER-1316  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_5 R_2 R_4 R_5 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_4 R_5 R_6 - C_1 C_5 C_6 R_2 R_3 R_4 R_5 - C_1 C_5 R_2 R_3 R_4 R_5 - C_1 C_6 R_2 R_4 R_5 R_6 + C_1 C_6 R_2 R_4 R_5$ 

**9.1317** X-INVALID-ORDER-1317  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & R_3, & \frac{1}{C_4 s}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{R_2}{C_6R_5s + s^3\left(C_1C_2C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5\right)}$ 

**9.1318** X-INVALID-ORDER-1318  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_6R_2R_6s + R_2}{C_6R_5s + s^3\left(C_1C_2C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5\right)}$ 

**9.1319** X-INVALID-ORDER-1319  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{R_2 R_6}{R_5 + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_2 R_3 R_5 R_6\right) + s^2 \left(C_1 C_2 R_2 R_3 R_5 + C_1 C_4 R_2 R_3 R_5 - C_1 C_6 R_2 R_3 R_6 + C_1 C_6 R_2 R_5 R_6 + C_1 C_6 R_2 R_5 R_6\right) + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_2 R_2 R_5 + C_6 R_5 R_6\right)}$ 

**9.1320** X-INVALID-ORDER-1320  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & R_3, & \frac{1}{C_4 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$ 

 $H(s) = \frac{C_5 R_2 R_6 s}{s^3 \left(C_1 C_2 C_6 R_2 R_3 R_6 + C_1 C_4 C_6 R_2 R_3 R_6 - C_1 C_5 C_6 R_2 R_3 R_6\right) + s^2 \left(C_1 C_2 R_2 R_3 + C_1 C_4 R_2 R_3 - C_1 C_5 R_2 R_3 + C_1 C_6 R_2 R_6 + C_1 C_6 R_3 R_6 + C_2 C_6 R_2 R_6\right) + s \left(C_1 R_2 + C_1 R_3 + C_2 R_2 + C_6 R_6\right) + 1}$ 

**9.1321** X-INVALID-ORDER-1321  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_5 R_2 R_6 s}{s^3 \left(C_1 C_2 C_5 R_2 R_3 R_5 + C_1 C_4 C_5 R_2 R_3 R_5\right) + s^2 \left(C_1 C_2 R_2 R_3 + C_1 C_4 R_2 R_3 - C_1 C_5 R_2 R_3 + C_1 C_5 R_2 R_5 + C_1 C_5 R_3 R_5 + C_2 C_5 R_2 R_5\right) + s \left(C_1 R_2 + C_1 R_3 + C_2 R_2 + C_5 R_5\right) + 1}$$

**9.1322** X-INVALID-ORDER-1322  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_2}{C_6 + s^3 \left(C_1 C_2 C_5 C_6 R_2 R_3 R_5 + C_1 C_4 C_5 C_6 R_2 R_3 R_5\right) + s^2 \left(C_1 C_2 C_6 R_2 R_3 + C_1 C_4 C_6 R_2 R_3 + C_1 C_5 C_6 R_2 R_5 + C_1 C_5 C_6 R_2 R_5 + C_1 C_5 C_6 R_2 R_5\right) + s \left(C_1 C_6 R_2 + C_1 C_6 R_3 + C_2 C_6 R_2 + C_5 C_6 R_2\right)}$ 

**9.1323** X-INVALID-ORDER-1323  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_2R_6s + C_5R_2}{C_6 + s^3\left(C_1C_2C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2 + C_5C_6R_2\right)}$ 

**9.1324** X-INVALID-ORDER-1324  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_5 R_2 R_6 s}{s^4 \left(C_1 C_2 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_5 R_6\right) + s^3 \left(C_1 C_2 C_5 R_2 R_3 R_5 + C_1 C_2 C_6 R_2 R_3 R_6 + C_1 C_4 C_5 R_2 R_3 R_6 + C_1 C_5 C_6 R_$ 

**9.1325** X-INVALID-ORDER-1325  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & R_3, & \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_5 R_2 R_5 s + R_2}{C_6 R_5 s + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_5 + C_1 C_4 C_6 R_2 R_3 R_5 - C_1 C_5 C_6 R_2 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5 + C_2 C_6 R_2 R_5\right)}$$

**9.1326** X-INVALID-ORDER-1326  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_5C_6R_2R_5R_6s^2 + R_2 + s\left(C_5R_2R_5 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_2C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5\right)}$$

**9.1327** X-INVALID-ORDER-1327  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_5 R_2 R_5 R_6 s + R_2 R_6}{R_5 + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_2 R_3 R_5 R_6 - C_1 C_5 C_6 R_2 R_3 R_5 R_6 \right) + s^2 \left(C_1 C_2 R_2 R_3 R_5 + C_1 C_4 R_2 R_3 R_5 - C_1 C_5 R_2 R_3 R_5 - C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_5 + C_1 C_6 R_5 + C_1 C_6 R_5 R_5 + C_1 C_6$$

**9.1328** X-INVALID-ORDER-1328  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_4 R_2 R_4 R_6 s + R_2 R_6}{C_1 C_2 C_4 R_2 R_3 R_4 R_5 s^3 + R_5 + s^2 \left(C_1 C_2 R_2 R_3 R_5 - C_1 C_4 R_2 R_3 R_4 + C_1 C_4 R_2 R_3 R_5 + C_1 C_4 R_2 R_4 R_5 + C_1 C_4 R_2 R_4 R_5 \right) + s \left(-C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_2 R_2 R_5 + C_4 R_4 R_5 \right)}$$

**9.1329** X-INVALID-ORDER-1329  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4 R_2 R_4 s + R_2}{C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 s^4 + C_6 R_5 s + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_5 - C_1 C_4 C_6 R_2 R_3 R_4 + C_1 C_4 C_6 R_2 R_3 R_5 + C_1 C_4 C_6 R_2 R_4 R_5 + C_1 C_4 C_6 R_2 R_4 R_5 \right) + s^2 \left(-C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_2 R_5 + C_4 C_6 R_4 R_5 \right)}$$

**9.1330** X-INVALID-ORDER-1330  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_4C_6R_2R_4R_6s^2 + R_2 + s\left(C_4R_2R_4 + C_6R_2R_6\right)}{C_1C_2C_4C_6R_2R_3R_4R_5s^4 + C_6R_5s + s^3\left(C_1C_2C_6R_2R_3R_5 - C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5 + C_4C_6R_4R_5\right)}$$

**9.1331** X-INVALID-ORDER-1331  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_4 R_2 R_4 R_6 s + R_2 R_6}{C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 R_6 s^4 + R_5 + s^3 \left(C_1 C_2 C_4 R_2 R_3 R_4 R_5 + C_1 C_2 C_6 R_2 R_3 R_5 R_6 - C_1 C_4 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_2 R_4 R_5 R_6 + C_$ 

**9.1332** X-INVALID-ORDER-1332  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_2R_4R_6s^2 + C_5R_2R_6s}{s^3\left(C_1C_2C_4R_2R_3R_4 - C_1C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2R_2R_3 + C_1C_4R_2R_3 + C_1C_4R_2R_4 + C_1C_4R_3R_4 - C_1C_5R_2R_3 + C_2C_4R_2R_4\right) + s\left(C_1R_2 + C_1R_3 + C_2R_2 + C_4R_4\right) + 1}$ 

**9.1333** X-INVALID-ORDER-1333  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_2R_4s + C_5R_2}{C_6 + s^3\left(C_1C_2C_4C_6R_2R_3R_4 - C_1C_4C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_3 + C_2C_4C_6R_2R_4\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2 + C_4C_6R_4\right)}{c_6 + s^3\left(C_1C_2C_4C_6R_2R_3R_4 - C_1C_4C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_4\right) + s\left(C_1C_6R_2 + C_1C_6R_2 + C_1C_6R_2 + C_1C_6R_2\right)}$ 

**9.1334** X-INVALID-ORDER-1334  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5C_6R_2R_4R_6s^2 + C_5R_2 + s\left(C_4C_5R_2R_4 + C_5C_6R_2R_6\right)}{C_6 + s^3\left(C_1C_2C_4C_6R_2R_3R_4 - C_1C_4C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_2R_3 + C_2C_4C_6R_2R_4\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2 + C_4C_6R_4\right)}$ 

**9.1335** X-INVALID-ORDER-1335  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_4C_5R_2R_4R_6s^2 + C_5R_2R_6s}{s^4\left(C_1C_2C_4C_6R_2R_3R_4R_6 - C_1C_4C_5C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_6 + C_1C_4C_6R_2R_3R_6 + C_1C_4C_6R_2R_$ 

**9.1336** X-INVALID-ORDER-1336  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_2R_4R_6s^2 + C_5R_2R_6s}{C_1C_2C_4C_5R_2R_3R_4 + C_1C_2C_5R_2R_3R_5 - C_1C_4C_5R_2R_3R_5 + C_1C_4C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5 + C_1C_4R_2R_3 + C_1C_4R_2R_3 + C_1C_4R_2R_4 + C_1C_5R_2R_3 + C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5$ 

**9.1337** X-INVALID-ORDER-1337  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_2R_4s + C_5R_2}{C_1C_2C_4C_5C_6R_2R_3R_4R_5s^4 + C_6 + s^3\left(C_1C_2C_4C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_$ 

**9.1338** X-INVALID-ORDER-1338  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_4C_5C_6R_2R_4R_6s^2 + C_5R_2 + s\left(C_4C_5R_2R_4 + C_5C_6R_2R_6\right)$  $H(s) = \frac{C_4C_5C_6R_2R_4R_6s^2 + C_5R_2 + s\left(C_4C_5R_2R_4 + C_5C_6R_2R_4\right)}{C_1C_2C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5$ 

**9.1339** X-INVALID-ORDER-1339  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_4C_5C_6R_2R_3R_4R_5R_6s^5 + s^4\left(C_1C_2C_4C_5R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4R_6 + C_1C_4C_5C_6R_2R_3R_4R_6 + C_1C_4C_5C_6R_2R_3R_4R_6 + C_1C_4C_5C_6R_2R_3R_4R_6 + C_1C_4C_5C_6R_2R_3R_4R_5R_6 + C_1C_4C_5C_6R_2R_4R_5R_6 + C_1C_4C_5C_6R_4R_4R_5R_6 + C_1C_4C_5C_6R_4R_4R_5R_6 + C_1C_4C_5C_6R_4R_4R_5R_6 + C_1C_4C_5C_6R_4R_4R_5R_6 + C_1C_4C_5C_6R_4R_4R_5R_6 + C_1C_4C_5C_6R_4R_5R_5R_6 + C_1C_4C_5C_6R_4R_5R_5R_6 + C_1C_4C_5C_6R_5R_$ 

**9.1340** X-INVALID-ORDER-1340  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_2R_4R_5R_6s^2 + R_2R_6 + s\left(C_4R_2R_4R_6 + C_5R_2R_5R_6\right)}{R_5 + s^3\left(C_1C_2C_4R_2R_3R_4R_5 - C_1C_4C_5R_2R_3R_4R_5\right) + s^2\left(C_1C_2R_2R_3R_5 - C_1C_4R_2R_3R_4 + C_1C_4R_2R_4R_5 + C_1C_4R_2R_4R_5 + C_1C_4R_2R_4R_5\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5 + C_4R_4R_5\right)}$ 

```
9.1341 X-INVALID-ORDER-1341 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_4C_5R_2R_4R_5s^2 + R_2 + s\left(C_4R_2R_4 + C_5R_2R_5\right)}{C_6R_5s + s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_5 + C_1C_4
9.1342 X-INVALID-ORDER-1342 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_4C_5C_6R_2R_4R_5R_6s^3 + R_2 + s^2\left(C_4C_5R_2R_4R_5 + C_4C_6R_2R_4R_6 + C_5C_6R_2R_5R_6\right) + s\left(C_4R_2R_4 + C_5R_2R_5 + C_6R_2R_6\right)}{C_6R_5s + s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_4C_5C_6R_2R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_5 + C_1C
9.1343 X-INVALID-ORDER-1343 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_4C_5R_2R_4R_5R_6s}{R_5 + s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5R_6 - C_1C_4C_5C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 - C_1C_4C_6R_2R_4R_5 - C_1C_4C_6R_4R_4R_5 - C_1C_4C_6R_4R_5 - C_
9.1344 X-INVALID-ORDER-1344 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                               H(s) = \frac{R_2 R_4}{C_6 R_4 R_5 s + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 C_6 R_2 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5 + C_2 C_6 R_2 R_4 R_5\right)}
9.1345 X-INVALID-ORDER-1345 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                               H(s) = \frac{C_6R_2R_4R_6s + R_2R_4}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5\right)}
9.1346 X-INVALID-ORDER-1346 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                    \frac{R_{2}R_{4}R_{6}}{R_{4}R_{5} + s^{3}\left(C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}\right) + s^{2}\left(C_{1}C_{2}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{4}R_{2}R_{3}R_{4}R_{5} - C_{1}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}\right) + s\left(-C_{1}R_{2}R_{3}R_{4} + C_{1}R_{2}R_{3}R_{5} + C_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}\right) + s\left(-C_{1}R_{2}R_{3}R_{4} + C_{1}R_{2}R_{3}R_{5} + C_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}\right) + s\left(-C_{1}R_{2}R_{3}R_{4} + C_{1}R_{2}R_{3}R_{5} + C_{1}R_{2}R_{3}R_{5} + C_{1}R_{2}R_{3}R_{5}R_{6}\right) + s\left(-C_{1}R_{2}R_{3}R_{4} + C_{1}R_{2}R_{3}R_{5} + C_{1}R_{2}R_{5} + C_{1}R_{2}R_{3}R_{5} + C_{1}R_{2}R_{3}R_{5} + C_{1}R_{2}R_{5} + C_{1}R_{2}R_{5} + C_{1}R_{2}R_{5} + C_{1}R_{2}R_{5} + C_{1}R_{2}R_{5} + C_{1}R_{2}R_{5} + C_{1}R_{2}R_{5}
9.1347 X-INVALID-ORDER-1347 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
H(s) = \frac{C_5 R_2 R_4 R_6 s}{R_4 + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_4 R_6 + C_1 C_4 C_6 R_2 R_3 R_4 R_6 - C_1 C_5 C_6 R_2 R_3 R_4 + C_1 C_4 R_2 R_3 R_4 + C_1 C_5 R_2 R_3 R_4 + C_1 C_6 R_2 R_4 R_6 + C_1 
9.1348 X-INVALID-ORDER-1348 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                H(s) = \frac{C_5 R_2 R_4 R_6 s}{R_4 + s^3 \left(C_1 C_2 C_5 R_2 R_3 R_4 R_5 + C_1 C_4 C_5 R_2 R_3 R_4 + C_1 C_4 R_2 R_3 R_4 + C_1 C_5 R_2 R_3 R_4 + C_1 C_5 R_2 R_3 R_5 + C_1 C_5 R_2 R_4 R_5 + C_1 C_5 R_2 R_4 R_5 \right) + s \left(C_1 R_2 R_3 + C_1 R_2 R_4 + C_1 R_3 R_4 + C_2 R_2 R_4 + C_5 R_4 R_5 \right)}
9.1349 X-INVALID-ORDER-1349 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_5 R_2 R_4}{C_6 R_4 + s^3 \left(C_1 C_2 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 \right) + s^2 \left(C_1 C_2 C_6 R_2 R_3 R_4 + C_1 C_5 C_6 R_2 R_3 R_4 + C_1 C
```

9.1350 X-INVALID-ORDER-1350  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_2R_4R_6s + C_5R_2R_4}{C_6R_4 + s^3\left(C_1C_2C_5C_6R_2R_3R_4R_5 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_5R_4 + C_1C_5C_6R_5R_4 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 +$ 

```
9.1351 X-INVALID-ORDER-1351 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{1}{R_4 + s^4 \left( C_1 C_2 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_4 C_6 R_2 R_3 R_4 R_6 + C_1 C_5 C_6 R_2 R_3 R_4 R_6$ 

**9.1352** X-INVALID-ORDER-1352  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & R_3, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{C_5 R_2 R_4 R_5 s + R_2 R_4}{C_6 R_4 R_5 s + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 C_6 R_2 R_3 R_4 R_5 - C_1 C_5 C_6 R_2 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_2 R_4 R_5\right)}$ 

**9.1353** X-INVALID-ORDER-1353  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_2R_4R_5R_6s^2 + R_2R_4 + s\left(C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right)}$ 

9.1354 X-INVALID-ORDER-1354  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_5R_2R_4R_5R_6s + R_2R_4R_6$ 

 $H(s) = \frac{C_5 R_2 R_4 R_5 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_4 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_5 R_2 R_3 R_4 R_5 + C_1 C_4 R_2 R_3 R_4 R_5 - C_1 C_5 R_2 R_3 R_4 R_5 - C_1 C_6 R_2 R_3 R_4 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1$ 

**9.1355** X-INVALID-ORDER-1355  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_2 R_4 R_6}{-C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left(C_1 C_2 R_2 R_4 R_5 + C_1 C_3 R_2 R_4 R_5 + C_2 C_3 R_2 R_4 R_5\right)}$$

**9.1356** X-INVALID-ORDER-1356  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_2 R_4}{s^2 \left(C_1 C_2 C_6 R_2 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 + C_2 C_3 C_6 R_2 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_3 C_6 R_4 R_5\right)}$$

**9.1357** X-INVALID-ORDER-1357  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_2R_4R_6s + C_3R_2R_4}{s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1358** X-INVALID-ORDER-1358  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4\right)}$$

**9.1359** X-INVALID-ORDER-1359  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4\right)}$$

**9.1360** X-INVALID-ORDER-1360  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4\right)}$$

**9.1361** X-INVALID-ORDER-1361 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_2R_4R_5R_6 + C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6 + C_1C_5C_6R_4R_6 + C_1C_5C_6R_4R_6 + C_1C_5C_6R_4R_6 + C_1C_$ 

**9.1362** X-INVALID-ORDER-1362  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_2R_4R_5 - C_1C_5R_2R_4R_5 + C_2C_3R_2R_4R_5\right)}$$

**9.1363** X-INVALID-ORDER-1363  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_5s + C_3R_2R_4}{s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1364** X-INVALID-ORDER-1364  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_4R_5R_6s^2 + C_3R_2R_4 + s\left(C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1365** X-INVALID-ORDER-1365  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & R_5, & R_6 \end{pmatrix}$ 

$$H(s) = \frac{C_3 R_2 R_6}{-C_1 R_2 + C_1 R_5 + C_3 R_5 + s \left(C_1 C_2 R_2 R_5 + C_1 C_3 R_2 R_5 + C_1 C_4 R_2 R_5 + C_2 C_3 R_2 R_5\right)}$$

**9.1366** X-INVALID-ORDER-1366  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_2}{s^2 \left( C_1 C_2 C_6 R_2 R_5 + C_1 C_3 C_6 R_2 R_5 + C_1 C_4 C_6 R_2 R_5 + C_2 C_3 C_6 R_2 R_5 \right) + s \left( -C_1 C_6 R_2 + C_1 C_6 R_5 + C_3 C_6 R_5 \right)}$$

**9.1367** X-INVALID-ORDER-1367  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_2R_6s + C_3R_2}{s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.1368** X-INVALID-ORDER-1368  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3 C_5 R_2 R_6 s}{C_1 + C_3 + s \left(C_1 C_2 R_2 + C_1 C_3 R_2 + C_1 C_4 R_2 - C_1 C_5 R_2 + C_2 C_3 R_2\right)}$$

**9.1369** X-INVALID-ORDER-1369  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_2}{C_1C_6 + C_3C_6 + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2\right)}$$

**9.1370** X-INVALID-ORDER-1370  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & R_6 + \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5C_6R_2R_6s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2\right)}$$

**9.1371** X-INVALID-ORDER-1371  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_2C_5C_6R_2R_5R_6 + C_1C_3C_5C_6R_2R_5R_6 + C_2C_3C_5C_6R_2R_5R_6 + C_1C_2C_5R_2R_5 + C_1C_2C_6R_2R_6 + C_1C_3C_5R_2R_5 + C_1C_4C_6R_2R_6 + C_1C_5C_6R_2R_6 + C_1C_5C_6R_2R_5R_6 + C_1C_5C_6R_5R_5R_6 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 + C_1C_5C_5R_5R_5 +$ 

**9.1372** X-INVALID-ORDER-1372  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_5R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s\left(C_1C_2R_2R_5 + C_1C_3R_2R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5 + C_2C_3R_2R_5\right)}$ 

**9.1373** X-INVALID-ORDER-1373  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s+1}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s+1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{C_3C_5R_2R_5s + C_3R_2}{s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$ 

**9.1374** X-INVALID-ORDER-1374  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_5R_6s^2 + C_3R_2 + s\left(C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$ 

**9.1375** X-INVALID-ORDER-1375  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4R_2R_4s + C_3R_2}{s^3\left(C_1C_2C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_5 + s^2\left(C_1C_2C_6R_2R_5 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_3C_4C_6R_4R_5 + s^2\left(C_1C_2C_6R_2R_5 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5$ 

**9.1376** X-INVALID-ORDER-1376  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_6R_2R_4R_6s^2 + C_3R_2 + s\left(C_3C_4R_2R_4 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_2C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C$ 

**9.1377** X-INVALID-ORDER-1377  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4R_2R_4R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_2C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5 + C_1C_4C_6R_2R_4R_6 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_4R_5R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5$ 

**9.1378** X-INVALID-ORDER-1378  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_2C_4C_6R_2R_4R_6 + C_1C_3C_4C_6R_2R_4R_6 + C_2C_3C_4C_6R_2R_4R_6 + C_1C_3C_4R_2R_4 + C_1C_3C_6R_2R_6 + C_1C_4C_5R_2R_4 + C_1C_4C_6R_2R_6 + C_1C_4C_6R_4R_6 +$ 

**9.1379** X-INVALID-ORDER-1379  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_2C_4C_5R_2R_4R_5 + C_1C_3C_4C_5R_2R_4R_5 + C_2C_3C_4C_5R_2R_4R_5 + C_1C_3C_4R_2R_4 + C_1C_3C_5R_2R_5 + C_1C_4C_5R_2R_4 + C_1C_4C_5R_2R_5 + C_1C_4C_5R_2R_4 + C_1C_4C_5R_2R_5 + C_1C_4C_5R_4R_5 + C_2C_3C_4R_2R_5 + C_2C_3C_4R_2R_5 + C_1C_4C_5R_4R_5 + C_2C_3C_4R_2R_5 + C_2C_3C_4R_5 + C_2C_3C_4R_5 + C_2C_3C_4R_5 + C_2C_3C_5R_5 + C_2C_3C_5R_5 + C_2C_3C_5R_5 + C_2C_3C_5R_5 + C_2C_3C_5R_5 + C_2C_$ 

**9.1380** X-INVALID-ORDER-1380  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

```
9.1381 X-INVALID-ORDER-1381 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_4C_5C_6R_2R_4R_6s^2 + C_3C_5R_2 + s\left(C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_4 + C_3C_5C_6R_2R$ 

**9.1382** X-INVALID-ORDER-1382  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1 + C_3 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_5 C_6 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_6 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 + C_1 C_3 C_4 C_5 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 + C_1 C_3 C_4 C_5 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) + s^3 \left( C_1 C_4 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_4 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_4 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_4 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_5 R_5 R_5 R_5 \right) + s^3 \left( C_1 C_5 R_5 R_5 R_5$ 

**9.1383** X-INVALID-ORDER-1383  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_4R_5s^2 + C_3R_2 + s\left(C_3C_4R_2R_4 + C_3C_5R_2R_5\right)}{s^3\left(C_1C_2C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_4C_5R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_1C_4C$ 

**9.1384** X-INVALID-ORDER-1384  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_2R_4R_5R_6s^3 + C_3R_2 + s^2\left(C_3C_4C_5R_2R_4R_5 + C_3C_4C_6R_2R_4R_6 + C_3C_5C_6R_2R_5R_6\right) + s\left(C_3C_4R_2R_4 + C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_2C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_4C_6R_2R_5 + C_2C_3C_4C_5R_5 + C_2C_3C_4C_5R_5 + C_2C_3C_4C_5R_5 + C_2C_3C_4C_5R_5 + C_2C_3C_4C_5R_5 + C_2C_3C_4C_5R_5 + C_2C_3C_5C_5R_5 + C_2C_3C_5C_5R_5 + C_2C_3C_5C_5R_5 + C_2C_3C_5C_5C_5R_5 + C_2C_3$ 

**9.1385** X-INVALID-ORDER-1385  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6s + C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6s + C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6s + C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_4R_5R_6s^2 + C_3R_2R_4R_5R_6s^2$ 

**9.1386** X-INVALID-ORDER-1386  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3 R_2 R_4 R_6}{-C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + C_3 R_4 R_5 + s \left(C_1 C_2 R_2 R_4 R_5 + C_1 C_3 R_2 R_4 R_5 + C_1 C_4 R_2 R_4 R_5 + C_2 C_3 R_2 R_4 R_5\right)}$$

**9.1387** X-INVALID-ORDER-1387  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3 R_2 R_4}{s^2 \left( C_1 C_2 C_6 R_2 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 + C_1 C_4 C_6 R_2 R_4 R_5 + C_2 C_3 C_6 R_2 R_4 R_5 \right) + s \left( -C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_3 C_6 R_4 R_5 \right)}$$

**9.1388** X-INVALID-ORDER-1388  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_6R_2R_4R_6s + C_3R_2R_4}{s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1389** X-INVALID-ORDER-1389  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_4 + C_1C_4R_2R_4 - C_1C_5R_2R_4 + C_2C_3R_2R_4\right)}$$

**9.1390** X-INVALID-ORDER-1390  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{1}{C_5 s}, & \frac{1}{C_6 s} \end{pmatrix}$ 

$$H(s) = \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4\right)}$$

**9.1391** X-INVALID-ORDER-1391  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4\right)}$ 

**9.1392** X-INVALID-ORDER-1392  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_5}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_2R_4R_5R_6 + C_1C_4C_5C_6R_2R_4R_5R_6 + C_1C_4C_5R_2R_4R_5 + C_1C_4C_5R_4R_5 + C_1C_4C_5R_4R_5R_5 + C_1C_4C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5C_5R_5R_5R_5 + C_1C_5$ 

**9.1393** X-INVALID-ORDER-1393  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_4R_5 + C_2C_3R_2R_4R_5\right)}$ 

**9.1394** X-INVALID-ORDER-1394  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_5s + C_3R_2R_4}{s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.1395** X-INVALID-ORDER-1395  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_4R_5R_6s^2 + C_3R_2R_4 + s\left(C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.1396** X-INVALID-ORDER-1396  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_2 R_4}{C_1 C_2 C_3 C_6 R_2 R_3 R_4 R_5 s^3 + s^2 \left(C_1 C_2 C_6 R_2 R_4 R_5 - C_1 C_3 C_6 R_2 R_3 R_4 + C_1 C_3 C_6 R_2 R_3 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 \right) + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_3 C_6 R_4 R_5 \right)}$ 

**9.1397** X-INVALID-ORDER-1397  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_2R_4R_6s + C_3R_2R_4}{C_1C_2C_3C_6R_2R_3R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.1398** X-INVALID-ORDER-1398  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_2 R_4 R_6}{C_1 C_2 C_3 C_6 R_2 R_3 R_4 R_5 R_6 s^3 - C_1 R_2 R_4 + C_1 R_2 R_5 + C_1 R_4 R_5 + c_3 R_4 R_5 + c_1 C_2 C_6 R_2 R_4 R_5 R_6 - C_1 C_3 C_6 R_2 R_3 R_4 R_6 + C_1 C_3 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_6 R_3 R_4 R_5 R_6 + C_1 C_3 C_6 R_5 R_5 R_6 + C_1$ 

**9.1399** X-INVALID-ORDER-1399  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_3C_6R_2R_3R_4R_6 - C_1C_3C_5R_2R_3R_4 + C_1C_2C_6R_2R_4R_6 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_6 + C_1C_$ 

**9.1400** X-INVALID-ORDER-1400  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1C_2C_3C_5R_2R_3R_4R_5s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_2R_4R_5\right) + s\left(C_1C_2R_2R_4 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_3R_2R_4 + C_1C_3R_2$ 

**9.1401** X-INVALID-ORDER-1401  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4}{C_1C_2C_3C_5C_6R_2R_3R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_3R_4 + C_1$ 

**9.1402** X-INVALID-ORDER-1402  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_4R_6s + C_3C_5R_2R_4}{C_1C_2C_3C_5C_6R_2R_3R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_3R_4$ 

**9.1403** X-INVALID-ORDER-1403  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1404** X-INVALID-ORDER-1404  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_5s + C_3R_2R_4}{s^3\left(C_1C_2C_3C_6R_2R_3R_4R_5 - C_1C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.1405** X-INVALID-ORDER-1405  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_4R_5R_6s^2 + C_3R_2R_4 + s\left(C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_3R_4R_5 - C_1C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.1406** X-INVALID-ORDER-1406  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_5R_6s + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5$ 

**9.1407** X-INVALID-ORDER-1407  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_2}{s^3 \left(C_1 C_2 C_3 C_6 R_2 R_3 R_5 + C_1 C_3 C_4 C_6 R_2 R_3 R_5\right) + s^2 \left(C_1 C_2 C_6 R_2 R_5 - C_1 C_3 C_6 R_2 R_3 + C_1 C_3 C_6 R_2 R_5 + C_1 C_3 C_6 R_2 R_5 + C_1 C_4 C_6 R_2 R_5 + C_2 C_3 C_6 R_2 R_5\right) + s \left(-C_1 C_6 R_2 + C_1 C_6 R_5 + C_3 C_6 R_5\right)}$ 

**9.1408** X-INVALID-ORDER-1408  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_2R_6s + C_3R_2}{s^3\left(C_1C_2C_3C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_3R_5\right) + s^2\left(C_1C_2C_6R_2R_5 - C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$ 

**9.1409** X-INVALID-ORDER-1409  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_2 R_6}{-C_1 R_2 + C_1 R_5 + C_3 R_5 + s^3 \left(C_1 C_2 C_3 C_6 R_2 R_3 R_5 R_6 + C_1 C_3 C_4 R_2 R_3 R_5 + C_1 C_2 C_6 R_2 R_3 R_5 + C_1 C_2 C_6 R_2 R_3 R_5 + C_1 C_3 C_6 R_2 R_3 R_6 + C_1 C_3 C_6 R_2 R_3 R_5 + C_1 C_3 C_6 R_2 R_5 R_6 + C_1 C_3 C_6 R_5 R_5 R_6 + C_1 C_3 C_6 R_5 R_5 R_6 + C_1 C_3 C_6 R_5 R_5 R_6 + C_1 C_5 R$ 

**9.1410** X-INVALID-ORDER-1410  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_2C_3C_6R_2R_3R_6 + C_1C_3C_4C_6R_2R_3R_6 - C_1C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_2C_3R_2R_3 + C_1C_3C_6R_2R_6 + C_1C_3C_6R_2R_6$ 

**9.1411** X-INVALID-ORDER-1411  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_2C_3C_5R_2R_3R_5 + C_1C_3C_4C_5R_2R_3R_5\right) + s^2\left(C_1C_2C_3R_2R_3 + C_1C_2C_5R_2R_5 + C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_5R_5 + C_1C$ 

**9.1412** X-INVALID-ORDER-1412  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2}{C_1C_6 + C_3C_6 + s^3\left(C_1C_2C_3C_5C_6R_2R_3R_5 + C_1C_3C_4C_5C_6R_2R_3 + C_1C_2C_5C_6R_2R_3 + C_1C_3C_5C_6R_2R_3 + C_1C_3C_5C_5C_6R_2R_3 + C_1C_5C_5C_5C_6R_2R_3 + C_1C_5C_5C_5C_6R_2R_3 + C_1C_5C_5C_5C_5C_5C_5C_5C_5C_5$ 

**9.1413** X-INVALID-ORDER-1413  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_6s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^3\left(C_1C_2C_3C_5C_6R_2R_3R_5 + C_1C_3C_4C_5C_6R_2R_3 + C_1C_2C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_3 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_5C_6R_2R_5 + C_1C_5C_5C_6R_2R_5 + C_1C_5C_5C_6R_2R_5 + C_1C_5C_5C_6R_2R_5 + C_1C_5C_5C_5C_5C_$ 

**9.1414** X-INVALID-ORDER-1414  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1 + C_3 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_2 R_5 R_6 + C_1 C_3 C_5 C_6 R_2 R_5 R_6 + C_1 C_3 C_5 C_6 R_2 R_5 R_6 + C_1 C_5 C_6 R_5 R_5 R_6 + C_1 C_5$ 

**9.1415** X-INVALID-ORDER-1415  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_5s + C_3R_2}{s^3\left(C_1C_2C_3C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_3R_5 - C_1C_3C_5C_6R_2R_3R_5 + s^2\left(C_1C_2C_6R_2R_5 - C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5 + C_2C_3C_6R_2R_5 + s^2\left(C_1C_2C_6R_2R_5 - C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_5 + C$ 

**9.1416** X-INVALID-ORDER-1416  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_5R_6s^2 + C_3R_2 + s\left(C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_3R_5 - C_1C_3C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_2C_6R_2R_5 - C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$ 

**9.1417** X-INVALID-ORDER-1417  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_3C_5R_2R_5R_6s + C_3R_2R_6$  $H(s) = \frac{C_3C_5R_2R_5R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_2C_3C_6R_2R_3R_5R_6 + C_1C_3C_6R_2R_3R_5R_6 + C_1C_3C_6R_2R_3R_5R_6 + C_1C_3C_6R_2R_3R_5R_6 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_3R_5 + C$ 

**9.1418** X-INVALID-ORDER-1418  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3C_4R_2R_4R_6s + C_3R_2R_6}{C_1C_2C_3C_4R_2R_3R_4R_5s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_3R_2R_3R_5 + C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_5 + C_1C_3C_4R_2R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_$ 

**9.1419** X-INVALID-ORDER-1419  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

**9.1420** X-INVALID-ORDER-1420  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_3C_4C_6R_2R_4R_6s^2 + C_3R_2 + s\left(C_3C_4R_2R_4 + C_3C_6R_2R_6\right)$  $\frac{U_3U_4U_6\kappa_2\kappa_4\kappa_6s^2 + U_3\kappa_2 + s\left(U_3U_4\kappa_2\kappa_4 + U_3U_6\kappa_2\kappa_6\right)}{C_1C_2C_3C_4C_6R_2R_3R_4 + S^3\left(C_1C_2C_3C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_4C_4R_4R_5 + C_1C_3C_4C_4R_4R_5 + C_1C_3C_4C_4R_4R_5 + C_1C_3C_4C_4R_4R_5 + C_1C_3C_4C_4C_4R_4R_5 + C_1C_3C_$ 

- **9.1421** X-INVALID-ORDER-1421  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_2R_3R_4R_5R_6s^4 C_1R_2 + C_1R_5 + C_3R_5 + s^3(C_1C_2C_3C_4R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_4R_5R_6 C_1C_3C_4C_6R_2R_3R_5R_6 + C_1C_3C_4C_6R_2R_3R_5R_6 + C_1C_3C_4C_6R_2R_3R_5R_6 + C_1C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_4R_5R_5R_6 + C_1C_3C_4C_6R_4R_5R_5R_6 + C_1C_3C_4C_6R_5R_5R_5R_5 + C_1C_3C_4C_6R_5R_5R_5R_5 + C_1C_3C_4C_6R_5R_5R_5R_5 + C_1C_3C_4C_6R_5R_5R_5R_5 + C_1C_3C_4C_5R_5R_5R_5R_5 + C_1C_3C_4C_5R_5R_5R_5 + C_1C_3C_4C_5R_5R_5R_5 + C_1C_3C_4C_5R_5R_5R_5 + C_1$
- **9.1422** X-INVALID-ORDER-1422  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_2C_3C_4R_2R_3R_4 C_1C_3C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2C_3R_2R_3 + C_1C_2C_4R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_4R_4 + C_1C_3C_4R_4 + C_1C_3C_4R_4$
- **9.1423** X-INVALID-ORDER-1423  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_3C_4C_5R_2R_4s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^3\left(C_1C_2C_3C_4C_6R_2R_3R_4 C_1C_3C_4C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_3C_4C_6R_2R_4 + C_1C_3C_4C_4C_4R_4 + C_1C_3C_4C$
- **9.1424** X-INVALID-ORDER-1424  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- **9.1425** X-INVALID-ORDER-1425  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{C_1 + C_3 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 C_1 C_3 C_4 C_5 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_2 R_3 R_4 + C_1 C_2 C_4 C_6 R_2 R_3 R_6 + C_1 C_3 C_4$
- **9.1426** X-INVALID-ORDER-1426  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5R_2R_3R_4R_5s^4 + C_1 + C_3 + s^3\left(C_1C_2C_3C_4R_2R_3R_4 + C_1C_2C_3C_5R_2R_3R_5 + C_1C_3C_4C_5R_2R_3R_5 + C_1C_3C_4C_5R_3R_5 + C_1C_3C_4C_5R_5R_5 + C_1C_3C_5C_5R_5R_5 + C_1C_3C_5C_5R_5R_5 + C_1C_3C_5C_5R_5R_5 + C_1C_3C_5C_5R_5R_5 + C_1C_3C_5C_5R_5R_5 + C_1C_5C_5C_5R_5R_5 + C_1C_$
- **9.1427** X-INVALID-ORDER-1427  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- **9.1428** X-INVALID-ORDER-1428  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5s^4 + C_1C_6 + C_3C_6 + s^3(C_1C_2C_3C_4C_6R_2R_3R_4 + C_1C_2C_4C_5C_6R_2R_4R_5 C_1C_3C_4C_5C_6R_2R_3R_4 + C_1C_3C_4C_5C_6R_2R_3R_5 + C_1C_3C_4C_5C_6R_2R_3R_5 + C_1C_3C_4C_5C_6R_2R_4R_5 + C_1C_3C_4C_5C_6R_4C_4C_5C_6R_4C_4C_5C_6R_5C_6R_5C_6R_5C_5C_6R_5C_6R_5C_5C_6R_5C_6R_5C_5C_6C_5C_5C_5C_5C_5C_5C_5$
- **9.1429** X-INVALID-ORDER-1429  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5R_6s^5 + C_1 + C_3 + s^4\left(C_1C_2C_3C_4C_5R_2R_3R_4R_5 + C_1C_2C_3C_4C_6R_2R_3R_5R_6 + C_1C_2C_4C_5C_6R_2R_4R_5R_6 + C_1C_3C_4C_5C_6R_2R_3R_4R_6 + C_1C_3C_4C_5C_6R_2R_4R_5R_5C_6R_2R_4R_5R_5C_6R_2R_4R_5R_5C_6R_2R_4R_5R_5C_6R_2R_4R_5R_5C_6R_2R_4R_5C_6R_5C_5C_6R_5C_6R_5C_5C_6R_5C_5C_5C_5C_$
- **9.1430** X-INVALID-ORDER-1430  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 
  - $C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6 + s(C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6)$

**9.1431** X-INVALID-ORDER-1431  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $C_3C_4C_5R_2R_4R_5s^2 + C_3R_2 + s(C_3C_4R_2R_4 + C_3C_5R_2R_4)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_4R_5s^2 + C_3R_2 + s\left(C_3C_4R_2R_4 + C_3C_5R_2\right)}{s^4\left(C_1C_2C_3C_4C_6R_2R_3R_4R_5 - C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C$ 

**9.1432** X-INVALID-ORDER-1432  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_2R_4R_5R_6s^3 + C_3R_2 + s^2\left(C_3C_4C_5R_2R_4R_5 + C_3C_4C_6R_2R_4R_6 + C_3C_5C_6R_2R_5R_6\right)}{s^4\left(C_1C_2C_3C_4C_6R_2R_3R_4R_5 - C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_$ 

**9.1433** X-INVALID-ORDER-1433  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-}{-C_1R_2 + C_1R_5 + C_3R_5 + s^4\left(C_1C_2C_3C_4C_6R_2R_3R_4R_5R_6 - C_1C_3C_4C_5R_2R_3R_4R_5 + C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_3C_4C_6R_2R_3R_4R_5 - C_1C_3C_4C_6R_2R_3R_4R$ 

**9.1434** X-INVALID-ORDER-1434  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_2 R_4}{s^3 \left(C_1 C_2 C_3 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_2 R_3 R_4 R_5\right) + s^2 \left(C_1 C_2 C_6 R_2 R_4 R_5 - C_1 C_3 C_6 R_2 R_3 R_4 + C_1 C_3 C_6 R_2 R_3 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 + C_1 C_6 R_2 R_5 + C_1 C_6 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 R_5 + C_1 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_5 R_5\right) + s \left(-C_1 C_6$ 

**9.1435** X-INVALID-ORDER-1435  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_2R_4R_6s + C_3R_2R_4}{s^3\left(C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + s^2\left(C_1C_2C_6R_2R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + c_1C_3C_6R_2R_4R_5 + c_1C_3C_6$ 

**9.1436** X-INVALID-ORDER-1436  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^3\left(C_1C_2C_3C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5 + s^2\left(C_1C_2C_3R_2R_3R_4R_5 + C_1C_2C_6R_2R_4R_5R_6 + C_1C_3C_4R_2R_3R_4R_5 - C_1C_3C_6R_2R_3R_4R_6 + C_1C_3C_6R_2R_3R_4R_5 +$ 

9.1437 X-INVALID-ORDER-1437  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_3C_6R_2R_3R_4R_6 + C_1C_3C_6R_2R_3R_4R_6 + C_1C_3C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_6 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_$ 

**9.1438** X-INVALID-ORDER-1438  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_3C_5R_2R_3R_4R_5 + C_1C_3C_4R_2R_3R_4 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_1C_$ 

**9.1439** X-INVALID-ORDER-1439  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{\frac{c_3 c_5 r_{02} r_{04}}{C_1 C_6 R_2 + C_1 C_6 R_4 + C_3 C_6 R_4 + s^3 \left(C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_5 C_6 R_2 R_3 R_4 + C_1 C_3 C_5 C_6 R_2 R_3 R_4 +$ 

**9.1440** X-INVALID-ORDER-1440  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 C_5 C_6 R_2 R_4 R_6 s + C_3 C_5 L_2 R_4}{C_1 C_6 R_2 + C_1 C_6 R_4 + C_3 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_3 R_4 + C_1 C_2 C_5 C_6 R_2 R_3 R_4 + C_1 C_3 C_5 C_6$ 

```
9.1441 X-INVALID-ORDER-1441 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
```

**9.1442** X-INVALID-ORDER-1442  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_{3}C_{5}R_{2}R_{4}R_{5}s+C_{3}R_{2}R_{4}}{s^{3}\left(C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{$ 

**9.1443** X-INVALID-ORDER-1443  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_4R_5R_6s^2 + C_3R_2R_4 + s\left(C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 - C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5 + C_1C_3C$ 

**9.1444** X-INVALID-ORDER-1444  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1445** X-INVALID-ORDER-1445  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3R_2R_3R_4s + R_2R_4}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5 + C_3C_6R_3R_4R_5\right)}$ 

**9.1446** X-INVALID-ORDER-1446  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_2R_3R_4R_6s^2 + R_2R_4 + s\left(C_3R_2R_3R_4 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5 + C_3C_6R_3R_4R_5\right)}$ 

**9.1447** X-INVALID-ORDER-1447  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_2 R_3 R_4 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 R_2 R_3 R_4 R_5 + C_1 C_6 R_2 R_4 R_5 R_6 + C_1 C_6 R_5 R_5 R_6 + C_1 C_6 R_$ 

**9.1448** X-INVALID-ORDER-1448  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{C_{3}C_{5}R_{2}R_{3}R_{4}R_{6}s^{2}+C_{5}R_{2}R_{4}R_{6}s}{R_{4}+s^{3}\left(C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}R_{6}\right)+s^{2}\left(C_{1}C_{2}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{2}R_{3}R_{4}+C_{1}C_$ 

**9.1449** X-INVALID-ORDER-1449  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^3\left(C_1C_2C_5R_2R_3R_4R_5 + C_1C_3C_5R_2R_3R_4R_5 + C_2C_3C_5R_2R_3R_4R_5 + C_1C_5R_2R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_4R_5 + C_1C_5R_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_$ 

**9.1450** X-INVALID-ORDER-1450  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 C_5 R_2 R_3 R_4 s + C_5 R_2 R_3}{C_6 R_4 + s^3 \left(C_1 C_2 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_5 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_2 R_3 R_4 + C_1 C_5$ 

```
9.1451 X-INVALID-ORDER-1451 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_5C_6R_2R_3R_4R_6s^2 + C_5R_2R_4 + s\left(C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^3\left(C_1C_2C_5C_6R_2R_3R_4R_5 + C_1C_3C_5C_6R_2R_3R_4R_5 + C_1C_5C_6R_2R_3R_4 
9.1452 X-INVALID-ORDER-1452 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{R_4 + s^4 \left( C_1 C_2 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_6 R_2 R_3 R_4 R_6 + C_1 C_5 C_6 R_2 R_5 R_5 R_6 + C_1 C_5 C_6 R_5 R_5 R_5 R_6 + C_1 C_5 C_6 R_5 R_5 R_5 R_6 + C_1 C_5 C_6 R_5 R_5 R_5
9.1453 X-INVALID-ORDER-1453 Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{R_3}{C_3 R_3 s + 1}, & R_4, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}
                                                                                H(s) = \frac{C_3C_5R_2R_3R_4R_5s^2 + R_2R_4 + s\left(C_3R_2R_3R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_2R_4R_5\right)}
9.1454 X-INVALID-ORDER-1454 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                H(s) = \frac{C_3C_5C_6R_2R_3R_4R_5R_6s^3 + R_2R_4 + s^2\left(C_3C_5R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_6 + C_5C_6R_2R_4R_5R_6\right) + s\left(C_3R_2R_3R_4 + C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_2R_4R_5\right)}
9.1455 X-INVALID-ORDER-1455 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)
H(s) = \frac{C_3C_5R_2R_3R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^3\left(C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_5R_2R_3R_4R_5 + C_1C_5R_2R_3R_4R_5 + C_1C_5R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_5R_5 + C_1C_6R_5 + C_1C_6R_5R_5 + C_1C_6R_5 + C_1C_6R
9.1456 X-INVALID-ORDER-1456 Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{1}{C_4 s}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}
                                                                                                                                                                     H(s) = \frac{C_3R_2R_3s + R_2}{C_6R_5s + s^3\left(C_1C_2C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 + C_2C_3C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5 + C_3C_6R_3R_5\right)}
9.1457 X-INVALID-ORDER-1457 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
```

9.1457 X-INVALID-ORDER-1457 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_6R_2R_3R_6s^2 + R_2 + s\left(C_3R_2R_3 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_2C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 + C_2C_3C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5 + C_3C_6R_3R_5\right)}$$

**9.1458** X-INVALID-ORDER-1458 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_3 R_2 R_3 R_6 s + R_2 R_6}{R_5 + s^3 \left(C_1 C_2 C_6 R_2 R_3 R_5 R_6 + C_1 C_3 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 R_2 R_3 R_5 + C_1 C_4 R_2 R_3 R_5 + C_1 C_4 R_2 R_3 R_5 + C_1 C_6 R_2 R_5 R_5 + C_1 C_6 R_5 R_5$$

**9.1459** X-INVALID-ORDER-1459  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$C_3C_5R_2R_3R_6s^2 + C_5R_2R_6s$$

 $H(s) = \frac{C_3C_5R_2R_3R_6s^2 + C_5R_2R_6s}{s^3\left(C_1C_2C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_5C_6R_2R_3R_6 + C_2C_3C_6R_2R_3R_6\right) + s^2\left(C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_6R_2R_6 + C_1C_6R_3R_6 + C_2C_3R_2R_3 + C_2C_6R_2R_6 + C_3C_6R_3R_6\right) + s\left(C_1R_2 + C_1R_3 + C_2R_2 + C_3R_3R_6\right) + s\left(C_1R_2 + C_1R_3 + C_2R_3 + C_1C_6R_3R_6 + C_2C_3R_3R_6 + C_2C_3R_3R_6 + C_2C_3R_3R_6\right) + s\left(C_1R_2 + C_1R_3 + C_2C_3R_3R_6\right) + s\left(C_1R_3 + C_2C_3R_3R_6\right) +$ 

**9.1460** X-INVALID-ORDER-1460 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_3R_6s^2 + C_5R_2R_6s}{s^3\left(C_1C_2C_5R_2R_3R_5 + C_1C_3C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5 + C_2C_3C_5R_2R_3R_5 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_1C_5R_$$

```
9.1461 X-INVALID-ORDER-1461 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_5R_2R_3s + C_5R_2}{C_6 + s^3\left(C_1C_2C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_3R_5 + C_2C_3C_5C_6R_2R_3R_5 + C_2C_3C_5C_6R_2R_3R_5 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_
9.1462 X-INVALID-ORDER-1462 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_5C_6R_2R_3R_6s^2 + C_5R_2 + s\left(C_3C_5R_2R_3 + C_5C_6R_2R_3 + C_5C
9.1463 X-INVALID-ORDER-1463 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
H(s) = \frac{1}{s^4 \left( C_1 C_2 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_3 C_5 C_6 R_2 R_3 R_5 + C_1 C_2 C_6 R_2 R_3 R_5 + C_1 C_3 C_5 R_2 R_3 R_5 + C_1 C_3 C_6 R_2 R_3 R_6 + C_1 C_4 C_5 R_2 R_3 R_6 + C_1 C_4 C_5 R_2 R_3 R_6 + C_1 C_4 C_5 R_2 R_3 R_6 + C_1 C_5 C_6 R_2 R_5 R_6 + C_1 C_5 C_6 R_2 R
```

**9.1464** X-INVALID-ORDER-1464  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_5s^2 + R_2 + s\left(C_3R_2R_3 + C_5R_2R_5\right)}{C_6R_5s + s^3\left(C_1C_2C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_5C_6R_2R_3R_5 + C_2C_3C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5 + C_3C_6R_3R_5\right)}$$

**9.1465** X-INVALID-ORDER-1465  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_3R_5R_6s^3 + R_2 + s^2\left(C_3C_5R_2R_3R_5 + C_3C_6R_2R_3R_6 + C_5C_6R_2R_5R_6\right) + s\left(C_3R_2R_3 + C_5R_2R_5 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_2C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_5C_6R_2R_3R_5 + C_2C_3C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_2R_5 + C_2C_6R_2R_5 + C_3C_6R_3R_5\right)}$$

**9.1466** X-INVALID-ORDER-1466  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_5R_6s^2 + R_2R_6 + s\left(C_3R_2R_3R_6 + C_5R_2R_5R_6\right)}{R_5 + s^3\left(C_1C_2C_6R_2R_3R_5R_6 + C_1C_3C_6R_2R_3R_5R_6 + C_1C_5C_6R_2R_3R_5R_6 + C_2C_3C_6R_2R_3R_5R_6\right) + s^2\left(C_1C_2R_2R_3R_5 + C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5 - C_1C_6R_2R_3R_6 + C_1C_6R_2R_5R_6 + C_1C_6R_2R_3R_5R_6 + C_2C_3R_2R_3R_5 + C_2C_3R_2R_3R_5$$

**9.1467** X-INVALID-ORDER-1467  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3C_4R_2R_3R_4R_6s^2 + R_2R_6 + s\left(C_3R_2R_3R_6 + C_4R_2R_4R_6\right)}{R_5 + s^3\left(C_1C_2C_4R_2R_3R_4R_5 + C_1C_3C_4R_2R_3R_4R_5 + C_2C_3C_4R_2R_3R_4R_5\right) + s^2\left(C_1C_2R_2R_3R_5 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_3R_4R_5 + C_1C_4R_3R_5 + C_1C_4R_3R_5 + C_1C_4R_3R_5 + C_1C_4R_3R_5 + C_1C_4R_3R_5 + C_1$$

**9.1468** X-INVALID-ORDER-1468  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$C_3C_4R_2R_3R_4s^2 + R_2 + s\left(C_3R_2R_3 + C_4R_2R_4\right)$$

 $H(s) = \frac{C_3C_4R_2R_3R_4s^2 + R_2 + s\left(C_3R_2R_3 + C_4R_2R_4\right)}{C_6R_5s + s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_4R_4R_5 +$ 

**9.1469** X-INVALID-ORDER-1469  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_6R_2R_3R_4R_6s^3 + R_2 + s^2\left(C_3C_4R_2R_3R_4 + C_3C_6R_2R_3R_6 + C_4C_6R_2R_4R_6\right) + s\left(C_3R_2R_3 + C_4R_2R_4 + C_6R_2R_6\right)}{C_6R_5s + s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_4R_5 + C_1C_$$

**9.1470** X-INVALID-ORDER-1470  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{1}{R_5 + s^4 \left( C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_2 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 R_4 R_5 R_5 + C_1 C_3 C_4 R_5 R_5 + C_1 C_5 R_5 R_5 + C_1 C_5$$

9.1474 X-INVALID-ORDER-1474  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_2 R_3 R_4 R_6 - C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_6 R_2 R_3 R_4 + C_1 C_3 C_4 R_2 R_3 R_4 + C_1 C_3 C_6 R_2 R_3 R_6 + C_1 C_4 C_6 R_2 R_4 R_6 + C_1 C_4 C_6 R_4 R_6 R_4 R_6 + C_1 C_4 C_6 R_4 R_6 + C_1 C_4 C_6 R_4 R_6 R_6 R_6 R_6 R_6 R_6 R_6$ 

9.1475 X-INVALID-ORDER-1475  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_3}{s^4\left(C_1C_2C_4C_5R_2R_3R_4R_5 + C_1C_3C_4C_5R_2R_3R_4R_5 + C_1C_3C_4R_2R_3R_4 + C_1C_2C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_4 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_5R_4R_5 + C_1C_4C_5R_4R_5 + C_1C_4C_5R_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5R_5 + C_1C_4C_5R_5R_5$ 

**9.1476** X-INVALID-ORDER-1476  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_6 R_2 R_3 R_4 + C_1 C_2 C_5 C_6 R_2 R_3 R_4 + C_1 C_3 C_5 C_6 R_2 R_3 R_4 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C$ 

**9.1477** X-INVALID-ORDER-1477  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_5 C_6 R_2 R_3 R_4 + C_1 C_3 C_5 C_6 R_2 R_3 R_5 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_4 C_5 C_6 R_2$ 

**9.1478** X-INVALID-ORDER-1478  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{s^5 \left(C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_5 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_5 R_5 R_5 + C_1 C_3 C_4 C_5 R_5 R_5 R_5 + C_1 C_3 C_4 C_5 R_5 R_5 R_5 + C_1 C_3 C_5 R_5 R_5 R_5 + C_1 C_3 C_5 R_5 R_5 R_5 + C_1 C_3 C_5 R_5 R_5 R_5 + C_1 C_5 R_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 R_5 + C_1 C_5 R_5 R_5 R_5$ 

9.1479 X-INVALID-ORDER-1479  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_2R_3R_4R_5R_6s^3 + R_2R_6 + s^2\left(C_3C_4R_2R_3R_4R_6 + C_3C_5R_2R_3R_5R_6 + C_4C_5R_2R_4R_5R_6\right) + s\left(C_3R_2R_3R_6 + C_4R_2R_4R_6 + C_5R_2R_5R_6\right)}{R_5 + s^3\left(C_1C_2C_4R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_4R_4 + C_1C_4R_2R_4R_4 + C_1C_4R_4R_4 + C_1C_4R_4R_4 + C_1C_4R_4$ 

**9.1480** X-INVALID-ORDER-1480  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{R_3}{C_3 R_3 s + 1}, & R_4 + \frac{1}{C_4 s}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{C_3C_4C_5R_2R_3R_4R_5s^3 + R_2 + s^2\left(C_3C_4R_2R_3R_4 + C_3C_5R_2R_3R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_3R_2R_3 + C_4R_2R_4 + C_5R_2R_5\right)}{C_6R_5s + s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 + C_1C_$ 

```
9.1481 X-INVALID-ORDER-1481 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_4C_5C_6R_2R_3R_4R_5F_6s^4 + R_2 + s^3\left(C_3C_4C_5R_2R_3R_4R_5 + C_3C_4C_6R_2R_3R_4R_6 + C_3C_5C_6R_2R_3R_5F_6 + C_4C_5C_6R_2R_3R_4 + C_3C_5R_2R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_5R_2R_3R_5 + C_4C_5R_3R_5 + C_4C_5R_5R_5 + C_4C_5R_5R_5R_5 + C_4C_$ 

**9.1482** X-INVALID-ORDER-1482  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $\overline{R_5 + s^4 \left( C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 R_2 R_3 R_4 R_5 + C_1 C_3 C_6 R_2 R$ 

**9.1483** X-INVALID-ORDER-1483  $Z(s) = \begin{pmatrix} \frac{1}{C_1 s}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{R_4}{C_4 R_4 s + 1}, & R_5, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{C_3R_2R_3R_4s + R_2R_4}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_2C_6R_2R_4R_5 +$ 

**9.1484** X-INVALID-ORDER-1484  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_2R_3R_4R_6s^2 + R_2R_4 + s\left(C_3R_2R_3R_4 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5 + C_3C_6R_3R_4R_5\right)}$ 

**9.1485** X-INVALID-ORDER-1485  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3R_2R_3R_4R_6s + R_2R_4R_6}{R_4R_5 + s^3\left(C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_4C_6R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C_6R_$ 

**9.1486** X-INVALID-ORDER-1486  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $\frac{C_{3}C_{5}R_{2}R_{3}R_{4}R_{6}s^{2}+C_{5}R_{2}R_{4}R_{6}s}{R_{4}+s^{3}\left(C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{3}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R$ 

**9.1487** X-INVALID-ORDER-1487  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

**9.1488** X-INVALID-ORDER-1488  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_3C_5R_2R_3R_4s + C_5R_2R_4$ 

 $\frac{C_{3}C_{5}R_{2}R_{3}R_{4}s+C_{5}R_{2}R_{4}}{C_{6}R_{4}+s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}+C_$ 

**9.1489** X-INVALID-ORDER-1489  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_3R_4R_6s^2 + C_5R_2R_4 + s\left(C_3C_5R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^3\left(C_1C_2C_5C_6R_2R_3R_4R_5 + C_1C_3C_5C_6R_2R_3R_4R_5 + C_1C_5C_6R_2R_3R_4 + C$ 

**9.1490** X-INVALID-ORDER-1490  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

```
9.1491 X-INVALID-ORDER-1491 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_5R_2R_3R_4R_5s^2 + R_2R_4 + s\left(C_3R_2R_3R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_4R_5 + C_1C_6R_4R_4R_5 + C_1C_6R_4R$ 

**9.1492** X-INVALID-ORDER-1492  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_2R_3R_4R_5R_6s^3 + R_2R_4 + s^2\left(C_3C_5R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_6 + C_5C_6R_2R_4R_5R_6\right) + s\left(C_3R_2R_3R_4 + C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5 + C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2$ 

**9.1493** X-INVALID-ORDER-1493  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_2R_3R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_3R_2R_3R_4R_5 + C_5R_2R_4R_5R_6 + C_5R_2R_4R_5R_6\right) + s^2\left(C_1C_2R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_3R_3R_4$ 

**9.1494** X-INVALID-ORDER-1494  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{C_1 R_1 R_2 R_4 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s \left( C_1 R_1 R_4 R_5 - C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 \right)}$$

**9.1495** X-INVALID-ORDER-1495  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1 R_1 R_2 R_4 s + R_2 R_4}{C_6 R_4 R_5 s + s^2 \left( C_1 C_6 R_1 R_4 R_5 - C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5 \right)}$$

**9.1496** X-INVALID-ORDER-1496  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_6R_1R_2R_4R_6s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5\right)}$$

**9.1497** X-INVALID-ORDER-1497  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{-C_1C_5C_6R_2R_3R_4R_6s^3 + R_4 + s^2\left(-C_1C_5R_2R_3R_4 + C_1C_6R_1R_4R_6 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_4R_6\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_6R_4R_6\right)}$$

**9.1498** X-INVALID-ORDER-1498  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s$ 

 $\frac{C_{1}C_{5}\kappa_{1}\kappa_{2}\kappa_{4}\kappa_{6}s^{-} + C_{5}\kappa_{2}\kappa_{4}\kappa_{6}s}{R_{4} + s^{3}\left(C_{1}C_{5}C_{6}R_{1}R_{4}R_{5}R_{6} - C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{6} + C_{1}C_{5}C_{6}R_{2}R_{3}R_{5}R_{6} + C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{5}R_{2}R_{3}R_{4} + C_{1}C_{5}R_{2}R_{3}R_{5} + C_{1}C_{5}R_{2}R_{5} + C_{1}C_{5}R_{2}R_{3}R_{5} + C_{1}C_{5}R_{2}R_{3}R_{5} +$ 

**9.1499** X-INVALID-ORDER-1499  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_4R_5s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_5R_2R_4R_5\right)}{-C_1C_5C_6R_2R_3R_4R_5s^3 + C_6R_4R_5s + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5\right)}$$

**9.1500** X-INVALID-ORDER-1500  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5C_6R_1R_2R_4R_5R_6s^3 + R_2R_4 + s^2\left(C_1C_5R_1R_2R_4R_5 + C_1C_6R_1R_2R_4R_6 + C_5C_6R_2R_4R_5R_6\right) + s\left(C_1R_1R_2R_4 + C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{-C_1C_5C_6R_2R_3R_4R_5s^3 + C_6R_4R_5s + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5\right)}$$

**9.1501** X-INVALID-ORDER-1501 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_1C_5R_1R_2R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_5R_2R_4R_5R_6\right)}{-C_1C_5C_6R_2R_3R_4R_5R_6s^3 + R_4R_5 + s^2\left(-C_1C_5R_2R_3R_4R_5 + C_1C_6R_1R_4R_5R_6 - C_1C_6R_2R_3R_4R_6 + C_1C_6R_2R_3R_4R_5R_6 + C_1C_6R_2R_3R_4R_5 + C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_$ 

**9.1502** X-INVALID-ORDER-1502  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1 R_1 R_2 s + R_2}{C_1 C_4 C_6 R_2 R_3 R_5 s^3 + C_6 R_5 s + s^2 \left( C_1 C_6 R_1 R_5 - C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5 \right)}$$

**9.1503** X-INVALID-ORDER-1503  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1 C_6 R_1 R_2 R_6 s^2 + R_2 + s \left(C_1 R_1 R_2 + C_6 R_2 R_6\right)}{C_1 C_4 C_6 R_2 R_3 R_5 s^3 + C_6 R_5 s + s^2 \left(C_1 C_6 R_1 R_5 - C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5\right)}$$

**9.1504** X-INVALID-ORDER-1504  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1 R_1 R_2 R_6 s + R_2 R_6}{C_1 C_4 C_6 R_2 R_3 R_5 R_6 s^3 + R_5 + s^2 \left(C_1 C_4 R_2 R_3 R_5 + C_1 C_6 R_1 R_5 R_6 - C_1 C_6 R_2 R_3 R_6 + C_1 C_6 R_2 R_5 R_6 + C_1 C_6 R_3 R_5 R_6\right) + s \left(C_1 R_1 R_5 - C_1 R_2 R_3 + C_1 R_2 R_5 + C_1 R_3 R_5 + C_6 R_5 R_6\right)}$$

**9.1505** X-INVALID-ORDER-1505  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_6s^2 + C_5R_2R_6s}{s^3\left(C_1C_4C_6R_2R_3R_6 - C_1C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_1C_6R_1R_6 + C_1C_6R_2R_6 + C_1C_6R_3R_6\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_6R_6\right) + 1}$$

**9.1506** X-INVALID-ORDER-1506  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_6s^2 + C_5R_2R_6s}{C_1C_4C_5R_2R_3R_5s^3 + s^2\left(C_1C_4R_2R_3 + C_1C_5R_1R_5 - C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_3R_5\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_5R_5\right) + 1}$$

**9.1507** X-INVALID-ORDER-1507  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2s + C_5R_2}{C_1C_4C_5C_6R_2R_3R_5s^3 + C_6 + s^2\left(C_1C_4C_6R_2R_3 + C_1C_5C_6R_1R_5 - C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_3R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_5C_6R_5\right)}$$

**9.1508** X-INVALID-ORDER-1508  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5C_6R_1R_2R_6s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_5C_6R_2R_6\right)}{C_1C_4C_5C_6R_2R_3R_5s^3 + C_6 + s^2\left(C_1C_4C_6R_2R_3 + C_1C_5C_6R_1R_5 - C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_3R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_5C_6R_5\right)}$$

**9.1509** X-INVALID-ORDER-1509  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_6s^2 + C_5R_2R_6s}{C_1C_4C_5C_6R_2R_3R_5R_6s^4 + s^3\left(C_1C_4C_5R_2R_3R_5 + C_1C_4C_6R_2R_3R_6 + C_1C_5C_6R_2R_3R_6 + C_1C_5C_6R_2R_3R_6 + C_1C_5C_6R_2R_3R_6 + C_1C_5C_6R_2R_3R_6 + C_1C_5C_6R_2R_3R_5 + C_1C_5R_2R_3 + C_1C_5R_3R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_$$

**9.1510** X-INVALID-ORDER-1510  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_2R_5s^2 + R_2 + s\left(C_1R_1R_2 + C_5R_2R_5\right)}{C_6R_5s + s^3\left(C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5\right)}$$

```
9.1511 X-INVALID-ORDER-1511 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                  H(s) = \frac{C_1C_5C_6R_1R_2R_5R_6s^3 + R_2 + s^2\left(C_1C_5R_1R_2R_5 + C_1C_6R_1R_2R_6 + C_5C_6R_2R_5R_6\right) + s\left(C_1R_1R_2 + C_5R_2R_5 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5\right)}
9.1512 X-INVALID-ORDER-1512 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_1C_5R_1R_2R_5R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_5R_2R_5R_6\right)}{R_5 + s^3\left(C_1C_4C_6R_2R_3R_5R_6 - C_1C_5C_6R_2R_3R_5R_6\right) + s^2\left(C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5 + C_1C_6R_1R_5R_6 - C_1C_6R_2R_3R_6 + C_1C_6R_2R_5R_6\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_1R_5R_6\right)}$ 

**9.1513** X-INVALID-ORDER-1513  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_4R_1R_2R_4s^2 + R_2 + s\left(C_1R_1R_2 + C_4R_2R_4\right)}{C_6R_5s + s^3\left(C_1C_4C_6R_1R_4R_5 - C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_4C_6R_4R_5\right)}$ 

**9.1514** X-INVALID-ORDER-1514  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_4C_6R_1R_2R_4R_6s^3 + R_2 + s^2\left(C_1C_4R_1R_2R_4 + C_1C_6R_1R_2R_6 + C_4C_6R_2R_4R_6\right) + s\left(C_1R_1R_2 + C_4R_2R_4 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_4C_6R_1R_4R_5 - C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_4C_6R_4R_5\right)}$ 

**9.1515** X-INVALID-ORDER-1515  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_4R_1R_2R_4R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_4R_2R_4R_6\right)}{R_5 + s^3\left(C_1C_4C_6R_1R_4R_5R_6 - C_1C_4C_6R_2R_3R_4R_6 + C_1C_4C_6R_2R_3R_5R_6 + C_1C_4C_6R_2R_4R_5R_6 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_3R_3R_5 + C_1C_4R_3R_5 + C_1C_4R_3R$ 

**9.1516** X-INVALID-ORDER-1516  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_4C_5R_1R_2R_4R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_4C_5R_2R_4R_6\right)}{-C_1C_4C_5R_2R_3R_4s^3 + s^2\left(C_1C_4R_1R_4 + C_1C_4R_2R_3 + C_1C_4R_2R_4 + C_1C_4R_3R_4 - C_1C_5R_2R_3\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_4R_4\right) + 1}$ 

**9.1517** X-INVALID-ORDER-1517  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_4C_5R_1R_2R_4s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_4C_5R_2R_4\right)}{-C_1C_4C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_1C_4C_6R_1R_4 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_4C_6R_4\right)}$ 

**9.1518** X-INVALID-ORDER-1518  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_4C_5C_6R_1R_2R_4R_6s^3 + C_5R_2 + s^2\left(C_1C_4C_5R_1R_2R_4 + C_1C_5C_6R_1R_2R_6 + C_4C_5C_6R_2R_4R_6\right) + s\left(C_1C_5R_1R_2 + C_4C_5R_2R_4 + C_5C_6R_2R_6\right)}{-C_7C_4C_5C_6R_2R_3R_4s^3 + C_6 + s^2\left(C_1C_4C_6R_1R_4 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_4C_6R_4\right)}$ 

**9.1519** X-INVALID-ORDER-1519  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_4C_5R_1R_2R_4R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_4C_5R_2R_4R_6\right)}{-C_1C_4C_5C_6R_2R_3R_4R_6s^4 + s^3\left(-C_1C_4C_5R_2R_3R_4 + C_1C_4C_6R_2R_3R_6 + C_1C_4C_6R_2R_4R_6 + C_1C_4C_6R_4R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_4 + C_1C_4C_6R_4R_4 +$ 

**9.1520** X-INVALID-ORDER-1520  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $\frac{C_{1}C_{4}C_{5}R_{1}R_{2}R_{4}R_{6}s^{3}+C_{5}R_{2}R_{6}s+s^{2}\left(C_{1}C_{5}R_{1}R_{2}R_{6}+C_{4}C_{5}R_{2}R_{4}R_{6}\right)}{s^{3}\left(C_{1}C_{4}C_{5}R_{1}R_{4}R_{5}-C_{1}C_{4}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{5}R_{2}R_{3}R_{5}+C_{1}C_{4}C_{5}R_{2}R_{4}R_{5}+C_{1}C_{4}C_{5}R_{3}R_{4}R_{5}\right)+s^{2}\left(C_{1}C_{4}R_{1}R_{4}+C_{1}C_{4}R_{2}R_{4}+C_{1}C_{4}R_{3}R_{4}+C_{1}C_{5}R_{2}R_{5}+C_{1}C_{5}R_{3}R_{5}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{4}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{3}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}R_{5}+C_{1}C_{5}R_{4}R_{5}\right)+s\left(C_{1}R_{1}+C_{1}R_{2}+C_{1}$ 

```
9.1521 X-INVALID-ORDER-1521 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4C_5R_1R_2R_4s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_4C_5R_2R_4\right)}{C_6 + s^3\left(C_1C_4C_5C_6R_1R_4R_5 - C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_4R_4 + C_1C_4C
9.1522 X-INVALID-ORDER-1522 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4C_5C_6R_1R_2R_4R_6s^3 + C_5R_2 + s^2\left(C_1C_4C_5R_1R_2R_4 + C_1C_5C_6R_1R_2R_6 + C_4C_5C_6R_2R_4R_6\right) + s\left(C_1C_5R_1R_2 + C_4C_5R_2R_4 + C_5C_6R_2R_4\right)}{C_6 + s^3\left(C_1C_4C_5C_6R_1R_4R_5 - C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4R_5\right) + s^2\left(C_1C_4C_6R_1R_4 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_3 + C_1C_4C_5C_6R_2R_4 + C_1C_4C_5C_6R_2R_4 + C_1C_4C_5C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_
9.1523 X-INVALID-ORDER-1523 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{s^4 \left( C_1 C_4 C_5 C_6 R_1 R_4 R_5 R_6 - C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_3 R_4 R_5 R_6 \right) \\ + s^3 \left( C_1 C_4 C_5 R_1 R_4 R_5 - C_1 C_4 C_5 R_2 R_3 R_5 + C_1 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_4 C_5 R_2 R_4 R_5 + C_1 C_4 C_5 R_5 R_5 + C_1 C_5
9.1524 X-INVALID-ORDER-1524 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                   H(s) = \frac{C_1C_4C_5R_1R_2R_4R_5R_6s^3 + R_2R_6 + s^2\left(C_1C_4R_1R_2R_4R_6 + C_1C_5R_1R_2R_5R_6 + C_4C_5R_2R_4R_5R_6\right) + s\left(C_1R_1R_2R_6 + C_4R_2R_4R_6 + C_5R_2R_5R_6\right)}{-C_1C_4C_5R_2R_3R_4R_5s^3 + R_5 + s^2\left(C_1C_4R_1R_4R_5 - C_1C_4R_2R_3R_4 + C_1C_4R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_3R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_4R_4R_5\right)}
9.1525 X-INVALID-ORDER-1525 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                       H(s) = \frac{C_1C_4C_5R_1R_2R_4R_5s^3 + R_2 + s^2\left(C_1C_4R_1R_2R_4 + C_1C_5R_1R_2R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_1R_1R_2 + C_4R_2R_4 + C_5R_2R_5\right)}{-C_1C_4C_5C_6R_2R_3R_4R_5s^4 + C_6R_5s + s^3\left(C_1C_4C_6R_1R_4R_5 - C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 + C_1C_4C_6R
9.1526 X-INVALID-ORDER-1526 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4C_5C_6R_1R_2R_4R_5R_6s^4 + R_2 + s^3\left(C_1C_4C_5R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_6 + C_4C_5C_6R_2R_4R_5 + C_1C_6R_1R_2R_4 + C_1C_5R_1R_2R_5 + C_1C_6R_1R_2R_6 + C_4C_5R_2R_4R_5 + C_4C_6R_2R_4R_6 + C_5C_6R_2R_4R_6 + C_5C_6R_2R_4R_5 + C_4C_6R_2R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_
9.1527 X-INVALID-ORDER-1527 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_4C_5R_1R_2R_4R_5R_6s^3 + R_2R_6 + s^2\left(C_1C_4R_1R_2R_4R_6 + C_1C_5R_1R_2R_5R_6 + C_4C_5R_2R_4R_5R_6\right) + s\left(C_1R_2R_2R_4R_5R_6 + C_1C_4C_6R_2R_3R_4R_5R_6 + C_1C_4C_6R_2R_4R_5R_6 + C_1C_4C_6R_4R_4R_5R_6 + C_1
9.1528 X-INVALID-ORDER-1528 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                   H(s) = \frac{C_1 R_1 R_2 R_4 s + R_2 R_4}{C_1 C_4 C_6 R_2 R_3 R_4 R_5 s^3 + C_6 R_4 R_5 s + s^2 \left( C_1 C_6 R_1 R_4 R_5 - C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_3 R_4 R_5 \right)}
```

**9.1529** X-INVALID-ORDER-1529  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_6R_1R_2R_4R_6s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_6R_2R_4R_6\right)}{C_1C_4C_6R_2R_3R_4R_5s^3 + C_6R_4R_5s + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5\right)}$ 

**9.1530** X-INVALID-ORDER-1530  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1 R_1 R_2 R_4 R_6 s + R_2 R_4 R_6}{C_1 C_4 C_6 R_2 R_3 R_4 R_5 R_6 s^3 + R_4 R_5 + s^2 \left(C_1 C_4 R_2 R_3 R_4 R_5 + C_1 C_6 R_1 R_4 R_5 R_6 - C_1 C_6 R_2 R_3 R_4 R_6 + C_1 C_6 R_2 R_3 R_5 R_6 + C_1 C_6 R_2 R_4 R_5 R_6 \right) + s \left(C_1 R_1 R_4 R_5 - C_1 R_2 R_3 R_4 + C_1 R_2 R_3 R_5 + C_1 R_2 R_4 R_5 + C_1 R_3 R_4 R_5 R_6 \right)}$ 

**9.1531** X-INVALID-ORDER-1531  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^3\left(C_1C_4C_6R_2R_3R_4R_6 - C_1C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_4R_2R_3R_4 - C_1C_5R_2R_3R_4 + C_1C_6R_1R_4R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_6R_4R_6\right)}$ **9.1532** X-INVALID-ORDER-1532  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{C_1C_4C_5R_2R_3R_4R_5s^3 + R_4 + s^2\left(C_1C_4R_2R_3R_4 + C_1C_5R_1R_4R_5 - C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_5 + C_1C_5R_2R_4R_5\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_5R_4R_5\right)}$ **9.1533** X-INVALID-ORDER-1533  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ **9.1534** X-INVALID-ORDER-1534  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_5C_6R_1R_2R_4R_6s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6\right)}{C_1C_4C_5C_6R_2R_3R_4R_5s^3 + C_6R_4 + s^2\left(C_1C_4C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_5 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R$ **9.1535** X-INVALID-ORDER-1535  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{C_1C_4C_5C_6R_2R_3R_4R_5R_6s^4 + R_4 + s^3\left(C_1C_4C_5R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_5R_6 + C_1C_5C_6R_2R_4R_5R_6 + C_1C_5C_6R_4R_4R_5R_6 + C_1C_5C_6R_4R_4R_5R_5 + C_1C_5C_6R_4R_4R_5 + C_1C_5C_6R_4R_4R_5 + C_1C_5C_6R_4R_4R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_$ **9.1536** X-INVALID-ORDER-1536  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_5R_1R_2R_4R_5s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5\right)}$ **9.1537** X-INVALID-ORDER-1537  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_5C_6R_1R_2R_4R_5R_6s^3 + R_2R_4 + s^2\left(C_1C_5R_1R_2R_4R_5 + C_1C_6R_1R_2R_4R_6 + C_5C_6R_2R_4R_5R_6\right) + s\left(C_1R_1R_2R_4 + C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5\right)}$ **9.1538** X-INVALID-ORDER-1538  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_5R_1R_2R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^3\left(C_1C_4C_6R_2R_3R_4R_5R_6 - C_1C_5C_6R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_5R_6 + C_1C_6R_3R_4R_5R_6 + C_1C_6R_3R_4R_5 + C_1C_6R_3R_4R_5R_6 + C_1C_6R_5R_5R_6 + C_1C_6R_5R_5R_6$ **9.1539** X-INVALID-ORDER-1539  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$  $H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5\right)}$ 

364

 $H(s) = \frac{C_1C_3R_1R_2R_4s + C_3R_2R_4}{s^2\left(C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$ 

**9.1540** X-INVALID-ORDER-1540  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

**9.1541** X-INVALID-ORDER-1541 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_6R_1R_2R_4R_6s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_6R_2R_4R_6\right)}{s^2\left(C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1542** X-INVALID-ORDER-1542  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1 C_3 C_5 R_1 R_2 R_4 R_6 s^2 + C_3 C_5 R_2 R_4 R_6 s}{C_1 R_2 + C_1 R_4 + C_3 R_4 + s \left( C_1 C_3 R_1 R_4 + C_1 C_3 R_2 R_4 - C_1 C_5 R_2 R_4 \right)}$$

**9.1543** X-INVALID-ORDER-1543  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$$

**9.1544** X-INVALID-ORDER-1544  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_6 s^2 + C_3 C_5 R_2 R_4 + s \left(C_1 C_3 C_5 R_1 R_2 R_4 + C_3 C_5 C_6 R_2 R_4 R_6\right)}{C_1 C_6 R_2 + C_1 C_6 R_4 + C_3 C_6 R_4 + s \left(C_1 C_3 C_6 R_1 R_4 + C_1 C_3 C_6 R_2 R_4 - C_1 C_5 C_6 R_2 R_4\right)}$$

**9.1545** X-INVALID-ORDER-1545  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_3C_5C_6R_1R_4R_5R_6 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6 + C_1C_5C_6R_4R_5R_6 + C_1C_5C_6R_5R_5R_6 + C_1C_5C_6R_5R_5R_6 + C_1C_5C_6R_5R_5R_6 +$$

**9.1546** X-INVALID-ORDER-1546  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 - C_1C_5R_2R_4R_5\right)}$$

**9.1547** X-INVALID-ORDER-1547  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)}{s^2\left(C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1548** X-INVALID-ORDER-1548  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{s^2\left(C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1549** X-INVALID-ORDER-1549  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_1 C_3 R_1 R_2 R_6 s + C_3 R_2 R_6}{-C_1 R_2 + C_1 R_5 + C_3 R_5 + s \left(C_1 C_3 R_1 R_5 + C_1 C_3 R_2 R_5 + C_1 C_4 R_2 R_5\right)}$$

**9.1550** X-INVALID-ORDER-1550  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1 C_3 R_1 R_2 s + C_3 R_2}{s^2 \left(C_1 C_3 C_6 R_1 R_5 + C_1 C_3 C_6 R_2 R_5 + C_1 C_4 C_6 R_2 R_5\right) + s \left(-C_1 C_6 R_2 + C_1 C_6 R_5 + C_3 C_6 R_5\right)}$$

**9.1551** X-INVALID-ORDER-1551 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_6R_1R_2R_6s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_6R_2R_6\right)}{s^2\left(C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.1552** X-INVALID-ORDER-1552 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_1 C_3 C_5 R_1 R_2 R_6 s^2 + C_3 C_5 R_2 R_6 s}{C_1 + C_3 + s \left( C_1 C_3 R_1 + C_1 C_3 R_2 + C_1 C_4 R_2 - C_1 C_5 R_2 \right)}$$

**9.1553** X-INVALID-ORDER-1553 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s\left(C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2\right)}$$

**9.1554** X-INVALID-ORDER-1554 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1 C_3 C_5 C_6 R_1 R_2 R_6 s^2 + C_3 C_5 R_2 + s \left(C_1 C_3 C_5 R_1 R_2 + C_3 C_5 C_6 R_2 R_6\right)}{C_1 C_6 + C_3 C_6 + s \left(C_1 C_3 C_6 R_1 + C_1 C_3 C_6 R_2 + C_1 C_4 C_6 R_2 - C_1 C_5 C_6 R_2\right)}$$

**9.1555** X-INVALID-ORDER-1555 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_3C_5C_6R_1R_5R_6 + C_1C_3C_5C_6R_2R_5R_6 + C_1C_4C_5C_6R_2R_5R_6 + C_1C_3C_5R_1R_5 + C_1C_3C_5R_2R_5 + C_1C_3C_6R_1R_6 + C_1C_3C_6R_2R_6 + C_1C_5C_6R_2R_6 + C_1C_5C_6R_2R_6 + C_1C_5C_6R_5R_6 + C_3C_5C_6R_5R_6 +$$

**9.1556** X-INVALID-ORDER-1556 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s\left(C_1C_3R_1R_5 + C_1C_3R_2R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5\right)}$$

**9.1557** X-INVALID-ORDER-1557 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_5s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_5R_2R_5\right)}{s^2\left(C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.1558** X-INVALID-ORDER-1558 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5C_6R_1R_2R_5R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_6 + C_3C_5C_6R_2R_5R_6\right) + s\left(C_1C_3R_1R_2 + C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^2\left(C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.1559** X-INVALID-ORDER-1559 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_4R_1R_2R_4s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4\right)}{s^3\left(C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 - C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_3C_4C_6R_4R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$$

**9.1560** X-INVALID-ORDER-1560 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_4C_6R_1R_2R_4R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 - C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_3C_4C_6R_4R_5\right) + s\left(C_1C_3R_4R_4 + C_3C_6R_2R_4 + C_3C_6R_2R_5 + C_3C_4C_6R_4R_5\right) + s\left(C_1C_3R_4R_5 + C_3C_4C_6R_4R_5\right) + s\left(C_1C_3C_4R_4R_5\right) + s\left(C_1C_3C_4R_5\right) + s\left(C_1C_3C$$

```
9.1561 X-INVALID-ORDER-1561 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_4R_1R_2R_4R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_3C_4C_6R_1R_4R_5R_6 + C_1C_3C_4R_2R_4R_5 + C_1C_3C_4R_1R_4R_5 + C_1C_3
9.1562 X-INVALID-ORDER-1562 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                  H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s + s^2\left(C_1C_3C_5R_1R_2R_6 + C_3C_4C_5R_2R_4R_6\right)}{C_1 + C_3 + s^2\left(C_1C_3C_4R_1R_4 + C_1C_3C_4R_2R_4 - C_1C_4C_5R_2R_4\right) + s\left(C_1C_3R_1 + C_1C_3R_2 + C_1C_4R_2 + C_1C_4R_4 - C_1C_5R_2 + C_3C_4R_4\right)}
9.1563 X-INVALID-ORDER-1563 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                     H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_2 + s^2\left(C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_3C_4C_5C_6R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_6\right)}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_1R_4 + C_1C_3C_4C_6R_2R_4 - C_1C_4C_5C_6R_2R_4\right) + s\left(C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_4C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_3C_4C_6R_4\right)}
9.1564 X-INVALID-ORDER-1564 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ R_2, \ \frac{1}{C_3 s}, \ R_4 + \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s + s^2\left(C_1C_3C_5R_1R_2R_6 + C_3C_4C_5R_2R_4R_6\right)}{C_1 + C_3 + s^3\left(C_1C_3C_4R_2R_4R_6 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_6R_2R_6 + C_1C_4C_5R_2R_4 + C_1C_4C_6R_2R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R
9.1565 X-INVALID-ORDER-1565 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s + s^2\left(C_1C_3C_5R_1R_2R_6 + C_3C_4C_5R_2R_4R_6\right)}{C_1 + C_3 + s^3\left(C_1C_3C_4C_5R_1R_4R_5 + C_1C_3C_4C_5R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_5R_2R_5 - C_1C_4C_5R_2R_5 + C_1C_4C_5R_2R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_3R_1 + C_1C_3R_2 + C_1C_4R_2 + C_1C_4R_4 - C_1C_5R_2 + C_1C_4R_5\right)}
9.1566 X-INVALID-ORDER-1566 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4\right)}{C_1C_6 + C_3C_6 + s^3\left(C_1C_3C_4C_5R_1R_4R_5 + C_1C_3C_4C_5R_2R_4R_5\right) + s^2\left(C_1C_3C_4C_6R_1R_4 + C_1C_3C_5C_6R_1R_5 + C_1C_3C_5C_6R_2R_5 - C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_4R_5 + C_3C_4C_5C_6R_4R_5\right) + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 + C_1C_3C_5C_6R_2R_5 - C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_4R_5 + C_3C_4C_5C_6R_4R_5\right) + s\left(C_1C_3C_4C_5R_4R_5 + C_1C_3C_4C_5R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_4C_5R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_4C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_4C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_4C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_
9.1567 X-INVALID-ORDER-1567 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_2 + s^2\left(C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_3C_4C_5C_6R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_6\right)}{C_1C_6 + C_3C_6 + s^3\left(C_1C_3C_4C_5C_6R_1R_4R_5 + C_1C_3C_4C_5R_2R_4 + C_1C_3C_5C_6R_2R_4 + C_1C_3C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_4R_5 + C_3C_4C_5C_6R_4R_5 + C_3C_4C_5C_6R_4R_5
9.1568 X-INVALID-ORDER-1568 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1 + C_3 + s^4 \left( C_1 C_3 C_4 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_4 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_6 + C_1 C_3 C_5 C_6 R_2 R_4 R_6 + C_1 C_5 C_6 R_2 R_4 R_6 + C_1 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_5 C_6 R_2
9.1569 X-INVALID-ORDER-1569 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                   H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_2R_6 + s^2\left(C_1C_3C_4R_1R_2R_4R_6 + C_1C_3C_5R_1R_2R_5R_6 + C_3C_4C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_1R_4R_5 + C_1C_3C_4R_2R_4R_5 - C_1C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_5 + C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 - C_1C_5R_2R_5 + C_3C_4R_4R_5\right)}
9.1570 X-INVALID-ORDER-1570 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                     H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_5s^3 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_3C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4 + C_3C_5R_2R_5\right)}{s^3\left(C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 - C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_3C_4C_6R_4R_5\right) + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4 + C_3C_5R_2R_5\right)}
```

```
9.1571 X-INVALID-ORDER-1571 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_2 + s^3\left(C_1C_3C_4C_5R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_5R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_4R_5 + C_3C_$ 

**9.1572** X-INVALID-ORDER-1572 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_2R_6 + s^2\left(C_1C_3C_4R_1R_2R_4R_6 + C_1C_3C_5R_1R_2R_5R_6 + C_3C_4C_5R_2R_4R_5R_6\right) + s\left(C_1C_3C_4R_1R_2R_4R_5 + C_1C_3C_4R_1R_2R_4R_5 + C_1C_3C_4R_1R_4R_5 + C_1C_3C_4R_1R_5 + C_1C_3C_4R_1R_5 + C_1C_3C_4R_1R_5 + C_1C_3C_4R_1R_5 + C_1C_3C_4R_1R_5 + C_1C_3$ 

**9.1573** X-INVALID-ORDER-1573 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$

$$H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5\right)}$$

**9.1574** X-INVALID-ORDER-1574 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3R_1R_2R_4s + C_3R_2R_4}{s^2\left(C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1575** X-INVALID-ORDER-1575 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_6R_1R_2R_4R_6s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_6R_2R_4R_6\right)}{s^2\left(C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

**9.1576** X-INVALID-ORDER-1576 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_1 C_3 C_5 R_1 R_2 R_4 R_6 s^2 + C_3 C_5 R_2 R_4 R_6 s}{C_1 R_2 + C_1 R_4 + C_3 R_4 + s \left(C_1 C_3 R_1 R_4 + C_1 C_3 R_2 R_4 + C_1 C_4 R_2 R_4 - C_1 C_5 R_2 R_4\right)}$$

9.1577 X-INVALID-ORDER-1577 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$$

**9.1578** X-INVALID-ORDER-1578 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$$

9.1579 X-INVALID-ORDER-1579 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s$$

 $H(s) = \frac{10.3 \times 3.17.2 \times 4.100}{C_1 R_2 + C_1 R_4 + C_3 R_4 + s^3 \left(C_1 C_3 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 R_2 R_4 R_5 + C_1 C_3 C_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 + C_1 C_5 R_$ 

**9.1580** X-INVALID-ORDER-1580 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_4R_5\right)}$$

```
9.1581 X-INVALID-ORDER-1581 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                   H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)}{s^2\left(C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.1582 X-INVALID-ORDER-1582 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                     H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{s^2\left(C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.1583 X-INVALID-ORDER-1583 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)
                                                                                                                                                                H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_3R_1R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_3R_4R_5\right)}
9.1584 X-INVALID-ORDER-1584 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                           H(s) = \frac{C_1C_3R_1R_2R_4s + C_3R_2R_4}{s^2\left(C_1C_3C_6R_1R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_3R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.1585 X-INVALID-ORDER-1585 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                          H(s) = \frac{C_1C_3C_6R_1R_2R_4R_6s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_6R_2R_4R_6\right)}{s^2\left(C_1C_3C_6R_1R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.1586 X-INVALID-ORDER-1586 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{-C_1C_3C_5C_6R_2R_3R_4R_6s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(-C_1C_3C_5R_2R_3R_4 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_3R_3R_4 + C_1C_5R_2R_4 + C_1C_3R_2R_4 + C_1C_3R
9.1587 X-INVALID-ORDER-1587 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_3C_5C_6R_1R_4R_5R_6 - C_1C_3C_5C_6R_2R_3R_4R_6 + C_1C_3C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_3R_4R_5R_6\right) + s^2\left(C_1C_3C_5R_1R_4R_5 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_4R_4R_5 + C_1C_3C_5R_4R_5R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R
9.1588 X-INVALID-ORDER-1588 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                           H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)}{-C_1C_3C_5C_6R_2R_3R_4R_5s^3 + s^2\left(C_1C_3C_6R_1R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.1589 X-INVALID-ORDER-1589 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                          H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{-C_1C_3C_5C_6R_2R_3R_4R_5s^3 + s^2\left(C_1C_3C_6R_1R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_5\right)}
9.1590 X-INVALID-ORDER-1590 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $\frac{ \cup_1 \cup_3 \cup_5 \pi_1 \pi_2 \pi_4 \pi_5 \pi_6 s^- + \cup_3 \pi_2 \pi_4 \pi_6 + s (\cup_1 \cup_3 \pi_1 \pi_2 \pi_4 \pi_6 + v_3 \cup_5 \pi_2 \pi_4 \pi_5 \pi_6)}{ -C_1 C_3 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_6 R_4 R_5 R_6 + C_1 C_3 C_6 R_4 R_5 R_6 + C_1 C_3 C_6 R_4 R_5 R_6 + C_1 C_5 C_6 R_5 R_5 R_6 + C_$ 

 $C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)$ 

```
H(s) = \frac{C_1C_3R_1R_2s + C_3R_2}{C_1C_3C_4C_6R_2R_3R_5s^3 + s^2\left(C_1C_3C_6R_1R_5 - C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}
9.1592 X-INVALID-ORDER-1592 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                           H(s) = \frac{C_1C_3C_6R_1R_2R_6s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_6R_2R_6\right)}{C_1C_3C_4C_6R_2R_3R_5s^3 + s^2\left(C_1C_3C_6R_1R_5 - C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}
9.1593 X-INVALID-ORDER-1593 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_6s + C_3R_2R_6}{C_1C_3C_4C_6R_2R_3R_5R_6s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_2R_3R_5 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_5R_6\right) + s\left(C_1C_3R_1R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5 - C_1C_6R_2R_6 + C_1C_3C_6R_2R_5R_6\right) + s\left(C_1C_3R_1R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_2R_5 + C_1C_4R_2R_5 - C_1C_4R_2R_5 + C_1C_3R_3R_5 
9.1594 X-INVALID-ORDER-1594 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ R_2, \ R_3 + \frac{1}{C_3 s}, \ \frac{1}{C_4 s}, \ \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_3C_4C_6R_2R_3R_6 - C_1C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_3C_4R_2R_3 - C_1C_3C_5R_2R_3 + C_1C_3C_6R_1R_6 + C_1C_3C_6R_2R_6 + C_1C_3C_6R_2R_6 + C_1C_3C_6R_2R_6 + C_1C_3C_6R_2R_6\right) + s\left(C_1C_3R_1 + C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2 + C_1C_6R_6 + C_3C_6R_6\right)}
9.1595 X-INVALID-ORDER-1595 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                    H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1C_3C_4C_5R_2R_3R_5s^3 + C_1 + C_3 + s^2\left(C_1C_3C_4R_2R_3 + C_1C_3C_5R_1R_5 - C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_2R_5 + C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_2 - C_1C_5R_2 + C_1C_5R_5 + C_3C_5R_5\right)}
9.1596 X-INVALID-ORDER-1596 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_2s + C_3C_5R_2}{C_1C_3C_4C_5C_6R_2R_3R_5s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 + C_1C_3C_5C_6R_2R_3 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_6R_2 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_3C_5C_6R_5 + C_
9.1597 X-INVALID-ORDER-1597 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_5C_6R_2R_6\right)}{C_1C_3C_4C_5C_6R_2R_3R_5s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 + C_1C_3C_5C_6R_2R_3 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_6R_2 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_3C_5C_6R_3R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_3C_5C_6R_3R_5 + C_1C_4C_5C_6R_3 + C_1C_4C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 + C_1C_5C_6R_3 + C_1C_4C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R
9.1598 X-INVALID-ORDER-1598 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.1599 X-INVALID-ORDER-1599 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                              H(s) = \frac{C_1C_3C_5R_1R_2R_5s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_5R_2R_5\right)}{s^3\left(C_1C_3C_4C_6R_2R_3R_5 - C_1C_3C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_3C_6R_1R_5 - C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}
```

**9.1591** X-INVALID-ORDER-1591  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

**9.1600** X-INVALID-ORDER-1600  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_5R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_6 + C_3C_5C_6R_2R_5R_6\right) + s\left(C_1C_3R_1R_2 + C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_3C_4C_6R_2R_3R_5 - C_1C_3C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_3C_6R_1R_5 - C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}$ 

```
9.1602 X-INVALID-ORDER-1602 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4R_1R_2R_4s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4\right)}{s^3\left(C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + S_3C_4C_6R_4R_5 
9.1603 X-INVALID-ORDER-1603 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_6R_1R_2R_4R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_3C_4C_6R_1R_4R_5 - C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_3C_6R_1R_5 - C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_5 + C_1C_4C_6R_4R_5 + C_1C_
9.1604 X-INVALID-ORDER-1604 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_3C_4C_6R_1R_4R_5R_6 - C_1C_3C_4C_6R_2R_3R_4R_6 + C_1C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6\right) + s^2\left(C_1C_3C_4R_1R_4R_5 - C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_5 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_5R_5 + C_1C_3C_4R
9.1605 X-INVALID-ORDER-1605 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                 H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s + s^2\left(C_1C_3C_5R_1R_2R_6 + C_3C_4C_5R_2R_4R_6\right)}{-C_1C_3C_4C_5R_2R_3R_4s^3 + C_1 + C_3 + s^2\left(C_1C_3C_4R_1R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_3R_4 - C_1C_3C_5R_2R_3 - C_1C_4C_5R_2R_4\right) + s\left(C_1C_3R_1 + C_1C_3R_2 + C_1C_3R_3 + C_1C_4R_4 - C_1C_5R_2 + C_3C_4R_4\right)}
9.1606 X-INVALID-ORDER-1606 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4\right)}{-C_1C_3C_4C_5C_6R_2R_3R_4s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_1R_4 + C_1C_3C_4C_6R_2R_4 + C_1C_3C_4C_6R_2R_4 + C_1C_3C_5C_6R_2R_3 - C_1C_4C_5C_6R_2R_4\right) + s\left(C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_3C_4C_6R_4\right)}
9.1607 X-INVALID-ORDER-1607 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_2 + s^2\left(C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_3C_4C_5R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_4\right) + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_4\right) + s\left(C_1C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_4 + C_3C_5C_6R_2R_4\right) + s\left(C_1C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_4 + C_3C_5C_6R_2R_4\right) + s\left(C_1C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_4 + C_3C_5C_6R_2R_4\right) + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_4\right) + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_3R_4\right) + s\left(C_1C_3C_4R_3R_4 + C_1C_3C_4C_6R_4 + C_1C_3C_4C_6R_4\right) + s\left(C_1C_3C_4R_4 + C_1C_3C_4R_4 + C_1C_3C_4C_6R_4\right) + s\left(C_1C_3C_4R_4 + C_1C_3C_4R_4\right) + s\left(C_1C_3C_4R_4\right) + s\left
9.1608 X-INVALID-ORDER-1608 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_3R_6 + C_1C_3C_4C_5R_2R_3R_4 + C_1C_3C_4C_5R_2R_3R_6 + C_1C_3C_4C_6R_2R_3R_6 + C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_3R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_3R_4C_6R_3R_4C_6R_5R_5R_5 + C_1C_3C_4C_6R_3R_4C_6R_5R_5R_5 + C_1C_3C
9.1609 X-INVALID-ORDER-1609 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s + s^2\left(C_1C_3C_5R_1R_2R_6 + C_3C_4C_5R_2R_4R_6\right)}{C_1 + C_3 + s^3\left(C_1C_3C_4C_5R_1R_4R_5 - C_1C_3C_4C_5R_2R_3R_4 + C_1C_3C_4C_5R_2R_4R_5 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_5R_1R_5 - C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_3R_5 + C_1C_3C_5R_5R_5 
9.1610 X-INVALID-ORDER-1610 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_1C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_2 + s(C_1C_3)
H(s) = \frac{C_1C_3C_4C_5R_1R_4R_5 - C_1C_3C_4C_5R_2R_3R_4 + C_1C_3C_4C_5R_2R_3R_4 + C_1C_3C_4C_5R_2R_3R_5 + C_1C_3C_4C_5R_2R_4R_5 + C_1C_3C_4C_5R_3R_4R_5) + s^2\left(C_1C_3C_4C_6R_2R_3 + C_1C_3C_4C_6R_2R_4 + C_1C_3C_4C_6R_4 + C_1C
```

 $H(s) = \frac{C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_3C_4C_6R_2R_3R_5R_6 - C_1C_3C_5R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_3R_5$ 

 $C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6\right)$ 

**9.1601** X-INVALID-ORDER-1601  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

```
9.1611 X-INVALID-ORDER-1611 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C_1C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_2 + s^2(C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_1C_3C_5C_6R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_1C_3C_5C_6R_1R_5C_6R_5
H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_2 + s^2\left(C_1C_3C_4C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_6 + C_1C_3C_4C_5C_6R_1R_2R_4 + C_1C_3C_4C_5C_6R_2R_3R_4 + C_1C_3C_4C_5C_6R_2R_3R_5 + C_1C_3C_4C_5C_6R_2R_4R_5 + C_1C_3C_4C_5C_6R_2R_4R_5 + C_1C_3C_4C_5C_6R_2R_4R_5 + C_1C_3C_4C_5C_6R_2R_4R_5 + C_1C_3C_4C_5C_6R_2R_4 + C_1C_3C_4C_5C_6R_4 + C_1C_3C_5C_6R_4 + C_1C_3C_5C_6R_4 + C_1C_3C_5C_6R_4 + C_1C_3C_
9.1612 X-INVALID-ORDER-1612 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.1613 X-INVALID-ORDER-1613 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_2R_6 + s^2\left(C_1C_3C_4R_1R_2R_4R_6 + C_1C_3C_5R_1R_2R_5R_6 + C_3C_4C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6\right)}{-C_1C_3C_4C_5R_2R_3R_4R_5s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_1R_4R_5 - C_1C_3C_4R_2R_4R_5 + C_1C_3C_4R_4R_5 + C_
9.1614 X-INVALID-ORDER-1614 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_5s^3 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_3C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4 + C_3C_5R_2R_5\right)}{-C_1C_3C_4C_5R_2R_3R_4R_5s^4 + s^3\left(C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_
9.1615 X-INVALID-ORDER-1615 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_2 + s^3\left(C_1C_3C_4C_5R_1R_2R_4R_5 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_5C_6R_1R_2R_5R_6 + C_3C_4C_5R_2R_4R_5R_6\right) + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_5R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_4R_4R_5 + C_1C_3C_4C_4R_4R_5 + C_1C_3C_4C_4R_4R_5 + C_1C_3C_4C_4R_4R_5 + C_1C_3C_4C_4R_4R_5 + C_1C_3C_4C_4R_4R_5 + C_1C
9.1616 X-INVALID-ORDER-1616 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1C_3C_4C_5C_6R_2R_3R_4R_5R_6s^4 - C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(-C_1C_3C_4C_5R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_6 + C_1C_3C_4C_6R_2R_3R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6 - C_1C_3C_4C_6R_2R_3R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6 - C_1C_3C_4C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5R_6 - C_1C_3C_4C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_4R_4R_5R_6 + C_1C_3C_4C_6R_4R_4R_5R_5 + C_1C_3C_4C_6R_4R_5R_5R_5 + C_1C_3C_4C_5R_5R_5R_5 + C_1C_3C_4C_5R_5R_5R_5 + C_1C_3C_5C_5R_5
9.1617 X-INVALID-ORDER-1617 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                                                                                   H(s) = \frac{C_1C_3R_1R_2R_4s + C_3R_2R_4}{C_1C_3C_4C_6R_2R_3R_4R_5s^3 + s^2\left(C_1C_3C_6R_1R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.1618 X-INVALID-ORDER-1618 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                   H(s) = \frac{C_1C_3C_6R_1R_2R_4R_6s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_6R_2R_4R_6\right)}{C_1C_3C_4C_6R_2R_3R_4R_5s^3 + s^2\left(C_1C_3C_6R_1R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
```

**9.1619** X-INVALID-ORDER-1619  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6$ 

 $H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{C_1C_3C_4R_2R_3R_4R_5R_6s^3 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_3C_4R_2R_3R_4R_5 - C_1C_3C_6R_2R_3R_4R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_$ 

**9.1620** X-INVALID-ORDER-1620  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_3C_4C_6R_2R_3R_4R_6 - C_1C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_3C_4R_2R_3R_4 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C$ 

```
9.1621 X-INVALID-ORDER-1621 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1C_3C_4C_5R_2R_3R_4R_5s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_3C_4R_2R_3R_4 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_
9.1622 X-INVALID-ORDER-1622 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4
H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_3C_4C_5C_6R_2R_3R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_
9.1623 X-INVALID-ORDER-1623 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_3C_4C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5
9.1624 X-INVALID-ORDER-1624 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_3C_4C_5C_6R_2R_3R_4R_5R_6s^4 + C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_3C_4C_5R_2R_3R_4R_5 + C_1C_3C_5C_6R_1R_4R_5R_6 - C_1C_3C_5C_6R_2R_3R_4R_6 + C_1C_3C_5C_6R_2R_3R_4R_5 + C_1C_3C_5C_6R_2R_4R_5R_5 + C_1C_3C_5C_6R_2R_4R_5R_5 + C_1C_3C_5C_6R_2R_4R_5R_5 + C_1C_3C_5C_6R_2R_4R_5R_5 + C_1C_3C_5C_6R_2R_4R_5R_5 + C_1C_3C_5C_6R_2R_5R_5R_5 + C_1C_3C_5C_6R_5R_5R_5R_5 + C_1C_3C_5C_6R_5R_5R_5R_5 + C_1C_3C_5C_6R_5R_5R_5R_5 + C_1C_3C_5C_6R_5R_5R_5R_5 + C_1C_3C_5C_6R_5R_5R_5R_5 + C_1C_3C_5C_6R_5R_5R_5R_5 + C_1C_5C_5C_6R_5R_5R_5R_5 + C_1C_5C_5C_5R_5R_5R_5R_5 + C_1C_5C_5C_5R_5R_5R_5R_5 + C_1C_5C_5C_5R_5R_5R_5 + C_1C_5C_5C_5R_5R_5R_5 + C_1C_5C_5C_5R_5R_5R_5 + C_
9.1625 X-INVALID-ORDER-1625 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
 H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)}{s^3\left(C_1C_3C_4C_6R_2R_3R_4R_5 - C_1C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_3C_6R_1R_4R_5 - C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_1C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_4R_5\right) + s\left(-C_1C_6R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_4R_5\right) + s\left(-C_1C_6R_4R_5 + C_1C_6R_4R_5\right) + s\left(-C_1C_6R_4R_5 + C_1C_6R_4R_5\right) + s\left(-C_1C_6R_4R_5 + C_1C_6R_4R_5\right) + s\left(-C_1C_6R_4R_5\right) + s\left(-C_1
9.1626 X-INVALID-ORDER-1626 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                         \frac{C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5}R_{6}s^{3}+C_{3}R_{2}R_{4}+s^{2}\left(C_{1}C_{3}C_{5}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{4}R_{6}+C_{3}C_{5}C_{6}R_{2}R_{4}R_{5}R_{6}\right)+s\left(C_{1}C_{3}R_{1}R_{2}R_{4}+C_{3}C_{5}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{2}R_{4}R_{5}+C_{3}C_{6}R_{4}R_{5}+C_{3}C_{6}R_{4}R_{5}+C_{3}C_{6}R_{4}R_{5}+C_{3}C_{6}R_{4}R_{5}+C_{
9.1627 X-INVALID-ORDER-1627 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s(C_1C_3R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s(C_1C_3R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s(C_1C_3R_1R_2R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R
9.1628 X-INVALID-ORDER-1628 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                 H(s) = \frac{C_1C_3R_1R_2R_3R_4s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right)}
9.1629 X-INVALID-ORDER-1629 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                 H(s) = \frac{C_1C_3C_6R_1R_2R_3R_4R_6s^3 + R_2R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_6R_1R_2R_4R_6 + C_3C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5\right)}
9.1630 X-INVALID-ORDER-1630 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $\frac{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{6}s^{2}+R_{2}R_{4}R_{6}+s\left(C_{1}R_{1}R_{2}R_{4}R_{6}+C_{3}R_{2}R_{3}R_{4}R_{6}\right)}{R_{4}R_{5}+s^{3}\left(C_{1}C_{3}C_{6}R_{1}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{4}R_{5}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{$ 

```
9.1631 X-INVALID-ORDER-1631 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                              H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_6\right)}{R_4 + s^2\left(C_1C_3R_1R_3R_4 + C_1C_3R_2R_3R_4 - C_1C_5R_2R_3R_4\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4\right)}
9.1632 X-INVALID-ORDER-1632 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                        H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_3R_4R_6\right) + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_3C_6R_3R_4 + C_3C_6R_3R_4\right)}
9.1633 X-INVALID-ORDER-1633 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_6\right)}{R_4 + s^3\left(C_1C_3C_6R_1R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_3R_1R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_3R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4\right)}
9.1634 X-INVALID-ORDER-1634 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_6\right)}{R_4 + s^3\left(C_1C_3C_5R_1R_3R_4R_5 + C_1C_3C_5R_2R_3R_4R_5\right) + s^2\left(C_1C_3R_1R_3R_4 + C_1C_5R_1R_4R_5 - C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_5R_3R_4R_5\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 
9.1635 X-INVALID-ORDER-1635 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4\right)}{C_6R_4 + s^3\left(C_1C_3C_5C_6R_1R_3R_4R_5 + C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_3C_6R_1R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_3R_4 + C_1
9.1636 X-INVALID-ORDER-1636 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_3R_4R_6\right) + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^3\left(C_1C_3C_5C_6R_1R_3R_4R_5 + C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_3C_6R_1R_3R_4 + C_1C_5C_6R_1R_4R_5 - C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_2R_4R_5\right) + s\left(C_1C_3C_5R_1R_3R_4R_5 + C_1C_5C_6R_2R_3R_4R_5\right) + s\left(C_1C_3C_5R_1R_3R_4R_5 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_3R_4 + C_1C
9.1637 X-INVALID-ORDER-1637 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{R_4 + s^4 \left( C_1 C_3 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_3 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_6 R_2 R_3 R_4 R_6 + C_1 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_5 C_6 R_2 R_5 R_6 + C
9.1638 X-INVALID-ORDER-1638 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                      H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_2R_4R_6 + s^2\left(C_1C_3R_1R_2R_3R_4R_6 + C_1C_5R_1R_2R_4R_5R_6 + C_3C_5R_2R_3R_4R_5R_6\right) + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_3R_1R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5\right)}
9.1639 X-INVALID-ORDER-1639 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                              H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_5s^3 + R_2R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_5R_1R_2R_4R_5 + C_3C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_3R_4R_5 + C_1C_6R_3R_4R_5\right)}
```

 $\frac{C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}s^{4} + R_{2}R_{4} + s^{3}\left(C_{1}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{6}R_{$ 

**9.1640** X-INVALID-ORDER-1640  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

```
9.1641 X-INVALID-ORDER-1641 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_2R_4R_6 + s^2\left(C_1C_3R_1R_2R_3R_4R_6 + C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_5 + s^2\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6 + C_5R_2R_4R_5 + s^2\left(C_1C_3R_1R_3R_4R_5R_6 + C_1C_5R_2R_3R_4R_5 + c_1C_5R_3R_4R_5 + c_1C_5R_5R_5R_5 + c_1C_5R
9.1642 X-INVALID-ORDER-1642 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                         H(s) = \frac{C_1C_3R_1R_2R_3s^2 + R_2 + s\left(C_1R_1R_2 + C_3R_2R_3\right)}{C_6R_5s + s^3\left(C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_3C_6R_3R_5\right)}
9.1643 X-INVALID-ORDER-1643 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                         H(s) = \frac{C_1C_3C_6R_1R_2R_3R_6s^3 + R_2 + s^2\left(C_1C_3R_1R_2R_3 + C_1C_6R_1R_2R_6 + C_3C_6R_2R_3R_6\right) + s\left(C_1R_1R_2 + C_3R_2R_3 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_3C_6R_3R_5\right)}
9.1644 X-INVALID-ORDER-1644 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_3R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_3R_2R_3R_6\right)}{R_5 + s^3\left(C_1C_3C_6R_1R_3R_5R_6 + C_1C_3C_6R_2R_3R_5R_6 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_3R_5 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_3R_6 + C_1C_6R_3R_5R_6 + C_1C_6R_5R_5R_6 + C
9.1645 X-INVALID-ORDER-1645 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                    H(s) = \frac{C_1C_3C_5R_1R_2R_3R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_3C_5R_2R_3R_6\right)}{s^2\left(C_1C_3R_1R_3 + C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_3R_3\right) + 1}
9.1646 X-INVALID-ORDER-1646 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                              H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_6s^3 + C_5R_2 + s^2\left(C_1C_3C_5R_1R_2R_3 + C_1C_5C_6R_1R_2R_6 + C_3C_5C_6R_2R_3R_6\right) + s\left(C_1C_5R_1R_2 + C_3C_5R_2R_3 + C_5C_6R_2R_6\right)}{C_6 + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_2R_2 + C_1C_4C_6R_2R_2 - C_1C_5C_6R_2R_2\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_2 + C_2C_6R_2\right)}
9.1647 X-INVALID-ORDER-1647 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                H(s) = \frac{C_1C_3C_5R_1R_2R_3R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_3C_5R_2R_3R_6\right)}{s^3\left(C_1C_3C_6R_1R_3R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_4C_6R_2R_3R_6 - C_1C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_1C_6R_2R_6 + C_1C_6R_3R_6 + C_3C_6R_3R_6\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_3R_3 + C_6R_6\right) + 1s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_3R_3 + C
9.1648 X-INVALID-ORDER-1648 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                        H(s) = \frac{C_1C_3C_5R_1R_2R_3R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_3C_5R_2R_3R_6\right)}{s^3\left(C_1C_3C_5R_1R_3R_5 + C_1C_3C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_3R_2R_3 + C_1C_5R_1R_5 - C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_3R_5 + C_3C_5R_3R_5\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_3R_3 + C_5R_5\right) + 1}
9.1649 X-INVALID-ORDER-1649 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_3C_5R_2R_3\right)}{C_6 + s^3\left(C_1C_3C_5C_6R_1R_3R_5 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_3C_6R_1R_3 + C_1C_3C_6R_2R_3 + C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_3 + C_1C_5C_6R_3R_5 + C_3C_5C_6R_3R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_3 + C_3C_6R_3 + C
```

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_6s^3 + C_5R_2 + s^2\left(C_1C_3C_5R_1R_2R_3 + C_1C_5C_6R_1R_2R_6 + C_3C_5C_6R_2R_3R_6\right) + s\left(C_1C_5R_1R_2 + C_3C_5R_2R_3 + C_5C_6R_2R_3 + C_5$ 

**9.1650** X-INVALID-ORDER-1650  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

```
9.1651 X-INVALID-ORDER-1651 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

**9.1652** X-INVALID-ORDER-1652  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_5R_6s^3 + R_2R_6 + s^2\left(C_1C_3R_1R_2R_3R_6 + C_1C_5R_1R_2R_5R_6 + C_3C_5R_2R_3R_5R_6\right) + s\left(C_1R_1R_2R_6 + C_3R_2R_3R_6 + C_5R_2R_5R_6\right)}{R_5 + s^2\left(C_1C_3R_1R_3R_5 + C_1C_3R_2R_3R_5 + C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_3R_3R_5\right)}$ 

**9.1653** X-INVALID-ORDER-1653  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_5s^3 + R_2 + s^2\left(C_1C_3R_1R_2R_3 + C_1C_5R_1R_2R_5 + C_3C_5R_2R_3R_5\right) + s\left(C_1R_1R_2 + C_3R_2R_3 + C_5R_2R_5\right)}{C_6R_5s + s^3\left(C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_3C_6R_3R_5\right)}$ 

**9.1654** X-INVALID-ORDER-1654  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_5R_6s^4 + R_2 + s^3\left(C_1C_3C_5R_1R_2R_3R_5 + C_1C_3C_6R_1R_2R_3R_6 + C_1C_5C_6R_1R_2R_3R_6 + C_3C_5C_6R_2R_3R_5 + C_1C_5R_1R_2R_3 + C_1C_5R_1R_2R_5 + C_1C_6R_1R_2R_6 + C_3C_5R_2R_3R_5 + C_3C_6R_2R_3R_6 + C_5C_6R_2R_3R_6 + C_5C_6R_2R_3R_5 + C_3C_6R_2R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_$ 

**9.1655** X-INVALID-ORDER-1655  $Z(s) = \left(R_1 + \frac{1}{C_{1s}}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_5R_6s^3 + R_2R_6 + s^2\left(C_1C_3R_1R_2R_3R_6 + C_1C_5R_1R_2R_5R_6 + C_3C_5R_2R_3R_5R_6\right) + s\left(C_1R_1R_2R_6 + C_3R_2R_3R_6 + C_5R_2R_5R_6\right)}{R_5 + s^3\left(C_1C_3C_6R_1R_3R_5R_6 + C_1C_4C_6R_2R_3R_5R_6 + C_1C_5C_6R_2R_3R_5R_6\right) + s^2\left(C_1C_3R_1R_3R_5 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_3R_5 + C_1C_6R_1R_5R_6 - C_1C_6R_2R_3R_6 + C_1C_6R_2R_3R_5R_6 + C_1C_6R_3R_5R_6\right) + s\left(C_1R_1R_2R_6 + C_3R_2R_3R_5 + C_1C_6R_2R_3R_5 + C_1$ 

**9.1656** X-INVALID-ORDER-1656  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $\frac{C_{1}C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}R_{6}s^{3}+R_{2}R_{6}+s^{2}\left(C_{1}C_{3}R_{1}R_{2}R_{3}R_{6}+C_{1}C_{4}R_{1}R_{2}R_{4}R_{6}+C_{3}C_{4}R_{2}R_{3}R_{4}R_{6}\right)+s\left(C_{1}R_{1}R_{2}R_{6}+C_{3}R_{2}R_{3}R_{6}+C_{4}R_{2}R_{4}R_{6}\right)}{R_{5}+s^{3}\left(C_{1}C_{3}C_{4}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{2}R_{3}R_{5}+C_{1}C_{4}R_{2}R_{3}R_{$ 

**9.1657** X-INVALID-ORDER-1657  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4R_1R_2R_3R_4s^3 + R_2 + s^2\left(C_1C_3R_1R_2R_3 + C_1C_4R_1R_2R_4 + C_3C_4R_2R_3R_4\right) + s\left(C_1R_1R_2 + C_3R_2R_3 + C_4R_2R_4\right)}{C_6R_5s + s^4\left(C_1C_3C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_4R_4 + C_1C_4C_6R_4R_4 + C_1C_4C_6R_4R_4 + C_1C_4C_6R_4R_4 + C_1C_4C_6R_4R_4 + C_1C_4C_6R_4R_4 + C_1C_$ 

**9.1658** X-INVALID-ORDER-1658  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $\frac{C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{6}s^{4}+R_{2}+s^{3}\left(C_{1}C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{6}+C_{1}C_{4}C_{6}R_{1}R_{2}R_{4}R_{6}+C_{3}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{1}R_{2$ 

**9.1659** X-INVALID-ORDER-1659  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1660** X-INVALID-ORDER-1660  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4R_6s^4 + C_5R_2R_6s + s^3\left(C_1C_3C_5R_1R_2R_3R_6 + C_1C_4C_5R_1R_2R_4R_6 + C_3C_4C_5R_2R_3R_4R_6\right) + s^2\left(C_1C_5R_1R_2R_6 + C_3C_5R_2R_3R_6 + C_4C_5R_2R_4R_6\right)}{s^3\left(C_1C_3C_4R_1R_3R_4 + C_1C_4C_5R_2R_3R_4 + C_1C_4C_5R_2R_3R_4 + C_1C_4R_2R_4 + C_1C_4R_2R_4 + C_1C_4R_3R_4 - C_1C_5R_2R_3 + C_3C_4R_3R_4\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_3R_3 + C_4R_4\right) + 1}$ 

**9.1664** X-INVALID-ORDER-1664  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4R_6s^4 + C_5R_2R_6s + s^3\left(C_1C_3C_5R_1R_2R_3R_6 + C_1C_4C_5R_1R_2R_3R_6 + C_1C_4C_5R_1R_2R_4R_6 + C_3C_4C_5R_1R_3R_4R_5 + C_1C_4C_5R_1R_3R_4R_5 + C_1C_4C_5R_1R_3R_4R_5 + C_1C_4C_5R_2R_3R_4 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_5R_4R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5$ 

**9.1665** X-INVALID-ORDER-1665  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4s^3 + C_5R_2 + s^2\left(C_1C_3C_4C_5R_1R_3R_4R_5 + C_1C_3C_4C_5R_1R_3R_4 + C_1C_3C_4C_5R_1R_3R_4 + C_1C_3C_5C_6R_1R_3R_5 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_5C_6R_4R_4 + C_1C_4C_5C_6R_4R_4 + C_1C_4C_5C_6R_4R_4 + C_1C_4C_5C_6R_4R_4 + C_1C_4C_5C_6R_4R_4 + C_1C_4C_5C_$ 

**9.1666** X-INVALID-ORDER-1666  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_2 + s^3\left(C_1C_3C_4C_5R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_6 + C_1C_4C_5C_6R_1R_2R_4R_6 + C_3C_4C_5C_6R_2R_3R_4 + C_1C_3C_5C_6R_1R_3R_4R_5 + C_1C_3C_5C_6R_1R_3R_4R_5 + C_1C_3C_5C_6R_1R_3R_4R_5 + C_1C_3C_5C_6R_2R_3R_4 +$ 

**9.1667** X-INVALID-ORDER-1667  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{s^5 \left( C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_4 C_5 R_5 R_5 R_6 + C_1 C_4 C_5 R_5$ 

**9.1668** X-INVALID-ORDER-1668  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4R_5R_6s^4 + R_2R_6 + s^3\left(C_1C_3C_4R_1R_2R_3R_4R_6 + C_1C_3C_5R_1R_2R_3R_6 + C_1C_4C_5R_1R_2R_3R_4R_6 + C_1C_4R_1R_2R_3R_6 + C_1C_4R_1R_4R_5 + C_1C_4R_$ 

**9.1669** X-INVALID-ORDER-1669  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4R_5s^4 + R_2 + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_5R_1R_2R_3R_5 + C_1C_4C_5R_1R_2R_4R_5 + C_3C_4C_5R_2R_3R_4R_5\right) + s^2\left(C_1C_3R_1R_2R_3 + C_1C_4R_1R_2R_4 + C_1C_5R_1R_2R_5 + C_3C_4R_2R_3R_4 + C_3C_5R_2R_3R_5 + C_4C_5R_2R_3R_4\right)}{C_6R_5s + s^4\left(C_1C_3C_4C_6R_1R_3R_4R_5 + C_1C_4C_5R_2R_3R_4R_5\right) + s^3\left(C_1C_3C_6R_1R_3R_4R_5 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_3R_4 + C_$ 

**9.1670** X-INVALID-ORDER-1670  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_2 + s^4\left(C_1C_3C_4C_5R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_6 + C_1C_4C_5C_6R_1R_2R_4R_5R_6 + C_3C_4C_5C_6R_2R_3R_4R_5R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_5R_1R_2R_3R_5 + C_1C_3C_6R_1R_2R_3R_6 + C_1C_4C_5C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R$ 

```
9.1671 X-INVALID-ORDER-1671 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C_1C_3C_4C_5R_1R_2R_3R_4R_5R_6s^4 + R_2R_6 + s^3(C_1C_3C_4R_1R_2R_3R_4R_6 + C_1C_3C_4R_1R_2R_3R_4R_6 + C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3C_5R_5 + C_1C_5R_5 + C_1C_5
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4R_5R_6s^4 + R_2R_6 + s^3\left(C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 + C_1C_3C_
9.1672 X-INVALID-ORDER-1672 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                            H(s) = \frac{C_1C_3R_1R_2R_3R_4s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right)}
9.1673 X-INVALID-ORDER-1673 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                            H(s) = \frac{C_1C_3C_6R_1R_2R_3R_4R_6s^3 + R_2R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_6R_1R_2R_4R_6 + C_3C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_3R_4R_5\right)}
9.1674 X-INVALID-ORDER-1674 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_3R_4R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6\right)}{R_4R_5 + s^3\left(C_1C_3C_6R_1R_3R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_4R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_6 + C_1C_6R_2R_3R_4R_5R_6 + C_1C_6R_3R_4R_5R_6 + C_1C_6R_5R_5R_5R_6 + C_1C_6R_5R_5R_5R_6 + C_1C_6R_5R_5R_5R_6 + C_1C_6R_5R_5R_5R_6 + C_1C_6R_5R_5R_5R_6 + C_1C_6R_5R_5R
9.1675 X-INVALID-ORDER-1675 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                   H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_6\right)}{R_4 + s^2\left(C_1C_3R_1R_3R_4 + C_1C_3R_2R_3R_4 + C_1C_4R_2R_3R_4 - C_1C_5R_2R_3R_4\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4\right)}
9.1676 X-INVALID-ORDER-1676 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_3R_4R_6\right) + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_3C_6R_3R_4\right)}
9.1677 X-INVALID-ORDER-1677 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_6\right)}{R_4 + s^3\left(C_1C_3C_6R_1R_3R_4R_6 + C_1C_3C_6R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_3R_1R_3R_4 + C_1C_4R_2R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_3R_4R_5 + C_1C_6R_3R_4R_5
9.1678 X-INVALID-ORDER-1678 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_6\right)}{R_4 + s^3\left(C_1C_3C_5R_1R_3R_4R_5 + C_1C_3C_5R_2R_3R_4R_5 + C_1C_5R_2R_3R_4 + C_1C_5R_3R_4R_5 + C_1C_5R_5R
```

**9.1679** X-INVALID-ORDER-1679  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4\right)}{C_6R_4 + s^3\left(C_1C_3C_5C_6R_1R_3R_4F_5 + C_1C_3C_5C_6R_2R_3R_4F_5 + C_1C_5C_6R_2R_3R_4F_5 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R$ 

**9.1680** X-INVALID-ORDER-1680  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_3R_4R_6\right) + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4 + C_5C_6R_2R_3R_4 +$ 

```
9.1681 X-INVALID-ORDER-1681 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s+1}\right)
```

 $H(s) = \frac{1}{R_4 + s^4 \left( C_1 C_3 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_5 R_1 R_3 R_4 R_5 + C_1 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_3 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_3 C_5 R_2 R_3 R_4 R_5 + C_1 C_3 C_6 R_3 R_4$ 

**9.1682** X-INVALID-ORDER-1682  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_2R_4R_6 + s^2\left(C_1C_3R_1R_2R_3R_4R_6 + C_1C_5R_1R_2R_4R_5R_6 + C_3C_5R_2R_3R_4R_5R_6\right) + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_3R_1R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_1R_3R_4R_5\right)}$ 

**9.1683** X-INVALID-ORDER-1683  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_5s^3 + R_2R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_5R_1R_2R_4R_5 + C_3C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_4R_5 + C_1C_6R_4R_4R_5 + C_1C_6R_4R$ 

**9.1684** X-INVALID-ORDER-1684  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_2R_4 + s^3\left(C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_1C_5C_6R_1R_2R_3R_4R_5 + C_1C_5C_6R_1R_2R_4R_5R_6 + C_3C_5C_6R_2R_3R_4R_5 + C_1C_5R_1R_2R_4R_5 + C_1C_6R_1R_2R_4R_5 + C_1C_6R_2R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_$ 

**9.1685** X-INVALID-ORDER-1685  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6 + s^2\left(C_1C_3R_1R_2R_3R_4R_6 + C_1C_5R_1R_2R_4R_5R_6 + C_3C_5R_2R_3R_4R_5R_6\right) + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_5R_6\right) + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_5 + C_3R_3R_4R_5 + C_3R$ 

**9.1686** X-INVALID-ORDER-1686  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{C_1 R_1 R_4 R_6 s + R_4 R_6}{s^2 \left(C_1 C_2 R_1 R_4 R_5 + C_1 C_2 R_3 R_4 R_5\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.1687** X-INVALID-ORDER-1687  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1 R_1 R_4 s + R_4}{s^3 \left( C_1 C_2 C_6 R_1 R_4 R_5 + C_1 C_2 C_6 R_3 R_4 R_5 \right) + s^2 \left( -C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5 \right)}$$

**9.1688** X-INVALID-ORDER-1688  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_6R_1R_4R_6s^2 + R_4 + s\left(C_1R_1R_4 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

**9.1689** X-INVALID-ORDER-1689  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1 R_1 R_4 R_6 s + R_4 R_6}{s^3 \left(C_1 C_2 C_6 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_3 R_4 R_5 R_6\right) + s^2 \left(C_1 C_2 R_1 R_4 R_5 + C_1 C_2 R_3 R_4 R_5 - C_1 C_6 R_3 R_4 R_6 + C_1 C_6 R_3 R_5 R_6 + C_1 C_6 R_4 R_5 R_6\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.1690** X-INVALID-ORDER-1690  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1C_5R_1R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4\right)}$$

**9.1691** X-INVALID-ORDER-1691 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5R_1R_4s + C_5R_4}{s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1692** X-INVALID-ORDER-1692 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5C_6R_1R_4R_6s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_5C_6R_4R_6\right)}{s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1693** X-INVALID-ORDER-1693 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5R_1R_4s + C_5R_4}{s^3\left(C_1C_2C_5C_6R_1R_4R_5 + C_1C_2C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_4R_5 + C_2C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1694** X-INVALID-ORDER-1694 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5C_6R_1R_4R_6s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_5C_6R_4R_6\right)}{s^3\left(C_1C_2C_5C_6R_1R_4R_5 + C_1C_2C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_5C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1695** X-INVALID-ORDER-1695 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_1C_5R_1R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_5C_6R_1R_4R_5R_6 + C_1C_2C_5R_3R_4R_5 + C_1C_2C_5R_3R_4R_5 + C_1C_2C_6R_3R_4R_6 + C_1C_5C_6R_3R_4R_6 + C_1C_5C_6R_3R_4R_6 + C_1C_5C_6R_3R_4R_6 + C_1C_5C_6R_4R_5R_6 + C_2C_5C_6R_4R_5R_6 + C_1C_5C_6R_3R_4R_6 + C_1C_5C_6R_4R_5R_6 + C_1C_5C_6R_5R_5R_6 + C_1C_5C_6R_5R_5R_6 + C_1C_5C_6R_5R_5R_6 + C_1C_5C_6R_5R_$$

**9.1696** X-INVALID-ORDER-1696 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_5R_1R_4R_5R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_5R_4R_5R_6\right)}{s^2\left(C_1C_2R_1R_4R_5 + C_1C_2R_3R_4R_5 - C_1C_5R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$$

**9.1697** X-INVALID-ORDER-1697 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5R_1R_4R_5s^2 + R_4 + s\left(C_1R_1R_4 + C_5R_4R_5\right)}{s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

9.1698 X-INVALID-ORDER-1698 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5C_6R_1R_4R_5R_6s^3 + R_4 + s^2\left(C_1C_5R_1R_4R_5 + C_1C_6R_1R_4R_6 + C_5C_6R_4R_5R_6\right) + s\left(C_1R_1R_4 + C_5R_4R_5 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

**9.1699** X-INVALID-ORDER-1699 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_1C_5R_1R_4R_5R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_5R_4R_5R_6\right)}{s^3\left(C_1C_2C_6R_1R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6 - C_1C_5C_6R_3R_4R_5R_6\right) + s^2\left(C_1C_2R_1R_4R_5 + C_1C_2R_3R_4R_5 - C_1C_5R_3R_4R_5 - C_1C_6R_3R_4R_5 + C_1C_6R_4R_5R_6\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$$

**9.1700** X-INVALID-ORDER-1700 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_1 R_1 R_6 s + R_6}{s^2 \left(C_1 C_2 R_1 R_5 + C_1 C_2 R_3 R_5 + C_1 C_4 R_3 R_5\right) + s \left(-C_1 R_3 + C_1 R_5 + C_2 R_5\right)}$$

**9.1701** X-INVALID-ORDER-1701 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1 R_1 s + 1}{s^3 \left( C_1 C_2 C_6 R_1 R_5 + C_1 C_2 C_6 R_3 R_5 + C_1 C_4 C_6 R_3 R_5 \right) + s^2 \left( -C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5 \right)}$$

**9.1702** X-INVALID-ORDER-1702 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1 C_6 R_1 R_6 s^2 + s \left(C_1 R_1 + C_6 R_6\right) + 1}{s^3 \left(C_1 C_2 C_6 R_1 R_5 + C_1 C_2 C_6 R_3 R_5 + C_1 C_4 C_6 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_3 + C_1 C_6 R_5 + C_2 C_6 R_5\right)}$$

**9.1703** X-INVALID-ORDER-1703 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_1 R_1 R_6 s + R_6}{s^3 \left(C_1 C_2 C_6 R_1 R_5 R_6 + C_1 C_2 C_6 R_3 R_5 R_6 + C_1 C_4 C_6 R_3 R_5 R_6\right) + s^2 \left(C_1 C_2 R_1 R_5 + C_1 C_2 R_3 R_5 + C_1 C_4 R_3 R_5 - C_1 C_6 R_3 R_6 + C_1 C_6 R_5 R_6 + C_2 C_6 R_5 R_6\right) + s \left(-C_1 R_3 + C_1 R_5 + C_2 R_5\right)}$$

**9.1704** X-INVALID-ORDER-1704 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_1 C_5 R_1 R_6 s + C_5 R_6}{C_1 + C_2 + s \left( C_1 C_2 R_1 + C_1 C_2 R_3 + C_1 C_4 R_3 - C_1 C_5 R_3 \right)}$$

**9.1705** X-INVALID-ORDER-1705 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1 C_5 R_1 s + C_5}{s^2 \left( C_1 C_2 C_6 R_1 + C_1 C_2 C_6 R_3 + C_1 C_4 C_6 R_3 - C_1 C_5 C_6 R_3 \right) + s \left( C_1 C_6 + C_2 C_6 \right)}$$

**9.1706** X-INVALID-ORDER-1706 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5C_6R_1R_6s^2 + C_5 + s\left(C_1C_5R_1 + C_5C_6R_6\right)}{s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.1707** X-INVALID-ORDER-1707 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5R_1s + C_5}{s^3\left(C_1C_2C_5C_6R_1R_5 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.1708** X-INVALID-ORDER-1708 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5C_6R_1R_6s^2 + C_5 + s\left(C_1C_5R_1 + C_5C_6R_6\right)}{s^3\left(C_1C_2C_5C_6R_1R_5 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_5 + C_2C_5C_6R_5\right) + s\left(C_1C_6 + C_2C_6\right)}$$

9.1709 X-INVALID-ORDER-1709 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_1C_5R_1R_6s + C_5R_6}{C_1 + C_2 + s^3\left(C_1C_2C_5C_6R_1R_5R_6 + C_1C_2C_5C_6R_3R_5R_6 + C_1C_4C_5R_3R_5 + C_1C_2C_5R_3R_5 + C_1C_2C_6R_3R_6 + C_1C_4C_6R_3R_6 + C_1C_5C_6R_3R_6 + C_1C_5C_6R_5R_6 + C_$$

**9.1710** X-INVALID-ORDER-1710 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_5R_1R_5R_6s^2 + R_6 + s\left(C_1R_1R_6 + C_5R_5R_6\right)}{s^2\left(C_1C_2R_1R_5 + C_1C_2R_3R_5 + C_1C_4R_3R_5 - C_1C_5R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$$

**9.1711** X-INVALID-ORDER-1711  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_5R_1R_5s^2 + s\left(C_1R_1 + C_5R_5\right) + 1}{s^3\left(C_1C_2C_6R_1R_5 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5 - C_1C_5C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ **9.1712** X-INVALID-ORDER-1712  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_5C_6R_1R_5R_6s^3 + s^2\left(C_1C_5R_1R_5 + C_1C_6R_1R_6 + C_5C_6R_5R_6\right) + s\left(C_1R_1 + C_5R_5 + C_6R_6\right) + 1}{s^3\left(C_1C_2C_6R_1R_5 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5 - C_1C_5C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ **9.1713** X-INVALID-ORDER-1713  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_5R_1R_5R_6s^2 + R_6 + s\left(C_1R_1R_6 + C_5R_5R_6\right)}{s^3\left(C_1C_2C_6R_1R_5R_6 + C_1C_2C_6R_3R_5R_6 + C_1C_4C_6R_3R_5R_6 - C_1C_5C_6R_3R_5R_6\right) + s^2\left(C_1C_2R_1R_5 + C_1C_2R_3R_5 + C_1C_4R_3R_5 - C_1C_5R_3R_6 + C_1C_6R_5R_6 + C_2C_6R_5R_6\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ **9.1714** X-INVALID-ORDER-1714  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$  $H(s) = \frac{C_1C_4R_1R_4R_6s^2 + R_6 + s\left(C_1R_1R_6 + C_4R_4R_6\right)}{s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_5 + C_1C_2R_3R_5 - C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_4R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ **9.1715** X-INVALID-ORDER-1715  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_4R_1R_4s^2 + s\left(C_1R_1 + C_4R_4\right) + 1}{s^4\left(C_1C_2C_4C_6R_1R_4R_5 + C_1C_2C_4C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_1R_5 + C_1C_2C_6R_3R_5 - C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ **9.1716** X-INVALID-ORDER-1716  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_4C_6R_1R_4R_6s^3 + s^2\left(C_1C_4R_1R_4 + C_1C_6R_1R_6 + C_4C_6R_4R_6\right) + s\left(C_1R_1 + C_4R_4 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_4C_6R_1R_4R_5 + C_1C_2C_4C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_1R_5 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_4R_5 + C_2C_4C_6R_4R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ **9.1717** X-INVALID-ORDER-1717  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_4R_1R_4R_6s^2 + R_6 + s\left(C_1R_1R_6 + C_4R_4R_6\right)}{s^4\left(C_1C_2C_4C_6R_1R_4R_5R_6 + C_1C_2C_4C_6R_3R_4R_5 + C_1C_2C_4R_3R_4R_5 + C_1C_2C_6R_1R_5R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_5R_6 + C_1C_4C_6R_4R_5R_6 + C_2C_4C_6R_4R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_3R_4R_5 + C_1C_2C_6R_3R_5R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_4R_5R_6 + C_1C_4C_6R_4R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_3R_4R_5 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_4R_5R_6 + C_1C_4C_6R_4R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_3R_4R_5 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_4R_5R_6 + C_1C_4C_6R_4R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_3R_4R_5 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_4R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_3R_4R_5 + C_1C_4C_6R_3R_4R_6\right) + s^3\left(C_1C_4C_4R_3R_4R_5 + C_1C_4C_6R_3R_4R_6\right) + s^3\left(C_1C_4C_4R_3R_4R_5 + C_1C_4C_6R_3R_4R_6\right) + s^3\left(C_1C_4R_3R_4R_5 + C_1C_4C_6R_3R_4R_6\right) + s^3\left(C_1C_4R_3R_4R_5 + C_1C_4C_6R_3R_4R_6\right) + s^3\left(C_1C_4R_4R_5R_6\right) + s^3\left(C_$ 

**9.1718** X-INVALID-ORDER-1718  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_4C_5R_1R_4s^2 + C_5 + s\left(C_1C_5R_1 + C_4C_5R_4\right)}{s^3\left(C_1C_2C_4C_6R_1R_4 + C_1C_2C_4C_6R_3R_4 - C_1C_4C_5C_6R_3R_4\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_4 - C_1C_5C_6R_3 + C_2C_4C_6R_4\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.1719** X-INVALID-ORDER-1719  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_4C_5C_6R_1R_4R_6s^3 + C_5 + s^2\left(C_1C_4C_5R_1R_4 + C_1C_5C_6R_1R_6 + C_4C_5C_6R_4R_6\right) + s\left(C_1C_5R_1 + C_4C_5R_4 + C_5C_6R_6\right)}{s^3\left(C_1C_2C_4C_6R_1R_4 + C_1C_2C_4C_6R_3R_4 - C_1C_4C_5C_6R_3R_4\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_4 - C_1C_5C_6R_3 + C_2C_4C_6R_4\right) + s\left(C_1C_6 + C_2C_6\right)}$$

**9.1720** X-INVALID-ORDER-1720  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1C_4C_5R_1R_4R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_4C_5R_4R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_4C_6R_1R_4R_6 + C_1C_2C_4C_6R_3R_4R_6 - C_1C_4C_5C_6R_3R_4R_6\right) + s^2\left(C_1C_2C_4R_1R_4 + C_1C_2C_4R_3R_4 + C_1C_2C_6R_3R_6 + C_1C_4C_6R_3R_6 +$$

```
9.1721 X-INVALID-ORDER-1721 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_4C_5R_1R_4R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_4C_5R_4R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_4C_5R_1R_4R_5 + C_1C_2C_4C_5R_3R_4 + C_1C_2C_4R_3R_4 + C_1C_2C_5R_1R_5 + C_1C_4C_5R_3R_5 + C_1C_4C_5R_3R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_4R_3 + C_1C_4R_4 + C_1C_5R_3R_5 + C_1C_4C_5R_3R_5 + C_1C_4C_5R_4R_5\right) + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_4R_3 + C_1
9.1722 X-INVALID-ORDER-1722 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4C_5R_1R_4s^2 + C_5 + s\left(C_1C_5R_1 + C_4C_5R_4\right)}{s^4\left(C_1C_2C_4C_5C_6R_1R_4R_5 + C_1C_2C_4C_5R_3R_4R_5\right) + s^3\left(C_1C_2C_4C_6R_1R_4 + C_1C_2C_5C_6R_1R_5 + C_1C_2C_5C_6R_3R_5 - C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_4C_6R_1R_4 + C_1C_2C_4C_6R_3R_4 + C_1C_2C_5C_6R_3R_5 - C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5 + C_1C_5C_6R_5 + C_1C_5C_6R_5 + C_1C_5C_6R_5 + C_1C_5C_
9.1723 X-INVALID-ORDER-1723 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4C_5C_6R_1R_4R_6s^3 + C_5 + s^2\left(C_1C_4C_5R_1R_4 + C_1C_5C_6R_1R_6 + C_4C_5C_6R_4R_6\right) + s\left(C_1C_5R_1 + C_4C_5R_4 + C_5C_6R_6\right)}{s^4\left(C_1C_2C_4C_5C_6R_1R_4 + C_1C_2C_4C_6R_3R_4 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_4C_6R_1R_4 + C_1C_2C_4C_6R_3R_4 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_4C_6R_3R_4 + C_1C_2C_4C_6R_3R_4 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_4C_6R_3R_4 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_4C_5C_6R_3R_4 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_5\right) + s^2\left(C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_5\right) + s^2\left(C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_5\right) + s^2\left(C_1C_4C_5C_6R_5R_5\right) + s^2\left(C_1C_4C_5C_6R_5R_5\right) + s^2\left(C_1C_4C_5C_6R_5R_5\right) + s^2\left(C_1C_4C_5C_6R_5\right) 
9.1724 X-INVALID-ORDER-1724 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1 + C_2 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_3 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 C_5 R_1 R
9.1725 X-INVALID-ORDER-1725 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                          H(s) = \frac{C_1C_4C_5R_1R_4R_5R_6s^3 + R_6 + s^2\left(C_1C_4R_1R_4R_6 + C_1C_5R_1R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1R_1R_6 + C_4R_4R_6 + C_5R_5R_6\right)}{s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_5 + C_1C_2R_3R_5 - C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_4R_5 - C_1C_5R_3R_5 + C_2C_4R_4R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}
9.1726 X-INVALID-ORDER-1726 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                     H(s) = \frac{C_1C_4C_5R_1R_4R_5s^3 + s^2\left(C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_4C_5R_4R_5\right) + s\left(C_1R_1 + C_4R_4 + C_5R_5\right) + 1}{s^4\left(C_1C_2C_4C_6R_1R_4R_5 + C_1C_2C_4C_6R_3R_4R_5 - C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 + C_
9.1727 X-INVALID-ORDER-1727 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                 H(s) = \frac{C_1C_4C_5C_6R_1R_4R_5R_6s^4 + s^3\left(C_1C_4C_5R_1R_4R_5 + C_1C_4C_6R_1R_4R_6 + C_1C_5C_6R_1R_5R_6 + C_4C_5C_6R_4R_5R_6\right) + s^2\left(C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_1C_6R_1R_6 + C_4C_5R_4R_5 + C_4C_6R_4R_6 + C_5C_6R_5R_6\right) + s\left(C_1R_1 + C_4R_4 + C_5R_5 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_4C_6R_1R_4R_5 + C_1C_2C_4C_6R_3R_4R_5 - C_1C_4C_5R_3R_4R_5 - C_1C_4C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_1R_4 + C_1C_5R_4R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_1R_4 + C_1C_5R_4R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_1R_4 + C_1C_5R_4R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_1R_4 + C_1C_5R_4R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_1R_4 + C_1C_5R_4R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_4R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_4R_4R_5\right) + s^2\left(C_1C_4R_4R_5\right) + s^2\left(C_1C_4R_4R_5\right) + s^2
9.1728 X-INVALID-ORDER-1728 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H(s) = \frac{C_1C_4C_5R_1R_4R_5R_6s^5 + R_6 + s^2\left(C_1C_4R_1R_4R_6 + C_1C_5R_1R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1R_1R_6\right)}{s^4\left(C_1C_2C_4C_6R_1R_4R_5R_6 + C_1C_2C_4C_6R_3R_4R_5R_6 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_6R_3R_4R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_4R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_
```

$$s^{2}\left(C_{1}C_{2}C_{4}C_{6}R_{1}R_{4}R_{5}R_{6}+C_{1}C_{2}C_{4}C_{6}R_{3}R_{4}R_{5}R_{6}-C_{1}C_{4}C_{5}C_{6}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{2}C_{4}R_{1}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{3}R_{5}+C_{1}C_{2}C_{6}R_{3}R_{5}+C_{1}C_{2}C_{6}R_{3}R_{5}+C_{1}C_$$

9.1729 X-INVALID-ORDER-1729 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$$
 
$$H(s) = \frac{C_1 R_1 R_4 R_6 s + R_4 R_6}{s^2 \left(C_1 C_2 R_1 R_4 R_5 + C_1 C_2 R_3 R_4 R_5 + C_1 C_4 R_3 R_4 R_5\right) + s \left(-C_1 R_3 R_4 + C_1 R_3 R_5 + C_1 R_4 R_5 + C_2 R_4 R_5\right)}$$

**9.1730** X-INVALID-ORDER-1730 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1 R_1 R_4 s + R_4}{s^3 \left( C_1 C_2 C_6 R_1 R_4 R_5 + C_1 C_2 C_6 R_3 R_4 R_5 + C_1 C_4 C_6 R_3 R_4 R_5 \right) + s^2 \left( -C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5 + C_2 C_6 R_4 R_5 \right)}$$

$$\textbf{9.1731} \quad \textbf{X-INVALID-ORDER-1731} \ \ Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ \frac{1}{C_2 s}, \ R_3, \ \frac{R_4}{C_4 R_4 s + 1}, \ R_5, \ R_6 + \frac{1}{C_6 s}\right)$$
 
$$H(s) = \frac{C_1 C_6 R_1 R_4 R_6 s^2 + R_4 + s \left(C_1 R_1 R_4 + C_6 R_4 R_6\right)}{s^3 \left(C_1 C_2 C_6 R_1 R_4 R_5 + C_1 C_2 C_6 R_3 R_4 R_5 + C_1 C_4 C_6 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_3 R_4 + C_1 C_6 R_3 R_5 + C_1 C_6 R_4 R_5\right) }$$

**9.1732** X-INVALID-ORDER-1732  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1733** X-INVALID-ORDER-1733  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1C_5R_1R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4\right)}$$

**9.1734** X-INVALID-ORDER-1734  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_4s + C_5R_4}{s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1735** X-INVALID-ORDER-1735  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5C_6R_1R_4R_6s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_5C_6R_4R_6\right)}{s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

**9.1736** X-INVALID-ORDER-1736  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_4s + C_5R_4}{s^3\left(C_1C_2C_5C_6R_1R_4R_5 + C_1C_2C_5C_6R_3R_4R_5 + C_1C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

9.1737 X-INVALID-ORDER-1737  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5C_6R_1R_4R_6s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_5C_6R_4R_6\right)}{s^3\left(C_1C_2C_5C_6R_1R_4R_5 + C_1C_2C_5C_6R_3R_4R_5 + C_1C_4C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_4C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_4R_5\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$$

9.1738 X-INVALID-ORDER-1738  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_4R_6s + C_5R_4R_6}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_5C_6R_1R_4R_5R_6 + C_1C_2C_5C_6R_3R_4R_5R_6 + C_1C_2C_5R_3R_4R_5 + C_1C_2C_5R_3R_4R_5 + C_1C_2C_6R_3R_4R_6 + C_1C_4C_5R_3R_4R_6 + C_1C_4C_5R_3R_4R_6 + C_1C_4C_5R_3R_4R_6 + C_1C_5C_6R_3R_4R_6 + C_1C_5C_6R_5R_4R_6 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_5C_6R_5R_5 + C_1C_5C_5C_6R_$$

**9.1739** X-INVALID-ORDER-1739  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_1C_5R_1R_4R_5R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_5R_4R_5R_6\right)}{s^2\left(C_1C_2R_1R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$$

**9.1740** X-INVALID-ORDER-1740  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_5R_1R_4R_5s^2 + R_4 + s\left(C_1R_1R_4 + C_5R_4R_5\right)}{s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$$

**9.1741** X-INVALID-ORDER-1741  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_5C_6R_1R_4R_5R_6s^3 + R_4 + s^2\left(C_1C_5R_1R_4R_5 + C_1C_6R_1R_4R_6 + C_5C_6R_4R_5R_6\right) + s\left(C_1R_1R_4 + C_5R_4R_5 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1742** X-INVALID-ORDER-1742  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_5R_1R_4R_5R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_5R_4R_5R_6\right)}{s^3\left(C_1C_2C_6R_1R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6 + C_1C_4C_6R_3R_4R_5R_6 - C_1C_5C_6R_3R_4R_5R_6\right) + s^2\left(C_1C_2R_1R_4R_5 + C_1C_4R_3R_4R_5 + C_1C_4R_3R_4R_5 - C_1C_6R_3R_4R_5 + C_1C_6R_3R_5R_6 + C_1C_6R_4R_5R_6 + C_2C_6R_4R_5R_6\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_3R_4R_5 - C_1C_5R_3R_4R_5 - C_1C_6R_3R_4R_5 + C_1C_6R_3R_5R_6 + C_1C_6R_4R_5R_6\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_3R_4R_5 - C_1C_5R_5R_5 - C_1C_5R_5$ 

**9.1743** X-INVALID-ORDER-1743  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3R_1R_4s + C_3R_4}{C_1C_2C_3C_6R_1R_4R_5s^3 + s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ 

**9.1744** X-INVALID-ORDER-1744  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_6R_1R_4R_6s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_3C_6R_4R_6\right)}{C_1C_2C_3C_6R_1R_4R_5s^3 + s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ 

**9.1745** X-INVALID-ORDER-1745  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_3R_1R_4R_6s + C_3R_4R_6}{C_1C_2C_3C_6R_1R_4R_5R_6s^3 - C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_6R_4R_5R_6 + C_1C_3C_6R_4R_5R_6 + C_2C_3C_6R_4R_5R_6\right) + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_6R_4R_6 + C_1C_6R_5R_6 + C_2C_3R_4R_5\right)}$ 

**9.1746** X-INVALID-ORDER-1746  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3C_6R_1R_4R_6s^3 + C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_6R_4R_6 + C_1C_3C_6R_4R_6 - C_1C_5C_6R_4R_6 + C_2C_3C_6R_4R_6\right) + s\left(C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4\right)}$ 

**9.1747** X-INVALID-ORDER-1747  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3C_5R_1R_4R_5s^3 + C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_2C_3C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_5R_5 + C_2C_3R_4\right)}$ 

**9.1748** X-INVALID-ORDER-1748  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_4s + C_3C_5R_4}{C_1C_2C_3C_5C_6R_1R_4R_5s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_2C_3C_5C_6R_4R_5\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4\right)}$ 

**9.1749** X-INVALID-ORDER-1749  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_2C_3C_5C_6R_1R_4R_5s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_2C_3C_5C_6R_4R_5\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4\right)}$ 

**9.1750** X-INVALID-ORDER-1750  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s$ 

 $\frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3C_5R_1R_4R_5R_6s^4 + C_1 + s^3\left(C_1C_2C_3C_5R_1R_4R_5 + C_1C_2C_5C_6R_4R_5R_6 + C_1C_3C_5C_6R_4R_5R_6 + C_2C_3C_5C_6R_4R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_$ 

**9.1751** X-INVALID-ORDER-1751 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_4R_5s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_3C_5R_4R_5\right)}{C_1C_2C_3C_6R_1R_4R_5s^3 + s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.1752** X-INVALID-ORDER-1752 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5C_6R_1R_4R_5R_6s^3 + C_3R_4 + s^2\left(C_1C_3C_5R_1R_4R_5 + C_1C_3C_6R_1R_4R_6 + C_3C_5C_6R_4R_5R_6\right) + s\left(C_1C_3R_1R_4 + C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{C_1C_2C_3C_6R_1R_4R_5s^3 + s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

**9.1753** X-INVALID-ORDER-1753 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_3C_5R_4R_5R_6\right)}{C_1C_2C_3C_6R_1R_4R_5R_6s^3 - C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_6R_4R_5R_6 + C_1C_5C_6R_4R_5R_6 + C_2C_3C_6R_4R_5R_6\right) + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_5R_4R_5 - C_1C_6R_4R_6 + C_2C_3R_4R_5\right)}$$

**9.1754** X-INVALID-ORDER-1754 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1 C_3 R_1 s + C_3}{C_1 C_2 C_3 C_6 R_1 R_5 s^3 - C_1 C_6 s + s^2 \left( C_1 C_2 C_6 R_5 + C_1 C_3 C_6 R_5 + C_1 C_4 C_6 R_5 + C_2 C_3 C_6 R_5 \right)}$$

**9.1755** X-INVALID-ORDER-1755 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1 C_3 C_6 R_1 R_6 s^2 + C_3 + s \left(C_1 C_3 R_1 + C_3 C_6 R_6\right)}{C_1 C_2 C_3 C_6 R_1 R_5 s^3 - C_1 C_6 s + s^2 \left(C_1 C_2 C_6 R_5 + C_1 C_3 C_6 R_5 + C_1 C_4 C_6 R_5 + C_2 C_3 C_6 R_5\right)}$$

**9.1756** X-INVALID-ORDER-1756 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

$$H(s) = \frac{C_1C_3R_1R_6s + C_3R_6}{C_1C_2C_3C_6R_1R_5R_6s^3 - C_1 + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_6R_5R_6 + C_1C_3C_6R_5R_6 + C_1C_4C_6R_5R_6 + C_2C_3C_6R_5R_6\right) + s\left(C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 - C_1C_6R_6 + C_2C_3R_5\right)}$$

**9.1757** X-INVALID-ORDER-1757  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1 C_3 C_5 R_1 R_6 s + C_3 C_5 R_6}{C_1 C_2 C_3 R_1 s + C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3}$$

**9.1758** X-INVALID-ORDER-1758  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1s + C_3C_5}{C_1C_2C_3C_6R_1s^2 + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.1759** X-INVALID-ORDER-1759  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1 C_3 C_5 C_6 R_1 R_6 s^2 + C_3 C_5 + s \left(C_1 C_3 C_5 R_1 + C_3 C_5 C_6 R_6\right)}{C_1 C_2 C_3 C_6 R_1 s^2 + s \left(C_1 C_2 C_6 + C_1 C_3 C_6 + C_1 C_4 C_6 - C_1 C_5 C_6 + C_2 C_3 C_6\right)}$$

**9.1760** X-INVALID-ORDER-1760  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1s + C_3C_5}{C_1C_2C_3C_5C_6R_1R_5s^3 + s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_2C_3C_5C_6R_5\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

**9.1761** X-INVALID-ORDER-1761  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5C_6R_1R_6s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_3C_5C_6R_6\right)}{C_1C_2C_3C_5C_6R_1R_5s^3 + s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_4C_5C_6R_5 + C_2C_3C_5C_6R_5\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$ **9.1762** X-INVALID-ORDER-1762  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ **9.1763** X-INVALID-ORDER-1763  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_5s^2 + C_3 + s\left(C_1C_3R_1 + C_3C_5R_5\right)}{C_1C_2C_3C_6R_1R_5s^3 - C_1C_6s + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$ **9.1764** X-INVALID-ORDER-1764  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5C_6R_1R_5R_6s^3 + C_3 + s^2\left(C_1C_3C_5R_1R_5 + C_1C_3C_6R_1R_6 + C_3C_5C_6R_5R_6\right) + s\left(C_1C_3R_1 + C_3C_5R_5 + C_3C_6R_6\right)}{C_1C_2C_3C_6R_1R_5s^3 - C_1C_6s + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_2C_6R_5\right)}$ **9.1765** X-INVALID-ORDER-1765  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_5R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_3C_5R_5R_6\right)}{C_1C_2C_3C_6R_1R_5R_6s^3 - C_1 + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_6R_5R_6 + C_1C_3C_6R_5R_6 + C_1C_4C_6R_5R_6 - C_1C_5C_6R_5R_6 + C_2C_3C_6R_5R_6\right) + s\left(C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 - C_1C_5R_5 - C_1C_6R_6 + C_2C_3R_5\right)}$ **9.1766** X-INVALID-ORDER-1766  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$  $H(s) = \frac{C_1C_3C_4R_1R_4R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_3C_4R_4R_6\right)}{C_1C_2C_3C_4R_1R_4R_5s^3 - C_1 + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_2C_3C_4R_4R_5\right) + s\left(C_1C_2R_5 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 + C_2C_3R_5\right)}$ **9.1767** X-INVALID-ORDER-1767  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_4R_1R_4s^2 + C_3 + s\left(C_1C_3R_1 + C_3C_4R_4\right)}{C_1C_2C_3C_4C_6R_1R_4R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$ **9.1768** X-INVALID-ORDER-1768  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_4C_6R_1R_4R_6s^3 + C_3 + s^2\left(C_1C_3C_4R_1R_4 + C_1C_3C_6R_1R_6 + C_3C_4C_6R_4R_6\right) + s\left(C_1C_3R_1 + C_3C_4R_4 + C_3C_6R_6\right)}{C_1C_2C_3C_4C_6R_1R_4R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$ **9.1769** X-INVALID-ORDER-1769  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_3C_4R_1R_4R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_3C_4R_4R_6\right)}{C_1C_2C_3C_4C_6R_1R_4R_5R_6s^4 - C_1 + s^3\left(C_1C_2C_3C_4R_1R_4R_5 + C_1C_2C_4C_6R_4R_5R_6 + C_1C_3C_4C_6R_4R_5R_6 + C_2C_3C_4C_6R_4R_5R_6 + C_1C_2C_4R_4R_5 + C_1C_2C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_5 + C_1C_3C$ 

**9.1770** X-INVALID-ORDER-1770  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_4C_5R_1R_4s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_3C_4C_5R_4\right)}{C_1C_2C_3C_4C_6R_1R_4s^3 + s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_4C_6R_4 + C_1C_3C_4C_6R_4 + C_1C_4C_5C_6R_4 + C_2C_3C_4C_6R_4\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

```
9.1771 X-INVALID-ORDER-1771 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                    H(s) = \frac{C_1C_3C_4C_5C_6R_1R_4R_6s^3 + C_3C_5 + s^2\left(C_1C_3C_4C_5R_1R_4 + C_1C_3C_5C_6R_1R_6 + C_3C_4C_5C_6R_4R_6\right) + s\left(C_1C_3C_5R_1 + C_3C_4C_5R_4 + C_3C_5C_6R_6\right)}{C_1C_2C_3C_4C_6R_1R_4s^3 + s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_4C_6R_4 + C_1C_3C_4C_6R_4 - C_1C_4C_5C_6R_4 + C_2C_3C_4C_6R_4\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}
9.1772 X-INVALID-ORDER-1772 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_3C_4C_5R_4R_6\right)}{C_1C_2C_3C_4C_6R_1R_4R_6s^3 + C_1C_2 + C_1C_3 + C_1C_4 + C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_1R_4 + C_1C_2C_4C_6R_4R_6 + C_1C_3C_4C_6R_4R_6 + C_1C_3C_4C_6R_4R_6\right) + s\left(C_1C_2C_3R_1 + C_1C_2C_4R_4 + C_1C_2C_6R_6 + C_1C_3C_4R_4 + C_1C_3C_6R_6 + C_1C_3C_4R_4 + C_
9.1773 X-INVALID-ORDER-1773 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_3C_4C_5R_4R_6\right)}{C_1C_2C_3C_4C_5R_1R_4R_5s^3 + C_1C_2 + C_1C_3 + C_1C_4 + C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_1R_4 + C_1C_2C_3C_5R_1R_5 + C_1C_3C_4C_5R_4R_5\right) + s\left(C_1C_2C_3R_1 + C_1C_2C_4R_4 + C_1C_2C_5R_5 + C_1C_3C_4R_4 + C_1C_3C_5R_5 - C_1C_4C_5R_4 + C_1C_4C_
9.1774 X-INVALID-ORDER-1774 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_4s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_3C_4C_5R_4\right)}{C_1C_2C_3C_4C_5C_6R_1R_4R_5s^4 + s^3\left(C_1C_2C_3C_4C_6R_1R_4 + C_1C_2C_3C_5C_6R_1R_5 + C_1C_3C_4C_5C_6R_4R_5 + C_2C_3C_4C_5C_6R_4 + C_1C_2C_3C_6R_4 + C_1C_2C_5C_6R_5 + C_1C_3C_4C_6R_4 + C_1C_3C_5C_6R_5 + C_1C_4C_5C_6R_4 + C
9.1775 X-INVALID-ORDER-1775 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5C_6R_1R_4R_6s^3 + C_3C_5 + s^2\left(C_1C_3C_4C_5R_1R_4 + C_1C_3C_5C_6R_1R_6 + C_3C_4C_5C_6R_4R_6\right) + s\left(C_1C_3C_5R_1 + C_3C_4C_5R_4 + C_3C_5C_6R_6\right)}{C_1C_2C_3C_4C_5C_6R_1R_4R_5s^4 + s^3\left(C_1C_2C_3C_4C_6R_1R_4 + C_1C_2C_3C_5C_6R_1R_5 + C_1C_2C_4C_5C_6R_4R_5\right) + s^2\left(C_1C_2C_3C_4C_5R_4 + C_1C_2C_5C_6R_5 + C_1C_3C_4C_5R_4 + C_1C_3C_5C_6R_4 + C_1C_4C_5C_6R_4\right)}
9.1776 X-INVALID-ORDER-1776 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.1777 X-INVALID-ORDER-1777 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                      H(s) = \frac{C_1C_3C_4C_5R_1R_4R_5R_6s^3 + C_3R_6 + s^2\left(C_1C_3C_4R_1R_4R_6 + C_1C_3C_5R_1R_5R_6 + C_3C_4C_5R_4R_5R_6\right) + s\left(C_1C_3R_1R_6 + C_3C_4R_4R_6 + C_3C_5R_5R_6\right)}{C_1C_2C_3C_4R_1R_4R_5s^3 - C_1 + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_4R_4R_5 + C_1C_3C_4R_4R_5 - C_1C_4C_5R_4R_5 + C_2C_3C_4R_4R_5\right) + s\left(C_1C_2R_5 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 - C_1C_5R_5 + C_2C_3R_5\right)}
9.1778 X-INVALID-ORDER-1778 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                      H(s) = \frac{C_1C_3C_4C_5R_1R_4R_5s^3 + C_3 + s^2\left(C_1C_3C_4R_1R_4 + C_1C_3C_5R_1R_5 + C_3C_4C_5R_4R_5\right) + s\left(C_1C_3R_1 + C_3C_4R_4 + C_3C_5R_5\right)}{C_1C_2C_3C_4C_6R_1R_4R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_3C_4C_6R_4R_5 - C_1C_4C_5C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 + C_1C_3C_6R_5 - C_1C_4C_6R_4 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}
9.1779 X-INVALID-ORDER-1779 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5C_6R_1R_4R_5R_6s^4 + C_3 + s^3\left(C_1C_3C_4C_5R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_6 + C_3C_4C_5R_4R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_
```

 $H(s) = \frac{C_1C_3C_4C_5R_1R_4R_5R_6s^3 + C_3R_6 + s^2\left(C_1C_3C_4R_1R_4R_6 + C_1C_3C_5R_1R_5R_6 + C_3C_4C_5R_4R_5R_6\right) + s\left(C_1C_3R_1R_6 + C_1C_3C_4C_6R_4R_5R_6 + C_1C_3C_4C_6R_4R_5R_6 + C_1C_3C_4C_6R_4R_5R_6\right) + s\left(C_1C_3R_4R_5R_6 + C_1C_3C_4R_4R_5R_6 + C_1C_3C_4R_4R_5 + C_1C_3C_4R$ 

9.1780 X-INVALID-ORDER-1780  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.1781** X-INVALID-ORDER-1781  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3R_1R_4s + C_3R_4}{C_1C_2C_3C_6R_1R_4R_5s^3 + s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ **9.1782** X-INVALID-ORDER-1782  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_6R_1R_4R_6s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_3C_6R_4R_6\right)}{C_1C_2C_3C_6R_1R_4R_5s^3 + s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ **9.1783** X-INVALID-ORDER-1783  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_3R_1R_4R_6s + C_3R_4R_6}{C_1C_2C_3C_6R_1R_4R_5R_6s^3 - C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_6R_4R_5R_6 + C_1C_4C_6R_4R_5R_6 + C_1C_4C_6R_4R_5R_6 + C_1C_4C_6R_4R_5 + C_1C_4R_4R_5 + C_1C_$ **9.1784** X-INVALID-ORDER-1784  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3C_6R_1R_4R_6s^3 + C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_4C_6R_4R_6 - C_1C_5C_6R_4R_6 + C_2C_3C_6R_4R_6\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_6R_6 + C_2C_3R_4\right)}$ **9.1785** X-INVALID-ORDER-1785  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1C_2C_3C_5R_1R_4R_5s^3 + C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_4C_5R_4R_5 + C_2C_3C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_5R_5 + C_2C_3R_4\right)}$ **9.1786** X-INVALID-ORDER-1786  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_4s + C_3C_5R_4}{C_1C_2C_3C_5C_6R_1R_4R_5s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_2C_3C_5C_6R_4R_5 + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_2C_3C_6R_4\right)}$ **9.1787** X-INVALID-ORDER-1787  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_2C_3C_5C_6R_1R_4R_5s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_$ 9.1788 X-INVALID-ORDER-1788  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s$  $\frac{ \cup_{1} \cup_{3} \cup_{5} \pi_{1} \pi_{4} \pi_{6} s \ + \cup_{3} \cup_{5} \pi_{4} \pi_{6} s }{ C_{1} C_{2} C_{3} C_{5} R_{1} R_{4} R_{5} + C_{1} C_{2} C_{5} C_{6} R_{4} R_{5} R_{6} + C_{1} C_{3} C_{5} C_{6} R_{4} R_{5} R_{6} + C_{1} C_{2} C_{5} C_{6} R_{4} R_{5$ **9.1789** X-INVALID-ORDER-1789  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_4R_5s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_3C_5R_4R_5\right)}{C_1C_2C_3C_6R_1R_4R_5s^3 + s^2\left(C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ 

 $\textbf{9.1790} \quad \textbf{X-INVALID-ORDER-1790} \ Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ \frac{1}{C_2 s}, \ \frac{1}{C_3 s}, \ \frac{R_4}{C_4 R_4 s + 1}, \ \frac{R_5}{C_5 R_5 s + 1}, \ R_6 + \frac{1}{C_6 s}\right)$   $H(s) = \frac{C_1 C_3 C_5 C_6 R_1 R_4 R_5 R_6 s^3 + C_3 R_4 + s^2 \left(C_1 C_3 C_5 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_6 + C_3 C_5 C_6 R_4 R_5 R_6\right) + s \left(C_1 C_3 R_1 R_4 + C_3 C_5 R_4 R_5 + C_3 C_6 R_4 R_6\right) }{C_1 C_2 C_3 C_6 R_1 R_4 R_5 s^3 + s^2 \left(C_1 C_2 C_6 R_4 R_5 + C_1 C_3 C_6 R_4 R_5 + C_1 C_5 C_6 R_4 R_5 + C_2 C_3 C_6 R_4 R_5\right) + s \left(-C_1 C_6 R_4 + C_1 C_6 R_5\right) }$ 

```
9.1791 X-INVALID-ORDER-1791 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_3C_5R_4R_5R_6\right)}{C_1C_2C_3C_6R_1R_4R_5R_6s^3 - C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_3C_6R_4R_5R_6 + C_1C_3C_6R_4R
9.1792 X-INVALID-ORDER-1792 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                       H(s) = \frac{C_1C_3R_1R_4s + C_3R_4}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.1793 X-INVALID-ORDER-1793 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                      H(s) = \frac{C_1C_3C_6R_1R_4R_6s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.1794 X-INVALID-ORDER-1794 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_4R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_1R_4R_5R_6 + C_1C_2C_3C_6R_3R_4R_5 + C_1C_2C_3R_3R_4R_5 + C_1C_2C_3R_3R_4R_5 + C_1C_2C_6R_4R_5R_6 + C_1C_3C_6R_4R_5R_6 + C_1C_3C_6R_5R_6 + C
9.1795 X-INVALID-ORDER-1795 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_6R_1R_4R_6 + C_1C_2C_3C_6R_3R_4R_6 - C_1C_3C_5C_6R_3R_4 + C_1C_2C_3R_1R_4 + C_1C_2C_3R_3R_4 + C_1C_3C_6R_4R_6 - C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_2C_3C_6R_4R_6 + C_2C_3C_
9.1796 X-INVALID-ORDER-1796 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
                        H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_5R_1R_4R_5 + C_1C_2C_3C_5R_3R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_3R_3R_4 + C_1C_2C_5R_4R_5 - C_1C_3C_5R_3R_4 + C_1C_3C_5R_4R_5 + C_2C_3C_5R_4R_5\right) + s\left(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_1C_5R_5 + C_2C_3R_4\right)}
9.1797 X-INVALID-ORDER-1797 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_4s + C_3C_5R_4}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_4R_5 + C_1C_2C_3C_5C_6R_3R_4 + C_1C_2C_3C_6R_3R_4 + C_1C_2C_5C_6R_4R_5 - C_1C_3C_5C_6R_3R_5 + C_1C_3C_5C_6R_4R_5 + s^2\left(C_1C_2C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + c_1C_3C
9.1798 X-INVALID-ORDER-1798 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_4R_5 + C_1C_2C_3C_5C_6R_3R_4 + C_1C_2C_3C_6R_3R_4 + C_1C_3C_5C_6R_3R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_2C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5
9.1799 X-INVALID-ORDER-1799 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

**9.1800** X-INVALID-ORDER-1800  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_4R_5s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_3C_5R_4R_5\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_3R_4R_5 - C_1C_3C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ 

```
9.1801 X-INVALID-ORDER-1801 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                        H(s) = \frac{C_1C_3C_5C_6R_1R_4R_5R_6s^3 + C_3R_4 + s^2\left(C_1C_3C_5R_1R_4R_5 + C_1C_3C_6R_1R_4R_6 + C_3C_5C_6R_4R_5R_6\right) + s\left(C_1C_3R_1R_4 + C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_3R_4R_5 - C_1C_3C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 - C_1C_5C_6R_4R_5\right) + s\left(C_1C_3R_1R_4 + C_3C_5R_4R_5 + C_3C_6R_4R_5\right) + s\left(C_1C_3R_4R_5 + C_1C_3C_6R_4R_5 + C_3C_6R_4R_5\right) + s\left(C_1C_3R_4R_5 + C_1C_3C_6R_4R_5 + C_3C_6R_4R_5\right) + s\left(C_1C_3R_4R_5 + C_1C_3C_6R_4R_5\right) + s\left(C_1C_3R_4R_5\right) + s\left(C_1C_3R_4R_
9.1802 X-INVALID-ORDER-1802 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_3C_5R_4R_5R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_1R_4R_5R_6 + C_1C_3C_5C_6R_3R_4R_5R_6 + C_1C_3C_5R_3R_4R_5 + C_1C_2C_3R_3R_4R_5 + C_1C_2C_3R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_5 + C_1C_3C_6R_5 + 
9.1803 X-INVALID-ORDER-1803 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                    H(s) = \frac{C_1C_3R_1s + C_3}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}
9.1804 X-INVALID-ORDER-1804 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                   H(s) = \frac{C_1C_3C_6R_1R_6s^2 + C_3 + s\left(C_1C_3R_1 + C_3C_6R_6\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}
9.1805 X-INVALID-ORDER-1805 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_6s + C_3R_6}{-C_1 + s^3\left(C_1C_2C_3C_6R_1R_5R_6 + C_1C_2C_3C_6R_3R_5R_6 + C_1C_3C_4R_3R_5 + C_1C_2C_3R_3R_5 + C_1C_2C_6R_5R_6 + C_1C_3C_6R_3R_6 + C_1C_3C_6R_5R_6 + C_1C_3C
9.1806 X-INVALID-ORDER-1806 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                 H(s) = \frac{C_1 C_3 C_5 R_1 R_6 s + C_3 C_5 R_6}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3 + s \left(C_1 C_2 C_3 R_1 + C_1 C_2 C_3 R_3 + C_1 C_3 C_4 R_3 - C_1 C_3 C_5 R_3\right)}
9.1807 X-INVALID-ORDER-1807 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                   H(s) = \frac{C_1C_3C_5R_1s + C_3C_5}{s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_3C_6R_3 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_3\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}
9.1808 X-INVALID-ORDER-1808 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                 H(s) = \frac{C_1C_3C_5C_6R_1R_6s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_3C_5C_6R_6\right)}{s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_3C_6R_3 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_3\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}
9.1809 X-INVALID-ORDER-1809 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

**9.1810** X-INVALID-ORDER-1810  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

```
9.1811 X-INVALID-ORDER-1811 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_6s}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(C_1C_2C_3C_5C_6R_1R_5R_6 + C_1C_2C_3C_5C_6R_3R_5R_6\right) + s^2\left(C_1C_2C_3C_5R_1R_5 + C_1C_2C_3C_6R_1R_6 + C_1C_2C_3C_6R_3R_6 + C_1C_3C_4C_5R_3R_5 + C_1C_3C_5R_3R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C
9.1812 X-INVALID-ORDER-1812 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
```

**9.1813** X-INVALID-ORDER-1813  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_5C_6R_1R_5R_6s^3 + C_3 + s^2\left(C_1C_3C_5R_1R_5 + C_1C_3C_6R_1R_6 + C_3C_5C_6R_5R_6\right) + s\left(C_1C_3R_1 + C_3C_5R_5 + C_3C_6R_6\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_3R_5 - C_1C_3C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$$

 $H(s) = \frac{C_1C_3C_5R_1R_5s^2 + C_3 + s\left(C_1C_3R_1 + C_3C_5R_5\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_3C_6R_3R_5 + C_1C_3C_4C_6R_3R_5 - C_1C_3C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 - C_1C_5C_6R_5 + C_2C_3C_6R_5\right)}$ 

**9.1814** X-INVALID-ORDER-1814  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_5R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_6R_1R_5R_6 + C_1C_2C_3C_6R_3R_5R_6 + C_1C_3C_4C_6R_3R_5R_6 + C_1C_3C_4R_3R_5 + C_1C_2C_3R_3R_5 + C_1C_3C_4R_3R_5 - C_1C_3C_6R_3R_6 + C_1C_3C_6R_5R_6 + C_1C_3C_6R_5$$

**9.1815** X-INVALID-ORDER-1815  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_1C_3C_4R_1R_4R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_3C_4R_4R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_4R_1R_4R_5 + C_1C_2C_3R_4R_3R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_3R_3R_5 + C_1C_2C_4R_4R_5 - C_1C_3C_4R_3R_4 + C_1C_3C_4R_4R_5\right) + s\left(C_1C_2R_5 - C_1C_3R_3 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 + C_2C_3R_5\right)}$$

**9.1816** X-INVALID-ORDER-1816  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_4R_1R_4s^2 + C_3 + s\left(C_1C_3R_1 + C_3C_4R_4\right)}{-C_1C_6s + s^4\left(C_1C_2C_3C_4C_6R_1R_4R_5 + C_1C_2C_3C_4C_6R_3R_4 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_$$

**9.1817** X-INVALID-ORDER-1817  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_4C_6R_1R_4R_6s^3 + C_3 + s^2\left(C_1C_3C_4R_1R_4 + C_1C_3C_6R_1R_6 + C_3C_4C_6R_4R_6\right) + s\left(C_1C_3R_1 + C_3C_4R_4 + C_3C_6R_6\right)}{-C_1C_6s + s^4\left(C_1C_2C_3C_4C_6R_1R_4R_5 + C_1C_2C_3C_6R_1R_5 + C_1C_2C_3C_6R_1R_5 + C_1C_2C_4C_6R_4R_5 - C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_4R_5 + C_2C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_3 + C_1C_3C_4C_6R_4R_5 - C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_3 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_4C_6R_4R_5 + C_1C_3C_4C_6R_4R$$

**9.1818** X-INVALID-ORDER-1818  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

$$H(s) = \frac{C_1 C_3}{-C_1 + s^4 \left(C_1 C_2 C_3 C_4 C_6 R_1 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_3 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_5 R_6 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_3 C_4 C_6 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 R_5 R_5 R_6 + C_1 C_2 C_3 C_4 R_5 R_5 R_6 + C_1 C_2 C_3 C_4 R_5 R_5 R_6 + C_1 C_2 C_3 C_4$$

**9.1819** X-INVALID-ORDER-1819  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$C_1C_3C_4C_5R_1R_4s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_3C_4C_5R_4\right)$$

**9.1820** X-INVALID-ORDER-1820 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_4C_5C_6R_1R_4R_6s^3 + C_3C_5 + s^2\left(C_1C_3C_4C_5R_1R_4 + C_1C_3C_5C_6R_1R_6 + C_3C_4C_5R_4R_6\right) + s\left(C_1C_3C_5R_1 + C_3C_4C_5R_4 + C_3C_5C_6R_6\right)}{s^3\left(C_1C_2C_3C_4C_6R_1R_4 + C_1C_2C_3C_4C_6R_3 + C_1C_2C_4C_6R_4 + C_1C_3C_4C_6R_4 + C_1C_3C_5C_6R_3 - C_1C_4C_5C_6R_4 + C_2C_3C_4C_6R_4\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6R_4\right)}$$

```
9.1821 X-INVALID-ORDER-1821 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_6 + s}{C_1C_2 + C_1C_3 + C_1C_3 + C_1C_3 + C_1C_3 + C_1C_3 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_2C_3C_4R_3R_4 + C_1C_2C_3C_4R_3R_4 + C_1C_2C_3C_6R_3R_6 + C_1C_3C_4C_5R_3R_4 + C_1C
9.1822 X-INVALID-ORDER-1822 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
9.1823 X-INVALID-ORDER-1823 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_1C_3C_4C_5R_1R_4s^2 + C_3C_5 + s
9.1824 X-INVALID-ORDER-1824 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_1C_3C_4C_5C_6R_1R_4R_6s^3 + C_3C_5 + s^2(C_1C_3C_4C_5R_1R_4 + C_1C_3C_5C_6R_1R_4)
H(s) = \frac{C_1C_3C_4C_5C_6R_1R_4R_6s^3 + C_3C_5 + s^2\left(C_1C_3C_4C_5R_1R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_2C_3C_4C_5R_1R_4 + C_1C_2C_3C_5C_6R_3R_5 + C_1C_2C_3C_4C_5C_6R_3R_4 + C_1C_2C_3C_4C_5C_6R_4R_5 + C_1C_3C_4C_5C_6R_4R_5 + C_1C_3C_4C_5C_6R_
9.1825 X-INVALID-ORDER-1825 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.1826 X-INVALID-ORDER-1826 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_4R_5R_6s^3 + C_3R_6 + s^2\left(C_1C_3C_4R_1R_4R_6 + C_1C_3C_5R_1R_5R_6 + C_3C_4C_5R_4R_5R_6\right) + s\left(C_1C_3R_1R_6 + C_3C_4R_4R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_4R_1R_4R_5 + C_1C_2C_3C_4R_3R_4R_5 - C_1C_3C_4R_3R_4R_5 + C_1C_2C_3R_4R_5 + C_1C_3C_4R_3R_4 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_5 + C_1C_3C_4R_
9.1827 X-INVALID-ORDER-1827 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_4R_5s^3 + C_3 + s^2\left(C_1C_3C_4R_1R_4 + C_1C_3C_5R_1R_5 + C_3C_4C_5R_4R_5\right) + s\left(C_1C_3R_1 + C_3C_4R_4 + C_3C_5R_5\right)}{-C_1C_6s + s^4\left(C_1C_2C_3C_4C_6R_1R_4R_5 + C_1C_2C_3C_4C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_4C_6R_4R_5 - C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_5 + C_1C_3C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_3C_5C_6R_5
```

**9.1828** X-INVALID-ORDER-1828  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_4R_5R_6s^4 + C_3 + s^3\left(C_1C_3C_4C_5R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_6 + C_1C_3C_5C_6R_1R_5R_6 + C_3C_4C_5R_4R_5 + C_1C_3C_4R_1R_4 + C_1C_3C_5R_1R_5 + C_1C_3C_4R_1R_4 + C_1C_3C_4R_1R_4 + C_1C_3C_5R_1R_5 + C_1C_3C_4R_1R_4 + C_1C_3C_5R_1R_5 + C_1C_3C_4R_1R_4 + C_1C_3C_4R_$ 

**9.1829** X-INVALID-ORDER-1829  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-}{-C_1 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_3 R_4 R_5 R_6 - C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_5 R_6 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_2 C_4 C_6 R_4 R_5 R_6 - C_1 C_3 C_4 C_5 R_3 R_4 R_5 - C_1 C_3 C_4 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_5 R_6 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_2 C_3 C_4 R_5 R_4 R_5 - C_1 C_3 C_4 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_5 R_6 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 - C_1 C_3 C_4 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 - C_1 C_3 C_4 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 - C_1 C_3 C_4 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 + C_1 C_2 C_4 C_6 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1$ 

**9.1830** X-INVALID-ORDER-1830  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3R_1R_4s + C_3R_4}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$$

```
9.1831 X-INVALID-ORDER-1831 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                           H(s) = \frac{C_1C_3C_6R_1R_4R_6s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_3R_4R_5 + C_1C_3C_4C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_4R_5 - C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.1832 X-INVALID-ORDER-1832 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_4R_6s + C_3R_4R_6}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_1R_4R_5R_6 + C_1C_2C_3C_6R_3R_4R_5R_6 + C_1C_2C_3R_1R_4R_5 + C_1C_2C_3R_3R_4R_5 + C_1C_2C_6R_4R_5R_6 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_5R_5 + C_1C_3C_6R_5R_5 + C_1C_3C_6R_5R_5 + C_1C_3C_6R_5R_5 + C_1C_3C_6R_5R_5 + C_1C_3C_6R_5R_5 + C_1C_5C_6R_5R
9.1833 X-INVALID-ORDER-1833 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_6R_1R_4R_6 + C_1C_2C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4 + C_1C_3C_
9.1834 X-INVALID-ORDER-1834 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_4R_6s^2 + C_3C_5R_4R_6s}{C_1 + s^3\left(C_1C_2C_3C_5R_1R_4R_5 + C_1C_2C_3C_5R_3R_4R_5 + C_1C_3C_4R_3R_4 + C_1C_2C_5R_4R_5 + C_1C_3C_5R_3R_4 + C_1C_3C_5R_3R_4 + C_1C_3C_5R_3R_4 + C_1C_3C_5R_3R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_
9.1835 X-INVALID-ORDER-1835 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C_1C_3C_5R_1R_4s + C_3C_5R_4
H(s) = \frac{C_1C_3C_5R_1R_4s + C_3C_5R_4}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_4R_5 + C_1C_2C_3C_5C_6R_3R_4R_5 + C_1C_3C_5C_6R_3R_4 + C_1C_2C_3C_6R_3R_4 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_4R_5 + C_1C_
9.1836 X-INVALID-ORDER-1836 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_4R_5 + C_1C_2C_3C_5C_6R_3R_4R_5 + C_1C_3C_5C_6R_3R_4 + C_1C_3C_5C_6R_4R_5 
9.1837 X-INVALID-ORDER-1837 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_3 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_6 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_6 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_6 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^
9.1838 X-INVALID-ORDER-1838 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                       H(s) = \frac{C_1C_3C_5R_1R_4R_5s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_3C_5R_4R_5\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_4R_5 + C_1C
9.1839 X-INVALID-ORDER-1839 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                       H(s) = \frac{C_1C_3C_5C_6R_1R_4R_5R_6s^3 + C_3R_4 + s^2\left(C_1C_3C_5R_1R_4R_5 + C_1C_3C_6R_1R_4R_6 + C_3C_5C_6R_4R_5R_6\right) + s\left(C_1C_3R_1R_4 + C_3C_5R_4R_5 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_4R_5 + C_1C_3
9.1840 X-INVALID-ORDER-1840 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s(C_1C_3R_1R_4R_6 + C_3C_5R_4R_6)
```

 $\frac{C_1C_3C_5R_1R_4R_5R_6 + C_1C_3C_3R_1R_4R_5R_6 + C_1C_3C_3R_1R_4R_6 + S_1C_1C_3R_1R_4R_6 +$ 

**9.1843** X-INVALID-ORDER-1843  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_6R_1R_3R_4R_6s^3 + R_4 + s^2\left(C_1C_3R_1R_3R_4 + C_1C_6R_1R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_3R_3R_4 + C_6R_4R_6\right)}{C_1C_2C_3C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ **9.1844** X-INVALID-ORDER-1844  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_3R_1R_3R_4R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_6\right)}{C_1C_2C_3C_6R_1R_3R_4R_5R_6s^4 + s^3\left(C_1C_2C_3R_1R_3R_4R_5 + C_1C_2C_6R_1R_4R_5R_6 + C_1C_3C_6R_3R_4R_5R_6 + C_2C_3C_6R_3R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_6R_3R_4R_5 + C_1C_6R_3R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C$ **9.1845** X-INVALID-ORDER-1845  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_3R_4s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_3C_5R_3R_4\right)}{C_1C_2C_3C_6R_1R_3R_4s^3 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}$ **9.1846** X-INVALID-ORDER-1846  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5C_6R_1R_3R_4R_6s^3 + C_5R_4 + s^2\left(C_1C_3C_5R_1R_3R_4 + C_1C_5C_6R_1R_4R_6 + C_3C_5C_6R_3R_4R_6\right) + s\left(C_1C_5R_1R_4 + C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{C_3C_5C_6C_6R_1R_2R_4s^3 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_2C_3C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4R_6\right)}$ **9.1847** X-INVALID-ORDER-1847  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1C_2C_3C_6R_1R_3R_4R_6s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_1R_3R_4 + C_1C_2C_6R_1R_4R_6 + C_1C_3C_6R_3R_4R_6 + C_1C_3C_6R_3R_4R_6\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_5R_3R_4 + C_1C_6R_3R_6 + C_1C_6R_4R_6 + C_2C_3C_6R_3R_4R_6\right)}$ **9.1848** X-INVALID-ORDER-1848  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_1C_3C_5R_1R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1C_2C_3C_5R_1R_3R_4R_5s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_1R_3R_4 + C_1C_2C_5R_1R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_1C_3C_5R_3R_4R_5\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_3R_5 + C_1C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_3R_4 + C_1C_$ **9.1849** X-INVALID-ORDER-1849  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5R_1R_3R_4s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_3C_5R_3R_4\right)}{C_1C_2C_3C_5C_6R_1R_3R_4 + S^4 + s^3\left(C_1C_2C_3C_6R_1R_3R_4 + C_1C_2C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_3R_4R_5 + C_2C_3C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6$ **9.1850** X-INVALID-ORDER-1850  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_1C_3C_5C_6R_1R_3R_4R_6s^3 + C_5R_4 + s^2\left(C_1C_3C_5R_1R_3R_4 + C_1C_5C_6R_3R_4R_6\right) + s\left(C_1C_5R_1R_4 + C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{C_1C_2C_3C_5C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_3C_6R_1R_3R_4 + C_1C_2C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_5C_6R_3R_4 +$ 395

 $H(s) = \frac{C_1C_3R_1R_3R_4R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_6\right)}{C_1C_2C_3R_1R_3R_4R_5s^3 + s^2\left(C_1C_2R_1R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ 

 $H(s) = \frac{C_1C_3R_1R_3R_4s^2 + R_4 + s\left(C_1R_1R_4 + C_3R_3R_4\right)}{C_1C_2C_3C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1841** X-INVALID-ORDER-1841  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$ 

**9.1842** X-INVALID-ORDER-1842  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

```
9.1851 X-INVALID-ORDER-1851 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

**9.1852** X-INVALID-ORDER-1852  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_3R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_1C_3R_1R_3R_4R_6 + C_1C_5R_1R_4R_5R_6 + C_3C_5R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_6 + C_5R_4R_5R_6\right)}{C_1C_2C_3R_1R_3R_4R_5s^3 + s^2\left(C_1C_2R_1R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 - C_1C_5R_3R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ 

**9.1853** X-INVALID-ORDER-1853  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_3R_4R_5s^3 + R_4 + s^2\left(C_1C_3R_1R_3R_4 + C_1C_5R_1R_4R_5 + C_3C_5R_3R_4R_5\right) + s\left(C_1R_1R_4 + C_3R_3R_4 + C_5R_4R_5\right)}{C_1C_2C_3C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1854** X-INVALID-ORDER-1854  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_3R_4R_5R_6s^4 + R_4 + s^3\left(C_1C_3C_5R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_6 + C_1C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_3R_4R_5 + C_1C_3R_1R_3R_4 + C_1C_5R_1R_4R_5 + C_1C_6R_1R_4R_6 + C_3C_5R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_$ 

**9.1855** X-INVALID-ORDER-1855  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_3R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_1C_3R_1R_3R_4R_5 + C_1C_5R_1R_4R_5R_6 + C_3C_5R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_6 + C_5R_4R_5R_6\right)}{C_1C_2C_3C_6R_1R_3R_4R_5R_6s^4 + s^3\left(C_1C_2C_3R_1R_3R_4R_5 + C_1C_2C_6R_1R_4R_5R_6 + C_1C_5C_6R_3R_4R_5R_6\right) + s^2\left(C_1C_2R_1R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_5R_3R_4R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_5 + C_1C_5R_5R_5R_$ 

**9.1856** X-INVALID-ORDER-1856  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_1C_3R_1R_3R_6s^2 + R_6 + s\left(C_1R_1R_6 + C_3R_3R_6\right)}{C_1C_2C_3R_1R_3R_5s^3 + s^2\left(C_1C_2R_1R_5 + C_1C_2R_3R_5 + C_1C_3R_3R_5 + C_1C_4R_3R_5 + C_2C_3R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$$

**9.1857** X-INVALID-ORDER-1857  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3R_1R_3s^2 + s\left(C_1R_1 + C_3R_3\right) + 1}{C_1C_2C_3C_6R_1R_3R_5s^4 + s^3\left(C_1C_2C_6R_1R_5 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$$

**9.1858** X-INVALID-ORDER-1858  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_6R_1R_3R_6s^3 + s^2\left(C_1C_3R_1R_3 + C_1C_6R_1R_6 + C_3C_6R_3R_6\right) + s\left(C_1R_1 + C_3R_3 + C_6R_6\right) + 1}{C_1C_2C_3C_6R_1R_3R_5s^4 + s^3\left(C_1C_2C_6R_1R_5 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$$

**9.1859** X-INVALID-ORDER-1859  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_3R_1R_3R_6s^2 + R_6 + s\left(C_1R_1R_6 + C_3R_3R_6\right)}{C_1C_2C_3C_6R_1R_3R_5R_6s^4 + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_6R_1R_5R_6 + C_1C_3C_6R_3R_5R_6 + C_1C_4C_6R_3R_5R_6 + C_1C_4C_6R_5R_6 + C_1C$ 

**9.1860** X-INVALID-ORDER-1860  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_3s^2 + C_5 + s\left(C_1C_5R_1 + C_3C_5R_3\right)}{C_1C_2C_3C_6R_1R_3s^3 + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_2C_3C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}$$

```
9.1861 X-INVALID-ORDER-1861 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                     H(s) = \frac{C_1C_3C_5C_6R_1R_3R_6s^3 + C_5 + s^2\left(C_1C_3C_5R_1R_3 + C_1C_5C_6R_1R_6 + C_3C_5C_6R_3R_6\right) + s\left(C_1C_5R_1 + C_3C_5R_3 + C_5C_6R_6\right)}{C_1C_2C_3C_6R_1R_3s^3 + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_2C_3C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}
9.1862 X-INVALID-ORDER-1862 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                H(s) = \frac{C_1C_3C_5R_1R_3R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_3C_5R_3R_6\right)}{C_1C_2C_3C_6R_1R_3R_6s^3 + C_1 + C_2 + s^2\left(C_1C_2C_3R_1R_3 + C_1C_2C_6R_1R_6 + C_1C_3C_6R_3R_6 + C_1C_4C_6R_3R_6 + C_1C_5C_6R_3R_6 + C_2C_3C_6R_3R_6\right) + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_3R_3 + C_1C_5R_3 + C_1C_6R_6 + C_2C_3R_3 + C_2C_6R_6\right)}
9.1863 X-INVALID-ORDER-1863 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                    H(s) = \frac{C_1C_3C_5R_1R_3R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_3C_5R_3R_6\right)}{C_1C_2C_3C_5R_1R_3R_5s^3 + C_1 + C_2 + s^2\left(C_1C_2C_3R_1R_3 + C_1C_2C_5R_1R_5 + C_1C_2C_5R_3R_5 + C_1C_4C_5R_3R_5 + C_2C_3C_5R_3R_5\right) + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_3R_3 + C_1C_5R_3 + C_1C_5R_3 + C_1C_5R_3 + C_2C_5R_5\right)}
9.1864 X-INVALID-ORDER-1864 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_3s^2 + C_5 + s\left(C_1C_5R_1 + C_3C_5R_3\right)}{C_1C_2C_3C_5C_6R_1R_3R_5s^4 + s^3\left(C_1C_2C_3C_6R_1R_3 + C_1C_2C_5C_6R_1R_5 + C_1C_3C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_2C_3C_5C_6R_3R_5 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R
9.1865 X-INVALID-ORDER-1865 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_3R_6s^3 + C_5 + s^2\left(C_1C_3C_5R_1R_3 + C_1C_5C_6R_1R_6 + C_3C_5C_6R_3R_6\right) + s\left(C_1C_5R_1 + C_3C_5R_3 + C_5C_6R_6\right)}{C_1C_2C_3C_5C_6R_1R_3R_5s^4 + s^3\left(C_1C_2C_3C_6R_1R_3 + C_1C_2C_5C_6R_1R_5 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_1C_5C_6R_3 +
9.1866 X-INVALID-ORDER-1866 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                    \frac{ \cup_{1} \cup_{3} \cup_{5} \kappa_{1} \kappa_{3} \kappa_{5} \kappa_{6} \kappa_{6} \kappa_{6} \kappa_{1} \kappa_{3} \kappa_{5} \kappa_{6} \kappa_{6} \kappa_{1} \kappa_{5} \kappa_{6} \kappa_{5} \kappa_{5} \kappa_{6} \kappa_{5} \kappa_{5} \kappa_{6} \kappa_{5} \kappa_{5} \kappa_{6} \kappa_{5} \kappa
9.1867 X-INVALID-ORDER-1867 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                                                                                                            H(s) = \frac{C_1C_3C_5R_1R_3R_5R_6s^3 + R_6 + s^2\left(C_1C_3R_1R_3R_6 + C_1C_5R_1R_5R_6 + C_3C_5R_3R_5R_6\right) + s\left(C_1R_1R_6 + C_3R_3R_6 + C_5R_5R_6\right)}{C_1C_2C_3R_1R_3R_5s^3 + s^2\left(C_1C_2R_1R_5 + C_1C_2R_3R_5 + C_1C_3R_3R_5 + C_1C_4R_3R_5 - C_1C_5R_3R_5 + C_2C_3R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}
9.1868 X-INVALID-ORDER-1868 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                              H(s) = \frac{C_1C_3C_5R_1R_3R_5s^3 + s^2\left(C_1C_3R_1R_3 + C_1C_5R_1R_5 + C_3C_5R_3R_5\right) + s\left(C_1R_1 + C_3R_3 + C_5R_5\right) + 1}{C_1C_2C_3C_6R_1R_3R_5s^4 + s^3\left(C_1C_2C_6R_1R_5 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 - C_1C_5C_6R_3R_5 + C_2C_3C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}
9.1869 X-INVALID-ORDER-1869 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                     H(s) = \frac{C_1C_3C_5C_6R_1R_3R_5R_6s^4 + s^3\left(C_1C_3C_5R_1R_3R_5 + C_1C_3C_6R_1R_3R_6 + C_1C_5C_6R_1R_5R_6 + C_3C_5C_6R_3R_5R_6\right) + s^2\left(C_1C_3R_1R_3 + C_1C_5R_1R_5 + C_1C_6R_1R_6 + C_3C_5R_3R_5 + C_3C_6R_3R_6 + C_5C_6R_3R_6\right) + s\left(C_1R_1 + C_3R_3 + C_5R_5 + C_6R_6\right) + s\left(C_1R_1 + C_3R_3 + C_5R_5 + C_6R_5\right) + s\left(C_1R_1 + C_3R_3 + C_5R_5 + C_5R_5\right) + s\left(C_1R_1 + C_3R_3 + C_5R_5\right) + s\left(C_1R_1 + C_3R_5\right) + s\left(C_1R_1 + C_3R_5\right) + s\left(C_1R_1 + C_3R_5\right) + s\left(C_1R_1 + C_3
9.1870 X-INVALID-ORDER-1870 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_1C_3C_5R_1R_3R_5R_6s^3 + R_6 + s^2\left(C_1C_3R_1R_3R_6 + C_1C_5R_1R_5R_6 + C_3C_5R_3R_5R_6\right) + s\left(C_1R_1R_6 + C_3R_3R_6 + C_5R_5R_6\right)}{C_1C_2C_3C_6R_1R_3R_5R_6s^4 + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_6R_1R_5R_6 + C_1C_2C_6R_3R_5R_6 + C_1C_4C_6R_3R_5R_6 + C_1C_4C_6R_3R_5R_6\right) + s^2\left(C_1C_2R_1R_5 + C_1C_2R_3R_5 + C_1C_3R_3R_5 + C_1C_5R_3R_5 - C_1C_5R_3R_5 + C_1C_4R_3R_5 +$ 

```
9.1871 X-INVALID-ORDER-1871 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
H(s) = \frac{C_1C_3C_4R_1R_3R_4R_6s^3 + R_6 + s^2\left(C_1C_3R_1R_3R_6 + C_1C_4R_1R_4R_6 + C_3C_4R_3R_4R_6\right) + s\left(C_1R_1R_6 + C_3R_3R_6 + C_4R_4R_6\right)}{C_1C_2C_3C_4R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_3R_4R_5 + C_1C_3C_4R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_5 + C_1C_2R_3R_5 + C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_4R_5 + C_2C_3R_3R_5 + C_2C_4R_4R_5\right) + s\left(C_1R_1R_6 + C_3R_3R_6 + C_4R_4R_6\right)}
9.1872 X-INVALID-ORDER-1872 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4R_1R_3R_4s^3 + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_3C_4R_3R_4\right) + s\left(C_1R_1 + C_3R_3 + C_4R_4\right) + 1}{C_1C_2C_3C_4C_6R_1R_3R_4R_5s^5 + s^4\left(C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_1R_5 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5 + C_1C_4C_6R
9.1873 X-INVALID-ORDER-1873 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_6R_1R_3R_4R_6s^4 + s^3\left(C_1C_3C_4R_1R_3R_4 + C_1C_3C_6R_1R_3R_6 + C_1C_4C_6R_1R_4R_6 + C_3C_4C_6R_3R_4R_6\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_6R_1R_6 + C_3C_4R_3R_4 + C_3C_6R_3R_6 + C_4C_6R_4R_6\right) + s\left(C_1R_1 + C_3R_3 + C_4R_4R_6\right) + s\left(C_1R_1 + C_3R_3R_4R_6\right) + s\left(C_1R_1 + C_3R_3R_4\right) + s\left(C_1R_1 + C_3R_3R_4\right) + s\left(C_1R_1 + C_3R_3R_4\right) + s\left(C_1R_1 + C_3R_3R_4\right) + s\left(C_1R_1 + C_3R_4R_4\right) + s\left(C_1R_1 + C_3R_4R_4\right) + s\left(C_1R_1 + C_3R_4R_4\right) + s\left(C_
9.1874 X-INVALID-ORDER-1874 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                          \frac{C_1C_2C_3}{C_1C_2C_3C_4C_6R_1R_3R_4R_5R_6s^5 + s^4\left(C_1C_2C_3C_4R_1R_3R_4R_5 + C_1C_2C_3C_6R_1R_3R_5R_6 + C_1C_2C_4C_6R_1R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6 + C_2C_3C_4C_6R_3R_4R_5R_6\right) + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_4R_1R_4R_5 + C_1C_2C_4C_6R_1R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6 + C_2C_3C_4C_6R_3R_4R_5R_6\right) + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_4R_1R_4R_5 + C_1C_2C_4C_6R_1R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6\right) + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_4R_1R_4R_5 + C_1C_2C_4C_6R_1R_4R_5R_6\right) + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_4R_1R_4R_5 + C_1C_2C_4R_1R_4R_5\right) + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_4R_1R_4R_5\right) + s^3\left(C_1C_2C_3R_1R_3R_5\right) + s
```

**9.1875** X-INVALID-ORDER-1875  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_1C_3C_4C_5R_1R_3R_4R_6s^3 + C_5R_6 + s^2\left(C_1C_3C_5R_1R_3R_6 + C_1C_4C_5R_1R_4R_6 + C_3C_4C_5R_3R_4R_6\right) + s\left(C_1C_5R_1R_6 + C_3C_5R_3R_6 + C_4C_5R_4R_6\right)}{C_1C_2C_3C_4R_1R_3R_4s^3 + C_1 + C_2s^2\left(C_1C_2C_3R_1R_3 + C_1C_2C_4R_1R_4 + C_1C_2C_4R_3R_4 + C_1C_4C_5R_3R_4 + C_2C_3C_4R_3R_4\right) + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_3R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_2C_3R_4\right)}$ 

**9.1876** X-INVALID-ORDER-1876  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_{1}C_{3}C_{4}C_{5}R_{1}R_{3}R_{4}s^{3}+C_{5}+s^{2}\left(C_{1}C_{3}C_{5}R_{1}R_{3}+C_{1}C_{4}C_{5}R_{1}R_{4}+C_{3}C_{4}C_{5}R_{3}R_{4}\right)+s\left(C_{1}C_{5}R_{1}+C_{3}C_{5}R_{3}+C_{4}C_{5}R_{4}\right)}{C_{1}C_{2}C_{3}C_{4}C_{6}R_{1}R_{3}+C_{1}C_{2}C_{4}C_{6}R_{1}R_{4}+C_{1}C_{2}C_{4}C_{6}R_{3}R_{4}+C_{1}C_{3}C_{4}C_{6}R_{3}R_{4}+C_{2}C_{3}C_{4}C_{6}R_{3}R_{4}+C_{2}C_{3}C_{4}C_{6}R_{3}R_{4}+C_{2}C_{3}C_{4}C_{6}R_{3}R_{4}+C_{2}C_{3}C_{4}C_{6}R_{3}R_{4}+C_{2}C_{3}C_{6}R_{3}+C_{1}C_{2}C_{6}R_{3}+C_{1}C_{2}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}$ 

**9.1877** X-INVALID-ORDER-1877  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $\frac{C_1C_3C_4C_5C_6R_1R_3R_4R_6s^4 + C_5 + s^3\left(C_1C_3C_4C_5R_1R_3R_4 + C_1C_3C_5C_6R_1R_3R_6 + C_1C_4C_5C_6R_1R_4R_6 + C_3C_4C_5R_1R_3 + C_1C_4C_5R_1R_4 + C_1C_5C_6R_1R_4 +$ 

**9.1878** X-INVALID-ORDER-1878  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_3C_4C_5R_1R_3R_4R_6s^3 + C_5R_6 + s^2(C_1C_3C_5R_1R_3R_6 + s^2)$ 

**9.1879** X-INVALID-ORDER-1879  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_3R_4R_6s^\circ + C_5R_6 + s^-(C_1C_3C_5R_1R_3R_6 + C_1C_4C_5R_1R_4R_6 + C_1C_4C_5R_1R_4R_6$ 

**9.1880** X-INVALID-ORDER-1880  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{1 + \frac{1}{3} + \frac{1}{3}$ 

```
9.1881 X-INVALID-ORDER-1881 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $C_1C_3C_4C_5C_6R_1R_3R_4R_6s^4 + C_5 + s^3(C_1C_3C_4C_5R_1R_3R_4 + C_1C_3C_5C_6R_1R_3R_6 + C_1C_4C_5C_6R_1R_4$ 

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_3R_4R_6s^4 + C_5 + s^3\left(C_1C_3C_4C_5R_1R_3R_4 + C_1C_3C_5C_6R_1R_3R_6 + C_1C_4C_5C_6R_1R_4R_5 + C_1C_2C_4C_5C_6R_1R_3R_4 + C_1C_2C_4C_5C_6R_1R_3R_4 + C_1C_2C_4C_5C_6R_1R_3R_4 + C_1C_2C_4C_5C_6R_1R_4R_5 + C_1C_4C_5C_6R_1R_4R_5 + C_1C_4C_5C_6R_1R_$ 

**9.1882** X-INVALID-ORDER-1882  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_3R_4R_5R_6s^5 + C_1 + C_2 + s^4\left(C_1C_2C_3C_4C_5R_1R_3R_4R_5 + C_1C_2C_3C_4C_6R_1R_3R_4R_6 + C_1C_2C_4C_5C_6R_1R_4R_5R_6 + C_1C_2C_4C_5C_6R_3R_4R_5R_6 + C_1C_3C_4C_5C_6R_3R_4R_5R_6 + C_1C_3C_4C_5C_6R_3R_4R_5R_5 + C_1C_3C_4C_5C_6R_3R_4R_5R_5 + C_1C_3C_4C_5C_6R_5R_5R_5R_5C_5C_6R_5R_5R_5C_5C_6R_5R_5R_5C_5C_6R_5R_5C_5C_5C_6R_5R_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_$ 

**9.1883** X-INVALID-ORDER-1883  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_3R_4R_5R_6s^4 + R_6 + s^3\left(C_1C_3C_4R_1R_3R_4R_6 + C_1C_4C_5R_1R_4R_5R_6 + C_3C_4C_5R_3R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_3R_6 + C_1C_4R_1R_4R_6 + C_1C_5R_1R_5R_6 + C_3C_4R_3R_4R_6 + C_3C_5R_3R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1R_1R_6 + C_4C_5R_1R_4R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1R_1R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1R_1R_4R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1R_4R_4R_5R_6 + C_4C_5R_4R_4R_5R_6\right) + s\left(C_1R_4R_4R_5R_6 + C_4C_5R_4R_4R_5R_6\right) + s\left(C_1R_4R_4R_5 + C_4C_5R_4R_4R_5 + C_4C_5R_4R_4R_5\right) + s\left(C_1R_4R_4R_5 + C_4C_5R_4R_4R_5 + C_4C_5R_4R_4R_5\right) + s\left(C_1R_4R_4R_5 + C_4C_5R_4R_4R_5 + C_4C_5R_4R_4R_5\right) + s\left(C_1R_4R_4R_5 + C_4C_5R_4R_4R_5 + C_4C_5R_4R_5R_5\right) + s\left(C_1R_4R_4R_5 + C_4C_5R_4R_5R_5\right) + s\left(C_1R_4R_4R_5 + C_4C_5R_4R_4R_5\right) + s\left(C_1R_4R_4R_5 + C_4C_5R_4R_5R_5\right) + s\left(C_1R_4R_5R_5 + C_4C_5R_4R_5\right) + s\left(C_1R_4R_5R_5 + C_4C_5R_4R_5\right) + s\left(C_1R_4R_5R_5 +$ 

**9.1884** X-INVALID-ORDER-1884  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_3R_4R_5s^4 + s^3\left(C_1C_3C_4R_1R_3R_4 + C_1C_3C_5R_1R_3R_5 + C_1C_4C_5R_1R_4R_5 + C_3C_4C_5R_3R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_1R_4 + C_1C_5R_1R_5 + C_3C_4R_3R_4 + C_3C_5R_3R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3R_4R_5 + C_4C_5R_4R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_3R_4 + C_4C_5R_4R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_4R_3R_4 + C_4C_5R_4R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_1R_3 + C_4C_5R_4R_5 + C_4C_5R_4R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_4R_5 + C_4C_5R_4R_5\right) + s^2\left(C_1C_3R_4R_5$ 

**9.1885** X-INVALID-ORDER-1885  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_3R_4R_5R_6s^5 + s^4\left(C_1C_3C_4C_5R_1R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_6 + C_1C_4C_5C_6R_1R_4R_5R_6 + C_3C_4C_5C_6R_3R_4R_5R_6\right) + s^3\left(C_1C_3C_4R_1R_3R_4 + C_1C_3C_5R_1R_3R_5 + C_1C_3C_6R_1R_3R_6 + C_1C_4C_5R_1R_4R_5 + C_1C_4C_6R_1R_4R_6 + C_1C_4C_5R_1R_4R_5 + C_1C_4C_5R$ 

**9.1886** X-INVALID-ORDER-1886  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{C_{1}C_{3}C_{4}C_{5}R_{1}R_{3}R_{4}R_{5}R_{6}s^{4}+R_{6}+s^{3}\left(C_{1}C_{3}C_{4}C_{5}R_{1}R_{3}R_{4}R_{5}R_{6}s^{4}+R_{6}+s^{3}\left(C_{1}C_{3}C_{4}C_{6}R_{1}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{2}C_{4}C_{6}R_{1}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{2}C_{4}C_{6}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{2}C_{4}C_{$ 

**9.1887** X-INVALID-ORDER-1887  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $H(s) = \frac{C_1C_3R_1R_3R_4R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_6\right)}{C_1C_2C_3R_1R_3R_4R_5s^3 + s^2\left(C_1C_2R_1R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_4R_3R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ 

**9.1888** X-INVALID-ORDER-1888  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3R_1R_3R_4s^2 + R_4 + s\left(C_1R_1R_4 + C_3R_3R_4\right)}{C_1C_2C_3C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1889** X-INVALID-ORDER-1889  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_6R_1R_3R_4R_6s^3 + R_4 + s^2\left(C_1C_3R_1R_3R_4 + C_1C_6R_1R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_3R_3R_4 + C_6R_4R_6\right)}{C_1C_2C_3C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1890** X-INVALID-ORDER-1890  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_3R_1R_3R_4R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_6\right)$ 

 $\frac{C_1C_3C_6R_1R_3R_4R_5R_6s^4 + s^3\left(C_1C_2C_3R_1R_3R_4R_5 + C_1C_2C_6R_1R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6 + C_1C_4C_6R_3R_4R_5R_6 + C_1C_4C_6R_3R_4R_5R_6 + C_1C_4C_6R_3R_4R_5R_6 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4R_3R_4R_5 + C_1$ 

```
9.1891 X-INVALID-ORDER-1891 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                  H(s) = \frac{C_1C_3C_5R_1R_3R_4s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_3C_5R_3R_4\right)}{C_1C_2C_3C_6R_1R_3R_4s^3 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}
9.1892 X-INVALID-ORDER-1892 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                 H(s) = \frac{C_1C_3C_5C_6R_1R_3R_4R_6s^3 + C_5R_4 + s^2\left(C_1C_3C_5R_1R_3R_4 + C_1C_5C_6R_1R_4R_6 + C_3C_5C_6R_3R_4R_6\right) + s\left(C_1C_5R_1R_4 + C_3C_5R_3R_4 + C_5C_6R_4R_6\right)}{C_1C_2C_3C_6R_1R_3R_4s^3 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_2C_3C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}
9.1893 X-INVALID-ORDER-1893 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1C_2C_3C_6R_1R_3R_4R_6s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_1R_3R_4 + C_1C_2C_6R_3R_4R_6 + C_1C_4C_6R_3R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R_4R_6 + C_1C_4C_6R
9.1894 X-INVALID-ORDER-1894 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1C_2C_3C_5R_1R_3R_4R_5s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_1R_3R_4 + C_1C_2C_5R_3R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_5R_3R_4 + C_1C_4R_3R_4 + C_1C_4R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R
9.1895 X-INVALID-ORDER-1895 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_3R_4s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_3C_5R_3R_4\right)}{C_1C_2C_3C_5C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_3C_6R_1R_3R_4 + C_1C_2C_5C_6R_3R_4R_5 + C_1C_3C_5C_6R_3R_4R_5 + C_1C_4C_5C_6R_3R_4R_5 + C_1C_4C_5C_6R_3R_4C_5C_6R_5R_4R_5 + C_1C_4C_5C_6R_5R_4R_5 + C_1C_4C_5C_6R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R
9.1896 X-INVALID-ORDER-1896 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                              \frac{C_{1}C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}R_{6}s^{3}+C_{5}R_{4}+s^{2}\left(C_{1}C_{3}C_{5}R_{1}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}R_{6}\right)+s\left(C_{1}C_{5}R_{1}R_{4}+C_{3}C_{5}R_{3}R_{4}+C_{5}C_{6}R_{4}R_{6}\right)}{C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{1}R_{4}R_{5}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{3
9.1897 X-INVALID-ORDER-1897 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.1898 X-INVALID-ORDER-1898 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                        H(s) = \frac{C_1C_3C_5R_1R_3R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_1C_3R_1R_3R_4R_6 + C_1C_5R_1R_4R_5R_6 + C_3C_5R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_6 + C_5R_4R_5R_6\right)}{C_1C_2C_3R_1R_3R_4R_5s^3 + s^2\left(C_1C_2R_1R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_3R_4R_5 + C_2C_3R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}
9.1899 X-INVALID-ORDER-1899 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                 H(s) = \frac{C_1C_3C_5R_1R_3R_4R_5s^3 + R_4 + s^2\left(C_1C_3R_1R_3R_4 + C_1C_5R_1R_4R_5 + C_3C_5R_3R_4R_5\right) + s\left(C_1R_1R_4 + C_3R_3R_4 + C_5R_4R_5\right)}{C_1C_2C_3C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}
```

 $H(s) = \frac{C_1C_3C_5C_6R_1R_3R_4R_5R_6s^4 + R_4 + s^3\left(C_1C_3C_5R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_6 + C_3C_5C_6R_3R_4R_5 + C_1C_5C_6R_1R_4R_5 + C_1C_5C_6R_1R_4R_5 + C_1C_5R_1R_4R_5 + C_1C_6R_1R_4R_6 + C_3C_5R_3R_4R_5 + C_3C_6R_3R_4R_5 + C_3C_6R_$ 

**9.1900** X-INVALID-ORDER-1900  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

```
9.1901 X-INVALID-ORDER-1901 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_3R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_1C_3R_1R_3R_4R_6 + C_1C_5R_1R_4R_5R_6 + C_3C_5R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_6 + C_1C_2C_3R_1R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_3R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_5R_6 + C_1C_2C_3R_1R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_5R_6 + C_1C_2C_3R_1R_4R_5R_6\right) + s\left(C_1R_1R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6\right) + s\left(C_1R_1R_4R_5R_6\right) + s\left(C_1R_1R_4R_
9.1902 X-INVALID-ORDER-1902 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, R_6\right)
                                                                                                                                                                                                                     H(s) = \frac{C_1C_2R_1R_2R_4R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6\right)}{s^2\left(C_1C_2R_1R_4R_5 - C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}
9.1903 X-INVALID-ORDER-1903 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                       H(s) = \frac{C_1C_2R_1R_2R_4s^2 + R_4 + s\left(C_1R_1R_4 + C_2R_2R_4\right)}{s^3\left(C_1C_2C_6R_1R_4R_5 - C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}
9.1904 X-INVALID-ORDER-1904 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                      H(s) = \frac{C_1C_2C_6R_1R_2R_4R_6s^3 + R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_6R_1R_4R_6 + C_2C_6R_2R_4R_6\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_6R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_4R_5 - C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}
9.1905 X-INVALID-ORDER-1905 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2R_1R_2R_4R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_4R_5R_6 - C_1C_2C_6R_2R_3R_4R_6 + C_1C_2C_6R_2R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6\right) + s^2\left(C_1C_2R_1R_4R_5 - C_1C_2R_2R_3R_4 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 - C_1C_6R_3R_4R_6 + C_1C_6R_3R_4R_6 + C_1C_6R_4R_5R_6 + C_1C_6R_5R_5R_6 + C_1C_6R_5R_5R_6 + C_1C_6R_5R_5R_6 + C_1C_6R_5R_5R_6 + C_1C_6R_5R_5R_6 + C_1C_6R_5R_5R_6 + C_1C_6
9.1906 X-INVALID-ORDER-1906 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                              H(s) = \frac{C_1C_2C_5R_1R_2R_4s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4\right)}{-C_1C_2C_5C_6R_2R_3R_4s^3 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}
9.1907 X-INVALID-ORDER-1907 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                             H(s) = \frac{C_1C_2C_5C_6R_1R_2R_4R_6s^3 + C_5R_4 + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_5C_6R_1R_4R_6 + C_2C_5C_6R_2R_4R_6\right) + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4 + C_5C_6R_4R_6\right)}{-C_1C_2C_5C_6R_2R_3R_4s^3 + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}
9.1908 X-INVALID-ORDER-1908 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_5R_1R_2R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6\right)}{-C_1C_2C_5C_6R_2R_3R_4R_6s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(-C_1C_2C_5R_2R_3R_4 + C_1C_2C_6R_2R_3R_6 + C_1C_2C_6R_2R_4R_6 + C_1C_2C_6R_3R_4R_6\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_5R_3R_4 + C_1
9.1909 X-INVALID-ORDER-1909 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_2C_5R_1R_2R_4s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4\right)}{s^3\left(C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_5 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4 + C_1C_5C_5C_6R_3R_4$ 

**9.1910** X-INVALID-ORDER-1910  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_5C_6R_1R_2R_4R_6s^3 + C_5R_4 + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_5C_6R_2R_4R_6\right) + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4 + C_5C_6R_4R_6\right)}{s^3\left(C_1C_2C_5C_6R_1R_4R_5 - C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_$ 

```
9.1911 X-INVALID-ORDER-1911 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_1C_2C_5K_1K_1}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_5C_6R_1R_4R_5R_6 - C_1C_2C_5C_6R_2R_3R_4R_6 + C_1C_2C_5C_6R_2R_3R_4R_5 + C_1C_2C_5C_6R_2R_4R_5R_6 + C_1C_2C_5C_6R_2R_4R_5R_6 + C_1C_2C_5R_2R_4R_5 - C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_2R_4R_5 + C_1C_2C_5R_4R_5R_5 + C_1C_2C_5R_5R_5R_5 + C_1$ 

**9.1912** X-INVALID-ORDER-1912  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_5R_1R_2R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_1C_2R_1R_2R_4R_6 + C_1C_5R_1R_4R_5R_6 + C_2C_5R_2R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6 + C_5R_4R_5R_6\right)}{-C_1C_2C_5R_2R_3R_4R_5s^3 + s^2\left(C_1C_2R_1R_4R_5 - C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 - C_1C_5R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ 

**9.1913** X-INVALID-ORDER-1913  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_5R_1R_2R_4R_5s^3 + R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_5R_1R_4R_5 + C_2C_5R_2R_4R_5\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_5R_4R_5\right)}{-C_1C_2C_5C_6R_2R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 - C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 - C_1C_5C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1914** X-INVALID-ORDER-1914  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_5C_6R_1R_2R_4R_5R_6s^4 + R_4 + s^3\left(C_1C_2C_5R_1R_2R_4R_5 + C_1C_2C_6R_1R_2R_4R_6 + C_2C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_5R_1R_4R_5 + C_1C_6R_1R_4R_6 + C_2C_5R_2R_4R_5 + C_2C_6R_2R_4R_6 + C_5C_6R_4R_5R_6\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_1C_5R_1R_4R_5 + C_1C_5R_1R_4R_5 + C_1C_5R_1R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_2R_$ 

**9.1915** X-INVALID-ORDER-1915  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_2C_5R_1R_2R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_1C_2R_1R_2R_4R_6 + C_1C_5R_1R_4R_5R_6 + C_2C_5R_2R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6\right)}{-C_1C_2C_5C_6R_2R_3R_4R_5R_6s^4 + s^3\left(-C_1C_2C_5R_2R_3R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6\right) + s^2\left(C_1C_2R_1R_4R_5 - C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_3R_4R_5R_6\right)}$ 

**9.1916** X-INVALID-ORDER-1916  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_1C_2R_1R_2R_6s^2 + R_6 + s\left(C_1R_1R_6 + C_2R_2R_6\right)}{C_1C_2C_4R_2R_3R_5s^3 + s^2\left(C_1C_2R_1R_5 - C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_2R_3R_5 + C_1C_4R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ 

**9.1917** X-INVALID-ORDER-1917  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2R_1R_2s^2 + s\left(C_1R_1 + C_2R_2\right) + 1}{C_1C_2C_4C_6R_2R_3R_5s^4 + s^3\left(C_1C_2C_6R_1R_5 - C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ 

**9.1918** X-INVALID-ORDER-1918  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_6R_1R_2R_6s^3 + s^2\left(C_1C_2R_1R_2 + C_1C_6R_1R_6 + C_2C_6R_2R_6\right) + s\left(C_1R_1 + C_2R_2 + C_6R_6\right) + 1}{C_1C_2C_4C_6R_2R_3R_5s^4 + s^3\left(C_1C_2C_6R_1R_5 - C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}$ 

**9.1919** X-INVALID-ORDER-1919  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_2R_1R_2R_6s^2 + R_6 + s\left(C_1R_1R_6 + C_2R_2R_6\right)}{C_1C_2C_4C_6R_2R_3R_5R_6s^4 + s^3\left(C_1C_2C_4R_2R_3R_5 + C_1C_2C_6R_1R_5R_6 - C_1C_2C_6R_2R_3R_6 + C_1C_2C_6R_2R_5R_6 + C_1C_2C_6R_3R_5R_6\right) + s^2\left(C_1C_2R_1R_5 - C_1C_2R_2R_3 + C_1C_2R_3R_5 + C_1C_4R_3R_5 - C_1C_6R_3R_6 + C_1C_6R_5R_6 + C_2C_6R_5R_6\right)}$ 

**9.1920** X-INVALID-ORDER-1920  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_5R_1R_2s^2 + C_5 + s\left(C_1C_5R_1 + C_2C_5R_2\right)}{s^3\left(C_1C_2C_4C_6R_2R_3 - C_1C_2C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}$ 

```
9.1921 X-INVALID-ORDER-1921 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                  H(s) = \frac{C_1C_2C_5C_6R_1R_2R_6s^3 + C_5 + s^2\left(C_1C_2C_5R_1R_2 + C_1C_5C_6R_1R_6 + C_2C_5C_6R_2R_6\right) + s\left(C_1C_5R_1 + C_2C_5R_2 + C_5C_6R_6\right)}{s^3\left(C_1C_2C_4C_6R_2R_3 - C_1C_2C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3\right) + s\left(C_1C_6 + C_2C_6\right)}
9.1922 X-INVALID-ORDER-1922 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_5R_1R_2R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_2C_5R_2R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_4C_6R_2R_3R_6 - C_1C_2C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3 + C_1C_2C_6R_1R_6 + C_1C_2C_6R_3R_6 + C_1C_4C_6R_3R_6 - C_1C_5C_6R_3R_6\right) + s\left(C_1C_2R_1 + C_1C_2R_2 + C_1C_2R_3 + C_1C_4R_3 - C_1C_5R_3 + C_1C_6R_6 + C_2C_6R_6\right)}
9.1923 X-INVALID-ORDER-1923 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                         H(s) = \frac{C_1C_2C_5R_1R_2R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_2C_5R_2R_6\right)}{C_1C_2C_4C_5R_2R_3R_5s^3 + C_1 + C_2 + s^2\left(C_1C_2C_4R_2R_3 + C_1C_2C_5R_1R_5 - C_1C_2C_5R_2R_3 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_3R_5 + C_1C_4C_5R_3R_5\right) + s\left(C_1C_2R_1 + C_1C_2R_2 + C_1C_2R_3 + C_1C_4R_3 - C_1C_5R_3 + C_1C_5R_5 + C_2C_5R_5\right)}
9.1924 X-INVALID-ORDER-1924 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_5R_1R_2s^2 + C_5 + s\left(C_1C_5R_1 + C_2C_5R_2\right)}{C_1C_2C_4C_5C_6R_2R_3R_5s^4 + s^3\left(C_1C_2C_4C_6R_2R_3 + C_1C_2C_5C_6R_1R_5 - C_1C_2C_5C_6R_2R_3 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_6R_3 + C_1C_4C_6R_3 + C_1C_5C_6R_3 + C_1C
9.1925 X-INVALID-ORDER-1925 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_5C_6R_1R_2R_6s^3 + C_5 + s^2\left(C_1C_2C_5R_1R_2 + C_1C_5C_6R_1R_6 + C_2C_5C_6R_2R_6\right) + s\left(C_1C_5R_1 + C_2C_5R_2 + C_5C_6R_6\right)}{C_1C_2C_4C_5C_6R_2R_3R_5s^4 + s^3\left(C_1C_2C_4C_6R_2R_3 + C_1C_2C_5C_6R_1R_5 - C_1C_2C_5C_6R_2R_3 + C_1C_2C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_1C_5C_6R_5\right) + s\left(C_1C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5\right) + s^2\left(C_1C_2C_6R_3 + C_1C_4C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_5\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_5\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_3\right) + s\left(C_1C_5C_6R_3\right) + s\left(C_1C_5C_
9.1926 X-INVALID-ORDER-1926 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.1927 X-INVALID-ORDER-1927 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                        H(s) = \frac{C_1C_2C_5R_1R_2R_5R_6s^3 + R_6 + s^2\left(C_1C_2R_1R_2R_6 + C_1C_5R_1R_5R_6 + C_2C_5R_2R_5R_6\right) + s\left(C_1R_1R_6 + C_2R_2R_6 + C_5R_5R_6\right)}{s^3\left(C_1C_2C_4R_2R_3R_5 - C_1C_2C_5R_2R_3R_5\right) + s^2\left(C_1C_2R_1R_5 - C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_2R_3R_5 + C_1C_4R_3R_5 - C_1C_5R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}
9.1928 X-INVALID-ORDER-1928 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                        H(s) = \frac{C_1C_2C_5R_1R_2R_5s^3 + s^2\left(C_1C_2R_1R_2 + C_1C_5R_1R_5 + C_2C_5R_2R_5\right) + s\left(C_1R_1 + C_2R_2 + C_5R_5\right) + 1}{s^4\left(C_1C_2C_4C_6R_2R_3R_5 - C_1C_2C_5C_6R_2R_3R_5\right) + s^3\left(C_1C_2C_6R_1R_5 - C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_5 - C_1C_5C_6R_3R_5\right) + s^2\left(-C_1C_6R_3 + C_1C_6R_5 + C_2C_6R_5\right)}
9.1929 X-INVALID-ORDER-1929 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                             H(s) = \frac{C_1C_2C_5C_6R_1R_2R_5R_6s^4 + s^3\left(C_1C_2C_5R_1R_2R_5 + C_1C_2C_6R_1R_2R_6 + C_1C_5C_6R_1R_5R_6 + C_2C_5C_6R_2R_5R_6\right) + s^2\left(C_1C_2R_1R_2 + C_1C_5R_1R_5 + C_1C_6R_1R_6 + C_2C_5R_2R_5 + C_2C_6R_2R_6 + C_5C_6R_2R_6\right) + s\left(C_1R_1 + C_2R_2 + C_5R_5 + C_6R_6\right) + s\left(C_1R_1 + C_2R_2 + C_5R_5 + C_6R_5\right) + s\left(C_1R_1 + C_2R_2 + C_5R_5 + C_6R_5\right) + s\left(C_1R_1 + C_2R_2 + C_5R_5 + C_6R_5\right) + s\left(C_1R_1 + C_2R_2 + C_5R_5\right) + s\left(C_1R_
9.1930 X-INVALID-ORDER-1930 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_1C_2C_5R_1R_2R_5R_6s^3 + R_6 + s^2\left(C_1C_2R_1R_2R_6 + C_1C_5R_1R_5R_6 + C_2C_5R_2R_5R_6\right) + s\left(C_1R_1R_6 + C_2R_2R_6 + C_5R_5R_6\right)}{s^4\left(C_1C_2C_4C_6R_2R_3R_5R_6 - C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_6R_2R_3R_5 +$ 

```
9.1931 X-INVALID-ORDER-1931 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
                    H(s) = \frac{C_1C_2C_4R_1R_2R_4R_6s^3 + R_6 + s^2\left(C_1C_2R_1R_2R_6 + C_1C_4R_1R_4R_6 + C_2C_4R_2R_4R_6\right) + s\left(C_1R_1R_6 + C_2R_2R_6 + C_4R_4R_6\right)}{s^3\left(C_1C_2C_4R_1R_4R_5 - C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_5 + C_1C_2R_4R_3R_4 + C_1C_2C_4R_2R_3R_5 + C_1C_2R_4R_3R_4 + C_1C_2R_2R_5 + C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_2R_3R_5 + C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_4R_5 + C_2C_4R_4R_5\right) + s\left(C_1R_1R_6 + C_2R_2R_6 + C_4R_4R_6\right)}{s^3\left(C_1C_2C_4R_1R_4R_5 - C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_5 + C_1C_2R_4R_3R_4 + C_1C_2C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_3R_4 + C_1C_4R_3R_5 + C_1C_4R_5 
9.1932 X-INVALID-ORDER-1932 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_4R_1R_2R_4s^3 + s^2\left(C_1C_2R_1R_2 + C_1C_4R_1R_4 + C_2C_4R_2R_4\right) + s\left(C_1R_1 + C_2R_2 + C_4R_4\right) + 1}{s^4\left(C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_3R_5 + C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_4R_5 + S_2C_4C_6R_4R_5 + S_2C_4C_6R_
9.1933 X-INVALID-ORDER-1933 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_4C_6R_1R_2R_4R_6s^4 + s^3\left(C_1C_2C_4R_1R_2R_4 + C_1C_2C_6R_1R_2R_6 + C_1C_4C_6R_1R_4R_6 + C_2C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2 + C_1C_4R_1R_4 + C_1C_6R_1R_6 + C_2C_4R_2R_4 + C_2C_6R_2R_6 + C_4C_6R_4R_6\right) + s\left(C_1R_1 + C_2R_2 + C_4R_4 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_4C_6R_1R_4R_5 - C_1C_2C_4C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_6R_1R_5 - C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 - C_1C_4C_6R_3R_4 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_4R_5\right) + s^2\left(C_1C_2R_1R_4 + C_1C_4R_1R_4 + C_1C_
9.1934 X-INVALID-ORDER-1934 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                         \frac{C_1C_2C_4R_1R_2R_4R_6s^5 + R_6 + s}{s^4\left(C_1C_2C_4C_6R_2R_3R_4R_6 + C_1C_2C_4C_6R_2R_3R_5R_6 + C_1C_2C_4C_6R_2R_4R_5R_6 + C_1C_2C_4C_6R_3R_4R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_4R_5 - C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_3R_5 + C_1C_2C_4R_3R_4R_5 + C_1C_2C_4R_3R_4R_
9.1935 X-INVALID-ORDER-1935 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                  H(s) = \frac{C_1C_2C_4C_5R_1R_2R_4R_6s^3 + C_5R_6 + s^2\left(C_1C_2C_5R_1R_2R_6 + C_1C_4C_5R_1R_4R_6 + C_2C_4C_5R_2R_4R_6\right) + s\left(C_1C_5R_1R_6 + C_2C_5R_2R_6 + C_4C_5R_4R_6\right)}{-C_1C_2C_4C_5R_2R_3R_4s^3 + C_1 + C_2 + s^2\left(C_1C_2C_4R_1R_4 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_3R_4 - C_1C_2C_5R_2R_3 - C_1C_4C_5R_3R_4\right) + s\left(C_1C_2R_1 + C_1C_2R_2 + C_1C_2R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_2C_4R_4\right)}
9.1936 X-INVALID-ORDER-1936 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                         \frac{C_{1}C_{2}C_{4}C_{5}R_{1}R_{2}R_{4}s^{3}+C_{5}+s^{2}\left(C_{1}C_{2}C_{5}R_{1}R_{2}+C_{1}C_{4}C_{5}R_{2}R_{4}\right)+s\left(C_{1}C_{5}R_{1}+C_{2}C_{5}R_{2}+C_{4}C_{5}R_{4}\right)}{-C_{1}C_{2}C_{4}C_{5}R_{2}R_{3}+c_{1}C_{2}C_{4}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{4}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}-C_{1}C_{4}C_{5}C_{6}R_{3}R_{4})+s^{2}\left(C_{1}C_{2}C_{6}R_{1}+C_{1}C_{2}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}R_{3}+C_{1}C_{4}C_{6}
9.1937 X-INVALID-ORDER-1937 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_4C_5C_6R_1R_2R_4R_6s^4 + C_5 + s^3\left(C_1C_2C_4C_5R_1R_2R_4 + C_1C_2C_5C_6R_1R_2R_6 + C_1C_4C_5C_6R_1R_4R_6 + C_2C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_5R_1R_2 + C_1C_4C_5R_1R_4 + C_1C_5C_6R_1R_6 + C_2C_4C_5R_2R_4 + C_2C_5C_6R_2R_6 + C_4C_5C_6R_4R_6\right) + s\left(C_1C_5R_1 + C_2C_5C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_
9.1938 X-INVALID-ORDER-1938 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C_1C_2C_4C_5R_1R_2R_4R_6s^3 + C_5R_6 + s^2(C_1C_2C_5R_1R_2R_6 + C_1C_4C_5R_1
H(s) = \frac{C_1C_2C_4C_5R_1R_2R_4R_6s^3 + C_5R_6 + s^2\left(C_1C_2C_5R_1R_2R_6 + C_1C_4C_5R_1R_2R_4R_6s^3 + C_5R_6 + s^2\left(C_1C_2C_5R_1R_2R_6 + C_1C_4C_5R_1R_4R_6 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_3R_6 + C_1C_4C_5C_4C_6R_2R_3R_6 + C_1C_4C_5C_4C_6R_2R_3R_6 + C_1C_4C_5C_4C_6R_2R_4R_6 + C_1C_4C_5C_4C_6R_2R_4R_6 + C_1C_4C_5C_4C_6R_2R_4R_6 + C_1C_4C_5C_4C_6R_2R_4R_6 + C_1C_4C_5C_4C_6R_4R_4R_6 + C_1C_4C_5C_4C_6R_4R_4
9.1939 X-INVALID-ORDER-1939 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_2C_4C_5R_1R_2R_4R_6s^3 + C_5R_6 + s^2\left(C_1C_2C_5R_1R_2R_6 + C_1C_4C_5R_1R_4R_6 + C_2C_4C_5R_2R_4R_6\right) + s\left(C_1C_5R_1R_6 + C_2C_4C_5R_2R_4R_5 + C_1C_2C_4C_5R_2R_4R_5 + C_1C_2C_4C_5R_2R_4R_5 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_2R_4 + C_1C_2C_4R_2R_4 + C_1C_2C_5R_2R_3 + C_1C_2C_5R_2R_3 + C_1C_2C_5R_2R_5 + C_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9.1940 X-INVALID-ORDER-1940 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $\frac{s^4 \left(C_1 C_2 C_4 C_5 C_6 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 C_6 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 C_6 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 C_6 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 C_6 R_2 R_4 R_5 + C_1 C_2 C_5 C_6$ 

 $C_1C_2C_4C_5R_1R_2R_4s^3 + C_5 + s^2(C_1C_2C_5R_1R_2 + C_1C_4C_5R_1R_4 + C_1C_4C_5R_1R_4)$ 

```
9.1941 X-INVALID-ORDER-1941 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
 H(s) = \frac{C_1C_2C_4C_5C_6R_1R_2R_4R_6s^4 + C_5 + s^3\left(C_1C_2C_4C_5R_1R_2R_4 + C_1C_2C_5C_6R_1R_2R_6 + C_1C_4C_5C_6R_1R_4R_6 + C_2C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_2C_4C_5C_6R_2R_4R_6 + C_1C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_5R_1R_4R_5 - C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_4C_5R_1R_4R_5 - C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_4C_5R_1R_4R_5 - C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_2C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_2C_4C_5C_6R_2R_4R_5\right) + s^3\left(C_1C_4C_5C_6R_2R_4R_5\right) + 
 9.1942 X-INVALID-ORDER-1942 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
 H(s) = \frac{1}{C_1 + C_2 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_4 R_5 R_6 - C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_3 R_4 R_5 R_6 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 R_6 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 R_6 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_3 R_4 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_4 C_5 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_3 R_4 + C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_3 R_4 + C_1 C_2 C_4 C_5 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_3 R_4 + C_1 C_2 C_4 C_5 R_4 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_5 R_5 R_5 + C_1 C_2 C_4 C_5 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_5 R_5 R_5 + C_1 C_2 C_4 C_5 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_5 R_5 R_5 + C_1 C_2 C_4 C_5 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_5 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4
 9.1943 X-INVALID-ORDER-1943 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_1C_2C_4C_5R_1R_2R_4R_5R_6s^4 + R_6 + s^3\left(C_1C_2C_4R_1R_2R_4R_6 + C_1C_4C_5R_1R_4R_5R_6 + C_2C_4C_5R_2R_4R_5R_6\right) + s^2\left(C_1C_2R_1R_2R_6 + C_1C_4R_1R_4R_6 + C_1C_5R_1R_5R_6 + C_2C_4R_2R_4R_6 + C_2C_5R_2R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1C_2C_4C_5R_2R_4R_5R_6 + C_4C_5R_4R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1C_2R_1R_2R_6 + C_1C_4R_1R_4R_6 + C_1C_5R_1R_5R_6 + C_2C_4R_2R_4R_6 + C_2C_5R_2R_5R_6 + C_4C_5R_4R_5R_6\right) + s\left(C_1C_2C_4R_3R_4R_5s^4 + s^3\left(C_1C_2C_4R_1R_4R_5 - C_1C_2C_4R_2R_3R_4 + C_1C_2C_4R_2R_4R_5 + C_1C_2C_4R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_5 - C_1C_2R_2R_3 + C_1C_2R_3R_5 + C_1C_4R_3R_5 + C_1C_4R_3R_4 + C_1C_4R_3R_4
```

**9.1944** X-INVALID-ORDER-1944  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

**9.1945** X-INVALID-ORDER-1945  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_4C_5C_6R_1R_2R_4R_5R_6s^5 + s^4\left(C_1C_2C_4C_5R_1R_2R_4R_5 + C_1C_2C_4C_6R_1R_2R_4R_6 + C_1C_4C_5C_6R_1R_4R_5R_6 + C_2C_4C_5C_6R_2R_4R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_4 + C_1C_2C_5R_1R_2R_5 + C_1C_2C_6R_1R_2R_6 + C_1C_4C_5R_1R_4R_5 + C_1C_4C_6R_1R_4R_6 + C_1C_4C_5R_1R_4R_5 + C_1C_4C_5R$ 

**9.1946** X-INVALID-ORDER-1946  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_2C_4C_5R_1R_2R_4R_5R_5$ 

 $\frac{C_1C_2C_4C_5R_1R_2R_4R_5}{-C_1C_2C_4C_5R_2R_3R_4R_5R_6s^5 + s^4\left(-C_1C_2C_4C_5R_2R_3R_4R_5 + C_1C_2C_4C_6R_1R_4R_5R_6 - C_1C_2C_4C_6R_2R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 - C_1C_2C_5C_6R_2R_3R_4R_5R_6 - C_1C_4C_5C_6R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 - C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_2C_4C_$ 

**9.1947** X-INVALID-ORDER-1947  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $H(s) = \frac{C_1C_2R_1R_2R_4R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6\right)}{C_1C_2C_4R_2R_3R_4R_5s^3 + s^2\left(C_1C_2R_1R_4R_5 - C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_4R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}$ 

**9.1948** X-INVALID-ORDER-1948  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2R_1R_2R_4s^2 + R_4 + s\left(C_1R_1R_4 + C_2R_2R_4\right)}{C_1C_2C_4C_6R_2R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 - C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1949** X-INVALID-ORDER-1949  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_6R_1R_2R_4R_6s^3 + R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_6R_1R_4R_6 + C_2C_6R_2R_4R_6\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_6R_4R_6\right)}{C_1C_2C_4C_6R_2R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_4R_5 - C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_3R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}$ 

**9.1950** X-INVALID-ORDER-1950  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_2R_1R_2R_4R_6s^2 + R_4R_6 + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6\right)$ 

 $\frac{C_1C_2R_1R_2R_4R_6+c_1C_2C_6R_2R_3R_4R_5+c_1C_2R_4R_6+c_1C_2R_2R_4R_6+c_1C_2C_6R_2R_3R_4R_6+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2R_4R_5+c_1C_2C_6R_2$ 

```
9.1951 X-INVALID-ORDER-1951 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                           H(s) = \frac{C_1C_2C_5R_1R_2R_4s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4\right)}{s^3\left(C_1C_2C_4C_6R_2R_3R_4 - C_1C_2C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4\right)}
9.1952 X-INVALID-ORDER-1952 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                          H(s) = \frac{C_1C_2C_5C_6R_1R_2R_4R_6s^3 + C_5R_4 + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_5C_6R_1R_4R_6 + C_2C_5C_6R_2R_4R_6\right) + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4 + C_5C_6R_4R_6\right)}{s^3\left(C_1C_2C_4C_6R_2R_3R_4 - C_1C_2C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_3R_4 + C_1C_4C_6R_3R_4 - C_1C_5C_6R_3R_4\right) + s\left(C_1C_6R_3 + C_1C_6R_4 + C_2C_6R_4R_6\right)}
9.1953 X-INVALID-ORDER-1953 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_5R_1R_2R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_4C_6R_2R_3R_4R_6 - C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_6R_2R_3R_6 + C_1C_2C_6R_2R_3R_4R_6 + C_1C_2C_6R_3R_4R_6 + C_1C_2C_4R_4R_6 + C
9.1954 X-INVALID-ORDER-1954 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_2C_5R_1R_2R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6\right)}{C_1C_2C_4C_5R_2R_3R_4R_5s^3 + C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_4R_2R_3R_4 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_2R_4R_5 + C_1C_2C_5R_3R_4R_5 + C_1C_2C_5R_3R_4R_5\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_2R_
9.1955 X-INVALID-ORDER-1955 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_5R_1R_2R_4s^2 + C_5R_4 + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4\right)}{C_1C_2C_4C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_5 + C_1C_2C_5C_6R_2R_3R_5 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4
9.1956 X-INVALID-ORDER-1956 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_5C_6R_1R_2R_4R_6s^3 + C_5R_4 + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_5C_6R_1R_4R_6 + C_2C_5C_6R_2R_4R_6\right) + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4 + C_5C_6R_4R_6\right)}{C_1C_2C_4C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_2C_5C_6R_3R_4R_5 + C_1C_2C_5C_6R_3R_4 + C_1C_
9.1957 X-INVALID-ORDER-1957 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_2C_4C_5C_6R_2R_3R_4R_5R_6s^4 + C_1R_3 + C_1R_4 + C_2R_4 + s^3\left(C_1C_2C_4C_5R_2R_3R_4R_6 + C_1C_2C_5C_6R_1R_4R_5R_6 - C_1C_2C_5C_6R_2R_3R_4R_6 + C_1C_2C_5C_6R_3R_4R_6 + C_1C_2C_5C_6R_3R_4R_6 + C_1C_2C_5C_6R_3R_4R_5R_6 + C_1C_2C_5C_6R_3R_4R_5R_6 + C_1C_2C_5C_6R_3R_4R_5R_6 + C_1C_2C_5C_6R_3R_4R_5R_6 + C_1C_2C_5C_6R_3R_4R_5R_6 + C_1C_2C_5C_6R_3R_4R_5R_6 + C_1C_2C_5C_6R_3R_4R_5 + C_1C_2C_5C_6R_3R_4R_5R_5 + C_1C_2C_5C_6R_3R_4R_5R_5 + C_1C_2C_5C_6R_3R_4R_5 + C_1C_2C_
9.1958 X-INVALID-ORDER-1958 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                           H(s) = \frac{C_1C_2C_5R_1R_2R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_1C_2R_1R_2R_4R_6 + C_1C_5R_1R_4R_5R_6 + C_2C_5R_2R_4R_5R_6\right) + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6 + C_5R_4R_5R_6\right)}{s^3\left(C_1C_2C_4R_2R_3R_4R_5 - C_1C_2C_5R_2R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_4R_5 - C_1C_2R_2R_3R_4 + C_1C_2R_2R_3R_5 + C_1C_2R_2R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_4R_3R_4R_5 - C_1C_5R_3R_4R_5\right) + s\left(-C_1R_3R_4 + C_1R_3R_5 + C_1R_4R_5 + C_2R_4R_5\right)}
9.1959 X-INVALID-ORDER-1959 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_5R_1R_2R_4R_5s^3 + R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_5R_1R_4R_5 + C_2C_5R_2R_4R_5\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_5R_4R_5\right)}{s^4\left(C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_2C_5C_6R_2R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_1R_4R_5 - C_1C_2C_6R_2R_3R_4 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_3R_4R_5 + C_1C_2C_6R_3R_4R_5\right) + s^2\left(-C_1C_6R_3R_4 + C_1C_6R_3R_5 + C_1C_6R_4R_5 + C_2C_6R_4R_5\right)}
9.1960 X-INVALID-ORDER-1960 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_5C_6R_1R_2R_4R_5R_6s^4 + R_4 + s^3\left(C_1C_2C_5R_1R_2R_4R_5 + C_1C_2C_6R_1R_2R_4R_6 + C_2C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_5R_1R_4R_5 + C_1C_6R_1R_4R_6 + C_2C_5R_2R_4R_5 + C_2C_6R_2R_4R_6 + C_5C_6R_4R_5R_6\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_1C_5R_1R_4R_5 + C_1C_6R_1R_4R_5 + C_1C_6R_2R_4R_5 + C_2C_6R_2R_4R_5 + C_2C_6R_2R_
```

```
9.1961 X-INVALID-ORDER-1961 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_5R_1R_2R_4R_5R_6s^3 + R_4R_6 + s^2\left(C_1C_2R_1R_2R_4R_6 + C_1C_5R_1R_4R_5R_6 + C_2C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_2C_6R_3R_4R_5R_6 + C_1C_2C_6R_3R_4R_5 + C_1C_2C_6R_3R_4R_5R_6 + C_1C_2C_6R_3R_4R_5 +
9.1962 X-INVALID-ORDER-1962 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                              H(s) = \frac{C_1C_2C_3R_1R_2R_4s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.1963 X-INVALID-ORDER-1963 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                              H(s) = \frac{C_1C_2C_3C_6R_1R_2R_4R_6s^3 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_1R_4R_6 + C_2C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.1964 X-INVALID-ORDER-1964 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
9.1965 X-INVALID-ORDER-1965 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                               H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_3R_2R_4 - C_1C_2C_5R_2R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4\right)}
9.1966 X-INVALID-ORDER-1966 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                              H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_4 + s^2\left(C_1C_2C_3C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_4R_6 + C_2C_3C_5C_6R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_2R_4 - C_1C_2C_5C_6R_2R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}
9.1967 X-INVALID-ORDER-1967 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{1}{C_3 s}, \ R_4, \ \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{C_1 + s^3\left(C_1C_2C_3C_6R_1R_4R_6 + C_1C_2C_3C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_5R_2R_4 + C_1C_2C_6R_2R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_2C_3C_6R_4R_6\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 + C_1C_2C_5R_2R_4 + C_1C_2C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6\right) + s\left(C_1C_2R_2 + C_1C_3R_4 + C_1C_3R_4 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6R_4R_6\right) + s\left(C_1C_3R_4R_6 + C_1C_3C_6R_4R_6 + C_1C_3C_6
9.1968 X-INVALID-ORDER-1968 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
                   H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{C_1 + s^3\left(C_1C_2C_3C_5R_1R_4R_5 + C_1C_2C_3C_5R_2R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_1C_5R_5 + C_2C_3R_4\right)}
9.1969 X-INVALID-ORDER-1969 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_4R_5 + C_1C_2C_3C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_5C_6R_4R_5\right) + s\left(C_1C_3C_
9.1970 X-INVALID-ORDER-1970 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_4 + s^2\left(C_1C_2C_3C_5R_1R_2R_4 + C_1C_3C_5C_6R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_4R_5 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_4R_5\right) + s\left(C_1C_3C_5R_4R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_2C_5C_6R_4R_5\right) + s\left(C_1C_3C_5R_4R_5 + C_1C_2C_5C_6R_4R_5 + C_1C_
```

```
9.1971 X-INVALID-ORDER-1971 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_1}{C_1 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_4 R_5 + C_1 C_2 C_3 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_6 + C_1 C_2 C_5 C_6 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R$ 

**9.1972** X-INVALID-ORDER-1972  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_4R_6 + s^2\left(C_1C_2C_3R_1R_2R_4R_6 + C_1C_3C_5R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_3R_2R_4R_5 - C_1C_2C_5R_2R_4R_5\right) + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$ 

**9.1973** X-INVALID-ORDER-1973  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5s^3 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}$ 

**9.1974** X-INVALID-ORDER-1974  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_1R_4R_5 + C_1C_3C_6R_1R_4R_6 + C_2C_3C_5R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_1R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_2C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_2C_3R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_3C_5R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_3C_5R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s^2\left(C_1C_3C_6R_4R_5\right) + s$ 

**9.1975** X-INVALID-ORDER-1975  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_4R_6 + s^2\left(C_1C_2C_3R_1R_2R_4R_6 + C_1C_3C_5R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6 + C_2C_3C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6 + C_2C_3R_2R_4R_6\right) + s\left(C_1C_3C_3R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5R_6\right) + s\left(C_1C_3C_3R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5R_6\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_3R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_1C_2C_3R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_1C_3C_3R_2R_4R_5\right) + s\left(C_1C_3C_3R_1R_4R_5 + C_1C_3C_3R_4R_5\right) + s\left(C_1C_3C_3R_4R_5\right) + s\left(C_1C_3C_3R_4R$ 

**9.1976** X-INVALID-ORDER-1976  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_2C_3R_1R_2s^2 + C_3 + s\left(C_1C_3R_1 + C_2C_3R_2\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.1977** X-INVALID-ORDER-1977  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_2C_3C_6R_1R_2R_6s^3 + C_3 + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_6R_1R_6 + C_2C_3C_6R_2R_6\right) + s\left(C_1C_3R_1 + C_2C_3R_2 + C_3C_6R_6\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}$$

**9.1978** X-INVALID-ORDER-1978  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{1}{C_3 s}, \ \frac{1}{C_4 s}, \ R_5, \ \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_2C_3R_1R_2R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_6R_1R_5R_6 + C_1C_2C_3C_6R_2R_5R_6 + C_1C_2C_4R_2R_5 + C_1C_2C_4R_2R_5 + C_1C_2C_4R_2R_5 - C_1C_2C_6R_2R_6 + C_1C_2C_6R_5R_6 + C_1C_4C_6R_5R_6 +$ 

**9.1979** X-INVALID-ORDER-1979  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6\right)}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_3R_1 + C_1C_2C_3R_2 + C_1C_2C_4R_2 - C_1C_2C_5R_2\right)}$$

**9.1980** X-INVALID-ORDER-1980  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_2C_3C_5R_1R_2s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_2C_3C_5R_2\right)}{s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_3C_6R_2 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_2\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}$$

```
9.1981 X-INVALID-ORDER-1981 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                        H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_6s^3 + C_3C_5 + s^2\left(C_1C_2C_3C_5R_1R_2 + C_1C_3C_5C_6R_1R_6 + C_2C_3C_5C_6R_2R_6\right) + s\left(C_1C_3C_5R_1 + C_2C_3C_5R_2 + C_3C_5C_6R_6\right)}{s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_3C_6R_2 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_2\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}
9.1982 X-INVALID-ORDER-1982 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_2C_3C_5R_2\right)}{s^3\left(C_1C_2C_3C_5C_6R_1R_5 + C_1C_2C_3C_5C_6R_2 + C_1C_2C_3C_6R_2 + C_1C_2C_5C_6R_2 + C_1C_2C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_3C_5C
9.1983 X-INVALID-ORDER-1983 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_6s^3 + C_3C_5 + s^2\left(C_1C_2C_3C_5R_1R_2 + C_1C_3C_5C_6R_1R_6 + C_2C_3C_5C_6R_2R_6\right) + s\left(C_1C_3C_5R_1 + C_2C_3C_5R_2 + C_3C_5C_6R_6\right)}{s^3\left(C_1C_2C_3C_5C_6R_1R_5 + C_1C_2C_3C_5C_6R_2 + C_1C_2C_3C_6R_2 + C_1C_2C_5C_6R_2 + C_1C_2C_5C_6R_5 + C_1C_3C_5C_6R_5 + C_1C_3C_5C_5C_6R_5 + C_1C_3C_5C_5C_6R_5 + C_1C_3C_5C_5C_6R_5 + 
9.1984 X-INVALID-ORDER-1984 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(\frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(\frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_1C_2C_3C_5R_1R_5 + C_1C_2C_3
9.1985 X-INVALID-ORDER-1985 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                                                                                      H(s) = \frac{C_1C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_6 + s^2\left(C_1C_2C_3R_1R_2R_6 + C_1C_3C_5R_1R_5R_6 + C_2C_3C_5R_2R_5R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_3R_2R_5 + C_1C_2C_4R_2R_5 - C_1C_2C_5R_2R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 - C_1C_5R_5 + C_2C_3R_5\right)}
9.1986 X-INVALID-ORDER-1986 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                H(s) = \frac{C_1C_2C_3C_5R_1R_2R_5s^3 + C_3 + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_5R_1R_5 + C_2C_3C_5R_2R_5\right) + s\left(C_1C_3R_1 + C_2C_3R_2 + C_3C_5R_5\right)}{-C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_5C_6R_2R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 + C_1C_3C_6R_5 + C_1C_3C_6R_5 + C_1C_3C_6R_5 + C_1C_3C_6R_5 + C_1C_3C_6R_5\right)}
9.1987 X-INVALID-ORDER-1987 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_5R_6s^4 + C_3 + s^3\left(C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_6R_1R_2R_6 + C_1C_3C_5C_6R_1R_5R_6 + C_2C_3C_5C_6R_2R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_5R_1R_5 + C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_5 + C_2C_3C_6R_2R_6 + C_3C_5C_6R_2R_6\right) + s\left(C_1C_3R_1 + C_2C_3R_2 + C_3C_5R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_6 + C_3C_5C_6R_2R_5\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_5R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_5 + C
9.1988 X-INVALID-ORDER-1988 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_6 + s^2\left(C_1C_2C_3R_1R_2R_6 + C_1C_3C_5R_1R_5R_6 + C_2C_3C_5R_2R_5R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_6R_1R_5R_6 + C_1C_2C_3C_6R_2R_5R_6 + C_1C_2C_5C_6R_2R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_3R_2R_5 + C_1C_2C_6R_2R_6 + C_1C_2C_6R_5R_6 + C_1C_3C_6R_5R_6 + C_1C
9.1989 X-INVALID-ORDER-1989 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
               H(s) = \frac{C_1C_2C_3C_4R_1R_2R_4R_6s^3 + C_3R_6 + s^2\left(C_1C_2C_3R_1R_2R_6 + C_1C_3C_4R_1R_4R_6 + C_2C_3C_4R_2R_4R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6 + C_3C_4R_4R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_4R_1R_4R_5 + C_1C_2C_3C_4R_2R_4 + C_1C_2C_4R_2R_5 + C_1C_2C_4R_2R_5 + C_1C_2C_4R_4R_5 + C_1C_3C_4R_4R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 + C_2C_3R_5\right)}
9.1990 X-INVALID-ORDER-1990 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                    \frac{C_{1}C_{2}C_{3}C_{4}R_{1}R_{2}R_{4}s^{3}+C_{3}+s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{2}+C_{1}C_{3}C_{4}R_{1}R_{4}+C_{2}C_{3}C_{4}R_{2}R_{4}\right)+s\left(C_{1}C_{3}R_{1}+C_{2}C_{3}R_{2}+C_{3}C_{4}R_{4}\right)}{-C_{1}C_{6}s+s^{4}\left(C_{1}C_{2}C_{3}C_{4}C_{6}R_{1}R_{4}F_{5}+C_{1}C_{2}C_{3}C_{6}R_{1}R_{5}+C_{1}C_{2}C_{3}C_{6}R_{2}R_{5}-C_{1}C_{2}C_{4}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{4}C_{6}R_{2}R_{5}+C_{1}C_{2}C_{4}C_{6}R_{4}R_{5}+C_{2}C_{3}C_{4}C_{6}R_{4}R_{5}+C_{2}C_{3}C_{4}C_{6}R_{4}R_{5}\right)+s^{2}\left(-C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_{6}R_{5}+C_{1}C_{2}C_
```

```
9.1991 X-INVALID-ORDER-1991 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_4C_6R_1R_2R_4R_6s^4 + C_3 + s^3\left(C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_6R_1R_2R_6 + C_1C_3C_4C_6R_1R_4R_6 + C_2C_3C_4R_2R_4 + C_1C_3C_4R_1R_4 + C_1C_3C_6R_1R_6 + C_2C_3C_4R_2R_4 + C_2C_3C_6R_2R_6 + C_3C_4C_6R_4R_6\right) + s\left(C_1C_3R_1 + C_2C_3R_2R_4 + C_1C_3C_4R_1R_4 + C_1C_3C_4R_1R_4
9.1992 X-INVALID-ORDER-1992 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H(s) = \frac{C_1C_2C_3C_4R_1R_2R_4R_6s^2 + C_3R_6 + s^2(C_1C_2C_3C_4R_1R_2R_4R_6s^2 + C_3R_6 + s^2(C_1C_2C_3C_4R_1R_4R_5R_6 + C_1C_2C_3C_4R_1R_4R_5R_6 + C_1C_2C_3C_4R_1R_4R_5 + C_1C_2C_3C_4R_1R_4R_5R_6 + C_1C_2C_3C_4R_1R_4R_5R_6 + C_1C_2C_3C_4R_1R_4R_5R_6 + C_1C_2C_3C_4R_1R_4R_5 + C_1C_2C_3C_4R_1R_4R_5R_6 + C_1C_2C_3C_4R_1R_4R_5 + C_1C_
9.1993 X-INVALID-ORDER-1993 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
```

 $H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_6 + s^2\left(C_1C_2C_3C_5R_1R_2R_6 + C_1C_3C_4C_5R_1R_4R_6 + C_2C_3C_4C_5R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6 + C_3C_4C_5R_4R_6\right)}{C_1C_2 + C_1C_3 + C_1C_4 + C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_1R_4 + C_1C_2C_3C_4R_2R_4 - C_1C_2C_4C_5R_2R_4\right) + s\left(C_1C_2C_3R_1 + C_1C_2C_4R_2 + C_1C_2C_4R_4 - C_1C_2C_5R_2 + C_1C_3C_4R_4 - C_1C_4C_5R_4 + C_2C_3C_4R_4\right)}$ 

**9.1994** X-INVALID-ORDER-1994  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_{1}C_{2}C_{3}C_{4}C_{5}R_{1}R_{2}R_{4}s^{3}+C_{3}C_{5}+s^{2}\left(C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}+C_{1}C_{3}C_{4}C_{5}R_{1}R_{4}+C_{2}C_{3}C_{4}C_{5}R_{2}+C_{3}C_{4}C_{5}R_{2}+C_{3}C_{4}C_{5}R_{2}+C_{3}C_{4}C_{5}R_{2}+C_{3}C_{4}C_{5}R_{2}+C_{3}C_{4}C_{5}R_{2}+C_{3}C_{4}C_{5}R_{2}+C_{4}C_{5}C_{6}R_{2}+$ 

**9.1995** X-INVALID-ORDER-1995  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_4C_5C_6R_1R_2R_4R_6s^4 + C_3C_5 + s^3\left(C_1C_2C_3C_4C_5R_1R_2R_4 + C_1C_2C_3C_5C_6R_1R_2R_6 + C_1C_3C_4C_5C_6R_1R_4R_6 + C_2C_3C_4C_5R_2R_4 + C_1C_3C_4C_5R_1R_4 + C_1C_3C_5C_6R_1R_4 + C_1C_3C_5C_6R_4 + C_1C_$ 

**9.1996** X-INVALID-ORDER-1996  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_6 + s^2\left(C_1C_2C_3C_5R_1R_2R_6 + C_1C_3C_4C_5R_1R_4R_6s^2\right) + c_3C_5R_6s^2 + c_3C_5R_5R_6s^2 + c_3C_5R_6s^2 + c_3$  $H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_6 + s^2\left(C_1C_2C_3C_4R_1R_2R_6 + C_1C_3C_4C_5R_1R_4R_6\right)}{C_1C_2 + C_1C_3 + C_1C_4 + C_1C_5 + C_2C_3 + s^3\left(C_1C_2C_3C_4R_1R_4 + C_1C_2C_3C_4R_1R_4 + C_1C_2C_3C_4R_1R_$ 

**9.1997** X-INVALID-ORDER-1997  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

**9.1998** X-INVALID-ORDER-1998  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_1C_2C_3C_4C_5R_1R_2R_4s^3 + C_3C_5 + s^2(C_1C_2C_3C_5R_1R_2 + C_1C_3C_4C_5R_1R_2)$ 

**9.1999** X-INVALID-ORDER-1999  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_4C_5C_6R_1R_2R_4R_6s^4 + C_3C_5 + s^3\left(C_1C_2C_3C_4C_5R_1R_2R_4 + C_1C_2C_3C_5C_6R_1R_2R_6 + C_1C_3C_4C_5C_6R_1R_4R_6 + C_2C_3C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_5C_6R_1R_4R_5 + C_1C_2C_3C_4C_5C_6R_1R_4R_5 + C_1C_2C_3C_4C_5C_6R_2R_4 + C_1C_2C_4C_5C_6R_2R_4 + C_1C_2C_4C_5C_6R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_4C_5C_5C_6R_4R_5 + C_1C$ 

**9.2000** X-INVALID-ORDER-2000  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^4(C_1C_2C_3C_4C_5C_6R_1R_4R_5R_6 + C_1C_2C_3C_4C_5R_2R_4R_5 + C_1C_2C_3C_4C_5R_1R_4R_5 + C_1C_2C_3C_4C_6R_1R_4R_6 + C_1C_2$ 

```
9.2001 X-INVALID-ORDER-2001 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_4R_5R_6s^4 + C_3R_6 + s^3\left(C_1C_2C_3C_4R_1R_2R_4R_6 + C_1C_3C_5R_1R_2R_6 + C_1C_3C_4R_1R_4R_6 + C_1C_
9.2002 X-INVALID-ORDER-2002 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_4R_5s^4 + C_3 + s^3\left(C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_5R_1R_2R_5 + C_1C_3C_4C_5R_1R_4R_5 + C_2C_3C_4C_5R_2R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_4R_1R_4 + C_1C_3C_5R_1R_5 + C_2C_3C_4R_2R_4 + C_2C_3C_5R_2R_5 + C_2C_3C_4C_5R_2R_4R_5\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_4R_1R_4 + C_1C_3C_5R_1R_5 + C_2C_3C_4R_2R_4 + C_2C_3C_5R_2R_5 + C_2C_3C_4C_5R_2R_4 + C_2C_3C_4C_5R_2R_4 + C_2C_3C_4C_5R_2R_4 + C_2C_3C_4C_5R_2R_4 + C_2C_3C_4C_5R_2R_4 + C_2C_3C_4C_5R_2R_4 + C_2C_3C_4C_5R_2R_5 + C_2C_3C_4C_5R_4R_5 + C_2C_3C_4C_5R_4R_5
9.2003 X-INVALID-ORDER-2003 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5R_6s^5 + C_3 + s^4\left(C_1C_2C_3C_4C_5R_1R_2R_4R_5 + C_1C_2C_3C_4C_6R_1R_2R_4R_6 + C_1C_2C_3C_5C_6R_1R_2R_5R_6 + C_1C_3C_4C_5C_6R_1R_4R_5R_6 + C_2C_3C_4C_5C_6R_2R_4R_5R_6\right) + s^3\left(C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_6R_1R_2R_6 + C_1C_3C_4C_5C_6R_1R_4R_5R_6 + C_2C_3C_4C_5C_6R_2R_4R_5R_6\right) + s^3\left(C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_6R_1R_2R_6 + C_1C_3C_4C_5C_6R_1R_4R_5R_6 + C_2C_3C_4C_5C_6R_2R_4R_5R_6\right) + s^3\left(C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_3C_4C_5R_1R_4R_5 + C_1C_2C_3C_4C_5R_4R_5 + C_1C_2C_
9.2004 X-INVALID-ORDER-2004 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{1}{C_3 s}, \ R_4 + \frac{1}{C_4 s}, \ \frac{R_5}{C_5 R_5 s + 1}, \ \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_4R_5R_6s^4 + C_3R_6 + s^3\left(C_1C_2C_3C_4R_1R_4R_5R_6 + C_1C_2C_3C_4R_1R_4R_5R_6 + C_1C_2C_3C_4R_1R_4R_5 + C_1C_2C_4C_5R_2R_4R_5 + C_1C_2C_4C_
9.2005 X-INVALID-ORDER-2005 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                       H(s) = \frac{C_1C_2C_3R_1R_2R_4s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C
9.2006 X-INVALID-ORDER-2006 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                       H(s) = \frac{C_1C_2C_3C_6R_1R_2R_4R_6s^3 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_1R_4R_6 + C_2C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4 + C_3C_6R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3C_6R_4R_5\right) + s\left(-C_1C_6R_4 + C_1C_6R_5\right)}
9.2007 X-INVALID-ORDER-2007 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_3R_1R_2R_4R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6\right)}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_1R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_4R_2R_4R_5 + C_1C_2C_4R_2R_4R_5 + C_1C_2C_6R_2R_4R_6 + C_1C_2C_6R_2R_4R_5R_6 + C_1C_2C_6R_4R_5R_6 + C_1C_2C_6R_4R_5R_6 + C_1C_2C_6R_4R_5R_6 + C_1C_4C_6R_4R_5R_6 + C_1C_4
9.2008 X-INVALID-ORDER-2008 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                             H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_4R_2R_4 - C_1C_2C_5R_2R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_2C_3R_4\right)}
9.2009 X-INVALID-ORDER-2009 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                              H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_4 + s^2\left(C_1C_2C_3C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_4R_6 + C_2C_3C_5C_6R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1C_5C_5C_6R_5 + C_1
```

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{C_1 + s^3\left(C_1C_2C_3C_6R_1R_4R_6 + C_1C_2C_3C_6R_2R_4R_6 + C_1C_2C_5C_6R_2R_4R_6 + C_1C_2C_5R_2R_4 + C_1C_2C_4R_2R_4 + C_1C_2C_6R_2R_6 + C_1C_2C_6R_4R_6 + C_1C_4C_6R_4R_6 + C_1C$ 

**9.2010** X-INVALID-ORDER-2010  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

```
9.2011 X-INVALID-ORDER-2011 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{C_1 + s^3\left(C_1C_2C_3C_5R_1R_4R_5 + C_1C_2C_3C_5R_2R_4R_5 + C_1C_2C_3R_2R_4 + C_1C_2C_5R_2R_4 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_4R_5 + C_1C_3C_5R_4R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C
9.2012 X-INVALID-ORDER-2012 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{1}{C_3 s}, \ \frac{R_4}{C_4 R_4 s + 1}, \ R_5 + \frac{1}{C_5 s}, \ \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_4R_5 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 
9.2013 X-INVALID-ORDER-2013 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_4 + s^2\left(C_1C_2C_3C_5R_1R_2R_4 + C_1C_3C_5C_6R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_5C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_4R_5 + C_1C_2
9.2014 X-INVALID-ORDER-2014 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.2015 X-INVALID-ORDER-2015 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                    H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_4R_6 + s^2\left(C_1C_2C_3R_1R_2R_4R_6 + C_1C_3C_5R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_3R_2R_4R_5 + C_1C_2C_4R_2R_4R_5 - C_1C_2C_5R_2R_4R_5\right) + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}
9.2016 X-INVALID-ORDER-2016 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                              H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5s^3 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_5 + C_1C_3C_6R_4R_5 + C_1
9.2017 X-INVALID-ORDER-2017 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_4R_5 + C_1C_3C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5R_1R_4R_5 + C_1C_3C_5R_1R_4R_5 + C_1C_3C_6R_1R_4R_6 + C_2C_3C_5R_2R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_
9.2018 X-INVALID-ORDER-2018 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{4}R_{5}R_{6}s^{3} + C_{3}R_{4}R_{6} + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{2}R_{4}R_{6} + C_{1}C_{3}C_{5}R_{1}R_{4}R_{5}R_{6} + C_{2}C_{3}C_{5}R_{2}R_{4}R_{5}R_{6} + C_{2}C_{3}C_{5}R_{4}R_{5}R_{6} + C_{2}C_{3}C_{5}R_{4}R_{5}R_{6} + C_{2}C_{3}C_{5}R_{5}R_{6} + C_{2}C_{5}R_{5}R_{5}R_{6} + C_{2}C_{5}R_{5}R_{5}R_{5}R_{5}R_{5}R_{5}R_
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_4R_6 + s^2\left(C_1C_2C_3R_1R_2R_4R_6 + C_1C_3C_5R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_6R_1R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_4R_2R_4R_5 - C_1C_2C_5R_2R_4R_5 - C_1C_2C_6R_2R_4R_5 + C_1C_2C_6R_2R_4R_5R_6\right)}
9.2019 X-INVALID-ORDER-2019 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_2C_3R_1R_2R_4s^2 + C_3R_4 + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4\right)}{s^3\left(C_1C_2C_3C_6R_1R_4R_5 - C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R$ 

```
9.2021 X-INVALID-ORDER-2021 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    H(s) = \frac{C_1C_2C_3R_1R_2R_4R_6s^2 + C_3R_4R_6 + s\left(C_1C_2C_3C_6R_1R_4R_5R_6 - C_1C_2C_3C_6R_2R_3R_4R_6 + c_1C_2C_3C_6R_2R_4R_5R_6 + c_1C_2C_3C_6R_2R_4R_5R_6 + c_1C_2C_3C_6R_2R_4R_5R_6 + c_1C_2C_3C_6R_2R_4R_5R_6 + c_1C_2C_3C_6R_2R_4R_5R_6 + c_1C_2C_3C_6R_2R_4R_5R_6 + c_1C_2C_3R_2R_4R_5 + c_1C_2C_3R_2R
9.2022 X-INVALID-ORDER-2022 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                          H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{-C_1C_2C_3C_5R_2R_3R_4s^3 + C_1 + s^2\left(C_1C_2C_3R_1R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_3R_4 - C_1C_2C_5R_2R_4 - C_1C_3C_5R_3R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4\right)}
9.2023 X-INVALID-ORDER-2023 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                          H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4\right)}{-C_1C_2C_3C_5C_6R_2R_3R_4s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 + C
9.2024 X-INVALID-ORDER-2024 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                          H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_4 + s^2\left(C_1C_2C_3C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_4R_6 + C_2C_3C_5C_6R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{-C_1C_2C_3C_5C_6R_2R_3R_4s^3 + C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1
9.2025 X-INVALID-ORDER-2025 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6s + s^2\left(C_1C_2C_3R_1R_4 + c_1C_2C_3C_6R_1R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6s + s^2\left(C_1C_3C_5R
9.2026 X-INVALID-ORDER-2026 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{C_1 + s^3\left(C_1C_2C_3C_5R_1R_4R_5 - C_1C_2C_3C_5R_2R_3R_4 + C_1C_2C_3C_5R_2R_4R_5 + C_1C_2C_3C_5R_2R_4R_5 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_5R_2R_4 
9.2027 X-INVALID-ORDER-2027 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
C_1C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_4 + s(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4)
9.2028 X-INVALID-ORDER-2028 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_4 + s^2\left(C_1C_2C_3C_5R_1R_2R_4 + C_1C_3C_5C_6R_1R_4R_6 + C_2C_3C_5C_6R_2R_4R_6\right) + s\left(C_1C_2C_3C_5C_6R_1R_4R_5 - C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_5C_6R_2R_4 + C_1C_2C_3C_5C_6R_2$ 

9.2029 X-INVALID-ORDER-2029  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.2030** X-INVALID-ORDER-2030  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_4R_6 + s^2\left(C_1C_2C_3R_1R_2R_4R_6 + C_1C_3C_5R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1C_2C_3C_5R_2R_3R_4R_5s^3 - C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 - C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_4R_5 + C_1C_2C_3R_2R_4R_5 - C_1C_2C_3R_2R_$ 

```
9.2031 X-INVALID-ORDER-2031 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5s^3 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_1R_4R_5 + C_2C_3C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4 + C_3C_5R_4R_5\right)}{-C_1C_2C_3C_6R_2R_3R_4R_5s^4 + s^3\left(C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_4R_5 - C_1C_2C_5C_6R_2R_4R_5 - C_1C_2C_5C_6R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_2R_4 + C_1C_2C_6R_2R_4 + C_1
9.2032 X-INVALID-ORDER-2032 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_4R_5 + C_1C_2C_3C_6R_1R_4R_5 + C_1C_3C_5C_6R_1R_4R_5 + C_1C_3C_5R_1R_4R_5 + C_1C_3C_5R_1R_4R_
9.2033 X-INVALID-ORDER-2033 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1C_2C_3C_5C_6R_2R_3R_4R_5R_6s^4 - C_1R_4 + C_1R_5 + s^3\left(-C_1C_2C_3C_5R_2R_3R_4R_5 + C_1C_2C_3C_6R_2R_3R_4R_6 + C_1C_2C_3C_6R_2R_3R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_5 + C_1C_2C_3C_6R_2R_4R_5R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2
9.2034 X-INVALID-ORDER-2034 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)
                                                                                                H(s) = \frac{C_1C_2C_3R_1R_2R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6\right)}{C_1C_2C_3C_4R_2R_3R_5s^3 - C_1 + s^2\left(C_1C_2C_3R_1R_5 - C_1C_2C_3R_2R_3 + C_1C_2C_3R_2R_5 + C_1C_2C_3R_3R_5 + C_1C_2C_4R_2R_5 + C_1C_3C_4R_3R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 - C_1C_3R_3 + C_1C_3R_5 + C_1C_4R_5 + C_2C_3R_5\right)}
9.2035 X-INVALID-ORDER-2035 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                  H(s) = \frac{C_1C_2C_3R_1R_2s^2 + C_3 + s\left(C_1C_3R_1 + C_2C_3R_2\right)}{C_1C_2C_3C_4C_6R_2R_3R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 - C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_5 + C_1C_2C_4C_6R_2R_5 + C_1C_3C_4C_6R_3R_5\right) + s^2\left(-C_1C_2C_6R_2 + C_1C_2C_6R_5 - C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1C_4C_6R_5 + C_2C_3C_6R_5\right)}
9.2036 X-INVALID-ORDER-2036 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                  H(s) = \frac{C_1C_2C_3C_6R_1R_2R_6s^3 + C_3 + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_6R_1R_6 + C_2C_3C_6R_2R_6\right) + s\left(C_1C_3R_1 + C_2C_3R_2 + C_3C_6R_6\right)}{C_1C_2C_3C_4C_6R_2R_3R_5s^4 - C_1C_6s + s^3\left(C_1C_2C_3C_6R_1R_5 - C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_3R_5 + C_1C_2C_4C_6R_2R_5 + C_1C_3C_4C_6R_3R_5\right) + s^2\left(-C_1C_2C_6R_5 + C_1C_3C_6R_3 + C_1C_3C_6R_3 + C_1C_3C_6R_5 + C_1
9.2037 X-INVALID-ORDER-2037 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_3R_1R_2R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_2C_3C_3R_1R_2R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_2C_3C_3R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_5R_6 + C_1C_2C_3C_6R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_5 + C_1C_2C_3C_4R
9.2038 X-INVALID-ORDER-2038 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                        H(s) = \frac{C_1C_2C_3C_5R_1R_2s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_2C_3C_5R_2\right)}{s^3\left(C_1C_2C_3C_4C_6R_2R_3 - C_1C_2C_3C_5C_6R_2 + C_1C_2C_3C_6R_1 + C_1C_2C_3C_6R_2 + C_1C_2C_3C_6R_3 + C_1C_2C_5C_6R_2 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_3\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}
9.2039 X-INVALID-ORDER-2039 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                       H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_6s^3 + C_3C_5 + s^2\left(C_1C_2C_3C_5R_1R_2 + C_1C_3C_5C_6R_1R_6 + C_2C_3C_5C_6R_2R_6\right) + s\left(C_1C_3C_5R_1 + C_2C_3C_5R_2 + C_3C_5C_6R_6\right)}{s^3\left(C_1C_2C_3C_4C_6R_2R_3 - C_1C_2C_3C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_3C_6R_1 + C_1C_2C_3C_6R_2 + C_1C_2C_3C_6R_3 + C_1C_2C_4C_6R_2 - C_1C_2C_5C_6R_2 + C_1C_3C_4C_6R_3 - C_1C_3C_5C_6R_3\right) + s\left(C_1C_2C_6 + C_1C_3C_6 + C_1C_4C_6 - C_1C_5C_6 + C_2C_3C_6\right)}
9.2040 X-INVALID-ORDER-2040 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_1R_6 + C_2C_3C_5R_2R_6\right)}{C_1C_2 + C_1C_3 + C_1C_3 + C_1C_3 + C_3C_5R_6 + s\left(C_1C_3C_5R_2R_3R_6 - C_1C_2C_3C_5R_2R_3 + C_1C_2C_3C_6R_2R_6 + C_1C_3C_5C_6R_2R_6 + C_1C_3C_5C_6R_2R_5C_6R_5$ 

 $C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6)$ 

```
9.2042 X-INVALID-ORDER-2042 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_1C_2C_3C_5R_1R_2s^2 + C_3C_5 + s\left(C_1C_3C_5R_1 + C_2C_3C_5R_2\right)
9.2043 X-INVALID-ORDER-2043 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{6}s^{3} + C_{3}C_{5} + s^{2}\left(C_{1}C_{2}C_{3}C_{5}R_{1}R_{2} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{6} + C_{2}C_{3}C_{5}C_{6}R_{2}R_{6}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}C_{6}R_{1}R_{6} + C_{2}C_{3}C_{5}C_{6}R_{2}R_{6}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}C_{6}R_{1}R_{6} + C_{2}C_{3}C_{5}C_{6}R_{2}R_{6}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}C_{6}R_{1}R_{6}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}R_{1}R_{6}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}R_{1}R_{6}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}R_{1}R_{1}R_{2}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}R_{1}R_{1}R_{2}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}R_{1}R_{2}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}R_{1}\right) + s\left(C_{1}C_{3}C_{5}R_{1} + C_{2}C_{3}C_{5}R_{1}\right) + s\left(C_{1}C_{3}C_{5}R_{1}
9.2044 X-INVALID-ORDER-2044 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.2045 X-INVALID-ORDER-2045 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_6 + s^2\left(C_1C_2C_3R_1R_2R_6 + C_1C_3C_5R_1R_5R_6 + C_2C_3C_5R_2R_5R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^3\left(C_1C_2C_3C_4R_2R_3R_5 - C_1C_2C_3C_5R_2R_3 + C_1C_2C_3R_2R_5 + C_
9.2046 X-INVALID-ORDER-2046 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
9.2047 X-INVALID-ORDER-2047 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_5R_6s^4 + C_3 + s^3\left(C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_6R_1R_2R_6 + C_1C_3C_5C_6R_1R_5R_6 + C_2C_3C_5C_6R_2R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_5R_1R_5 + C_1C_3C_6R_1R_6 + C_2C_3C_5R_2R_5 + C_2C_3C_6R_2R_6 + C_3C_5C_6R_2R_6\right) + s\left(C_1C_2C_3R_1R_2 + C_1C_3C_5R_1R_5 + C_1C_3C_5R_1R_5 + C_1C_3C_5R_1R_5 + C_1C_3C_5R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_
9.2048 X-INVALID-ORDER-2048 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2C_3C_5R}{-C_1 + s^4\left(C_1C_2C_3C_4C_6R_2R_3R_5R_6 - C_1C_2C_3C_5R_2R_3R_5 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_3C_6R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_6 + C_1C_2C_3C_4R_2R_3R_5 + C_1C_2C_3C
9.2049 X-INVALID-ORDER-2049 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
H(s) = \frac{C_1C_2C_3C_4R_1R_2R_4R_6s^3 + C_3R_6 + s^2\left(C_1C_2C_3R_1R_2R_6 + C_1C_3C_4R_1R_4R_6 + C_2C_3C_4R_2R_4R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6 + C_3C_4R_4R_4R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6 + C_3C_4R_4R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6 + C_3C_4R_4R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_4R_4R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_4R_4R_6\right) + s\left(C_1C_3R_1R_6 + C_2C_3R_4R_4R_6\right) + s\left(C_1C_3R_4R_4R_6 + C_1C_2C_3R_4R_4R_6\right) + s\left(C_1C_3R_4R_4R_6 + C_1C_3C_4R_4R_6\right) + s\left(C
9.2050 X-INVALID-ORDER-2050 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_{1}C_{2}C_{3}C_{4}R_{1}R_{2}R_{4}s^{3} + C_{3} + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{2} + C_{1}C_{3}C_{4}R_{1}R_{4} + C_{2}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{1}R_{2} + C_{1}C_{3}C_{4}R_{1}R_{2} + C_{2}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{1}R_{2} + C_{2}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{1}R_{2} + C_{2}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{1}R_{2} + C_{2}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{1}R_{2} + C_{2}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{1}R_{2} + C_{2}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{2}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{4}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{4}R_{4}\right) + s\left(C_{1}C_{3}C_{4}R_{4
```

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6\right)}{C_1C_2C_3C_4C_5R_2R_3R_5s^3 + C_1C_2 + C_1C_3 + c_1C_4 + c_1C_5 + c_2C_3 + c_3C_5R_1R_5 - c_1C_2C_3C_5R_2R_3 + c_1C_2C_3C_5R_2R_5 + c_1C_2C_4C_5R_2R_5 + c_1C_3C_4C_5R_3R_5) + s\left(C_1C_2C_3R_1 + C_1C_2C_3R_2 + c_1C_2C_3R_3 + c_1C_2C_4R_5R_5\right)}$ 

 $C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6\right)$ 

**9.2041** X-INVALID-ORDER-2041  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

```
9.2051 X-INVALID-ORDER-2051 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_2C_3C_4C_6R_1R_2R_4R_6s^4 + C_3 + s^3\left(C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_6R_1R_2R_6 + C_1C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_4R_1R_4 + C_1C_3C_4C_6R_1R_4R_6 + C_2C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_4R_1R_4 + C_1C_3C_4R_1R_4 + C_1C_3C_4C_6R_1R_4R_6\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_3C_4R_1R_4 + C_1C_3C_4R_1R_4 + C_1C_3C_4C_6R_1R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4R_6 + C_1C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4 + C_1C_2C_3C_4C_6R_2R_4\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4\right) + s^2\left(C_1C_2C_3C_4C_6R_2R_4\right) + s^2\left(C_1C_2C_3C_4C_4C_4R_4\right) + s^2\left(C_1C_2C_3C_4C_4C_4R_4\right) + s^2\left(C_1C_2C_3C_4C_4C_4R_4\right) +$ 

**9.2052** X-INVALID-ORDER-2052 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{-C_1 + s^4 \left(C_1 C_2 C_3 C_4 C_6 R_1 R_4 R_5 R_6 - C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_3 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_3 C_4 R_4 R_5 R_5 - C_1 C_2 C_3 C_4 R_5 R_$ 

9.2053 X-INVALID-ORDER-2053 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_6 + s^2\left(C_1C_2C_3C_5R_1R_2R_6 + C_1C_3C_4C_5R_1R_4R_6 + C_2C_3C_4C_5R_2R_4R_6\right) + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6 + C_3C_4C_5R_4R_6\right)}{-C_1C_2C_3C_4C_5R_2R_3R_4s^3 + C_1C_2 + C_1C_3C_4C_5R_2R_4 + C_1C_2C_3C_4R_2R_4 + C_1C_2C$ 

**9.2054** X-INVALID-ORDER-2054 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

**9.2055** X-INVALID-ORDER-2055 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_1C_2C_3C_4C_5C_6R_1R_2R_4R_6s^4 + C_3C_5 + s^3\left(C_1C_2C_3C_4C_5R_1R_2R_4 + C_1C_2C_3C_5C_6R_1R_4R_6 + C_2C_3C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_5R_1R_2 + C_1C_3C_4C_5R_1R_4 + C_1C_3C_5C_6R_1R_6 + C_1C_3C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_5R_1R_2 + C_1C_3C_4C_5R_1R_4 + C_1C_3C_5C_6R_1R_6 + C_1C_3C_4C_5C_6R_2R_4 + C_1C_3C_4C_5C_6R_3R_4 + C_1C_3C_4C_5C_5C_6R_3R_4 + C_1C_3C_4C_5C_5C_6R_3R_4 + C_1C_3C_4C_5C_5C_6R_3R_4 + C_1C_3C_5C_5C_6R_3R_4$ 

**9.2056** X-INVALID-ORDER-2056 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{-C_1C_2C_3C_4C_5C_6R_2R_3R_4R_6s^4 + C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^3\left(-C_1C_2C_3C_4C_6R_1R_4R_6 + C_1C_2C_3C_4C_6R_2R_3R_6 + C_1C_2C_3C_4C_6R_2R_4R_6 + C_1C_2C_3C_4C_6R_2R_4R_6 + C_1C_2C_3C_4C_6R_2R_4R_6 - C_1C_2C_3C_4C_6R_2R_4R_6 - C_1C_2C_3C_4C_6R_2R_4R_6 + C_1$ 

**9.2057** X-INVALID-ORDER-2057 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_1 C_2 C_3}{C_1 C_2 + C_1 C_3 + C_1 C_4 - C_1 C_5 + C_2 C_3 + s^3 \left(C_1 C_2 C_3 C_4 C_5 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 C_5 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 R_3 R_4 R_5 \right) + s^2 \left(C_1 C_2 C_3 C_4 R_1 R_4 + C_1 C_2 C_3 C_4 R_2 R_4 + C_1 C_2 C_3 C_4 R_3 R_4 + C$ 

9.2058 X-INVALID-ORDER-2058 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $\frac{1}{s^4 \left(C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_4 R_5 - C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 C_6 R_3 R_4 R_5\right) + s^3 \left(C_1 C_2 C_3 C_4 C_6 R_2 R_3 + C_1 C_2 C_3 C_4 C_6 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_4 R_5 + C_1 C_2 C$ 

**9.2059** X-INVALID-ORDER-2059 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_1C_2C_3C_4C_5C_6R_1R_2R_4R_6s^3}{s^4\left(C_1C_2C_3C_4C_5C_6R_1R_4R_5 - C_1C_2C_3C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_3R_5 + C_1C_2C_3C_4C_5C_6R_2R_4R_5 + C_1C_2C_3C_4C_5C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_3C_4C_6R_2R_3 + C_1C_2C_3C_4C_6R_2R_4 + C_1C_2C_3C_4C_6R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_4R_5 + C_1C_2C_3C_4C_5C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_3C_4C_6R_2R_3 + C_1C_2C_3C_4C_6R_2R_4 + C_1C_2C_3C_4C_5C_6R_2R_4R_5 + C_1C_2C_3C_4C_5C_6R_2R_4R_5 + C_1C_2C_3C_4C_5C_6R_3R_4R_5\right) + s^3\left(C_1C_2C_3C_4C_5C_6R_2R_4 + C_1C_2C_3C_4C_5C_6R_2R_4 + C_1C_2C_3C_4C_5$ 

**9.2060** X-INVALID-ORDER-2060 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

```
9.2061 X-INVALID-ORDER-2061 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_4R_5R_6s^4 + C_3R_6 + s^3\left(C_1C_2C_3C_4R_1R_2R_4R_6 + C_1C_2C_3C_5R_1R_2R_5R_6 + C_1C_3C_4C_5R_1R_4R_5R_6 + C_2C_3C_4C_5R_2R_4R_5R_6\right) + s^2\left(C_1C_2C_3C_4C_5R_2R_3R_4R_5s^4 - C_1 + s^3\left(C_1C_2C_3C_4R_1R_4R_5 - C_1C_2C_3C_4R_2R_3R_4 + C_1C_2C_3C_4R_2R_3R_4 + C_1C_2C_3C_4R_2R_4R_5 + C_
9.2062 X-INVALID-ORDER-2062 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_4R_5s^4 + C_3 + s^3\left(C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_4C_6R_2R_3R_4 + C_1C_2C_3C_4C_6R_2R_3R_5 + C_1C_2C_3C_4C_6R_2R_3R_5 - C_1C_2C_3C_4C_6R_2R_4R_5 - C_1C_2C_3C_4C_6R_4R_4R_5 - C_1C_2C_
9.2063 X-INVALID-ORDER-2063 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                             \frac{C_{1}C_{2}C_{3}C_{4}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5}R_{6}s^{5} + C_{3} + s^{4}\left(C_{1}C_{2}C_{3}C_{4}C_{5}R_{1}R_{2}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{4}C_{6}R_{1}R_{2}R_{4}R_{6} + C_{1}C_{2}C_{3}C_{4}C_{6}R_{1}R_{2}R_{5}R_{6} + C_{1}C_{3}C_{4}C_{5}C_{6}R_{1}R_{4}R_{5}R_{6} + C_{2}C_{3}C_{4}C_{5}C_{6}R_{2}R_{4}R_{5}R_{6}\right) + s^{3}\left(C_{1}C_{2}C_{3}C_{4}R_{1}R_{2}R_{4} + C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{5} + C_{1}C_{2}C_{3}C_{6}R_{1}R_{2}R_{6} + C_{1}C_{3}C_{4}C_{5}R_{1}R_{2}R_{5} + C_{1}C_{2}C_{3}C_{4}C_{6}R_{1}R_{2}R_{5} + C_{1}C_{2}C_{3}C_{4}C_{6}R_{2}R_{4}R_{5} + C_{1}C_{2}C_{3}
9.2064 X-INVALID-ORDER-2064 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5R_6s^5 - C_1 + s^4\left(-C_1C_2C_3C_4C_5R_2R_3R_4R_5 + C_1C_2C_3C_4C_6R_2R_3R_4R_6 + C_1C_2C_3C_4C_6R_2R_3R_5R_6 + C_1C_2C_3C_4C_6R_2R_4R_5R_6 + C_1C_2C_3C_4C_6R_4R_4R_5R_6 + C_1C_2C_3C_4C_6R_4R_4R_5R_6 + C_1C_2C_3C_4C_6R_4R_4R_5R_6 + C_1C_2C_3C_4C_6R_4R_4R_5R_6 + C_1C_2C_3C_4C_6R_4R_5R_5R_5 + C_1C_2C_3C_4C_6R_4R_5R_5 + C_1C_2C_3C_4C_6R_5R_5R_5 + C_1C_2C_3C_4C_5C_5R_5R_5R_5 + C_1C_2C_3C_4C_5R_5R_5R_5 + C_1C_2C_3C_4C_5R_5R_5R_5 + C_1C_2C_3C_5C_5
9.2065 X-INVALID-ORDER-2065 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)
H(s) = \frac{C_1C_2C_3R_1R_2R_4R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6\right)}{C_1C_2C_3C_4R_2R_3R_4R_5s^3 - C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 - C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_4R_5 + C_1C_2C_3R_2R
9.2066 X-INVALID-ORDER-2066 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                           \frac{C_{1}C_{2}C_{3}R_{1}R_{2}R_{4}s^{2}+C_{3}R_{4}+s\left(C_{1}C_{3}R_{1}R_{4}+C_{2}C_{3}R_{2}R_{4}\right)}{C_{1}C_{2}C_{3}C_{4}C_{6}R_{2}R_{3}R_{4}+S_{5}^{4}+s^{3}\left(C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{2}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{2}C_{4}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{2
9.2067 X-INVALID-ORDER-2067 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_6R_1R_2R_4R_6s^3 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_1R_4R_6 + C_2C_3C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_4 + C_2C_3R_2R_4 + C_3C_6R_4R_6\right)}{C_1C_2C_3C_4C_6R_2R_3R_4R_5s^4 + s^3\left(C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_4R_5 + C_1C_2C_3C_3C_4R_4R_5 + C_1C_2C_3C_4R_4R_5 + C_1C_2C_3C_4R_4R_5 + C_1C_2C_3C_4R_4R_5 + C_1C_2C_3C_4R_4R_5 + C_1
9.2068 X-INVALID-ORDER-2068 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_2C_3C_4C_6R_2R_3R_4R_5R_6s^4 - C_1R_4 + C_1R_5 + s^3\left(C_1C_2C_3C_4R_2R_3R_4R_5 + C_1C_2C_3C_6R_2R_3R_4R_6 + C_1C_2C_3C_6R_2R_3R_5R_6 + C_1C_2C_3C_6R_2R_4R_5R_6 + C_1C_2C_3C_6R_4R_5R_5R_5 + C_1C_2C_3C_6R_4R_5R_5R_5 + C_1C_2C_3C_6R_5R_5R_5R_5 + C_1C_2C_3C_6R_5R_5R_5R_5 + C_1C_2C_3C_6R_5R_5R_5R_5 + C_1C_2C_3C_6R_5R_5R_5 + C_1C_
9.2069 X-INVALID-ORDER-2069 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_4R_6s + s^2\left(C_1C_3C_5R_1R_4R_6 + C_2C_3C_5R_2R_4R_6\right)}{C_1 + s^3\left(C_1C_2C_3C_4R_2R_3R_4 - C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_4R_2R_4 - C_1C_2C_5R_2R_4 + C_1C_3C_5R_3R_4\right) + s\left(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_3 + C_1C_4R_4 - C_1C_5R_4 + C_1C_4R_4 - C_1C_5R_4 + C_1C_4R_4 - C_1C_4R_4 + C_1C_
```

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4\right)}{C_1C_6 + s^3\left(C_1C_2C_3C_4C_6R_2R_3R_4 - C_1C_2C_3C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_3C_6R_2R_3 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_2C_5C_6R_2R_4 + C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_3R_4\right) + s\left(C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4\right) + s\left(C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4\right) + s\left(C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_2R_4\right) + s\left(C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_4\right) + s\left(C_1C_2C_3C_6R_2R_4 + C_1C_2C_3C_6R_4\right) + s\left(C_1C_2C_3C_6R_4 + C_1C_3C_5C_6R_4\right) + s\left(C_1C_2C_3C_6R_4 + C_1C_3C_5C_6R_4\right) + s\left(C_1C_2C_3C_6R_4\right) + s\left(C_1C_2C_3C_6R_4$ 

**9.2070** X-INVALID-ORDER-2070  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

```
9.2071 X-INVALID-ORDER-2071 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

**9.2072** X-INVALID-ORDER-2072 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{C_1 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 - C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_2 R_3 R_4 - C_1 C_2 C_3 C_6 R_1 R_4 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_3 R_4 R_6 + C_1 C_2 C_3 C_6 R_2 R_4 R_6 + C_1 C_2 C_3 C$ 

**9.2073** X-INVALID-ORDER-2073 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_3C_5R_1R_2R_4R_6s^3 + C_3C_3C_3C_3R_2R_3R_4 + C_1C_2C_3C_5R_2R_3R_4 + C_1C_2C_3C_5R_3R_4R_5 + C_1C_2C_3C_5R_3R_4 + C_1C_2C_3C$ 

9.2074 X-INVALID-ORDER-2074 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $\overline{C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5s^4 + C_1C_6 + s^3\left(C_1C_2C_3C_4C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_5 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_1C_2C_3C_5C_6R_4R_5$ 

**9.2075** X-INVALID-ORDER-2075 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_6s^3}{C_1C_2C_3C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_3C_5C_6R_2R_4R_5 + C_$ 

9.2076 X-INVALID-ORDER-2076 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $\overline{C_1C_2C_3C_4C_5C_6R_2R_3R_4R_5R_6s^5 + C_1 + s^4\left(C_1C_2C_3C_4C_5R_2R_3R_4R_5 + C_1C_2C_3C_4C_6R_2R_3R_4R_6 + C_1C_2C_3C_5C_6R_2R_3R_4R_6 + C_1C_2C_3C_5C_6R_2R_3R_4R_5R_6 + C_1C_2C_3C_5C_6R_2R_3R_4R_5R_5R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5R_5R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5R_5R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5R_5R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5R_5R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5 + C_1C_2C_3C_5C_6R_2R_3R_4R_5 + C_1C_2C_3C_5C_6R_3R_4R_5R_5 + C_1C_2C_3C_5C_6R_5R_5R_5R_5C_5C_6R_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5R_5C_5R_5C_5R_5C_5R_5C_5C_5R_5C_5R_5C_5$ 

**9.2077** X-INVALID-ORDER-2077 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_4R_6 + s^2\left(C_1C_2C_3R_1R_2R_4R_6 + C_1C_3C_5R_1R_4R_5R_6 + C_2C_3C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6 + C_3C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6 + C_3C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6 + C_3C_5R_2R_4R_5\right) + s\left(C_1C_2C_3R_2R_4R_5 + C_1C_2C_3R_2R_4R_5 + C_1C_2C_3$ 

9.2078 X-INVALID-ORDER-2078 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

 $C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{4}R_{5}s^{3} + C_{3}R_{4} + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{2}R_{4} + C_{1}C_{3}C_{5}R_{1}R_{4}R_{5} + C_{2}C_{3}C_{5}R_{2}R_{4}R_{5}\right) + s\left(C_{1}C_{3}R_{1}R_{2}R_{4} + C_{1}C_{3}C_{5}R_{1}R_{4}R_{5}\right) + s\left(C_{1}C_{3}R_{1}R_{2}R_{4} + C_{1}C_{3}R_{1}R_{4}R_{5}\right) + s\left(C_{1}C_{3}R_{1}R_{2}R_{4} + C_{1}C_{3}R_{1}R_{4}R_{5}\right) + s\left(C_{1}C_{3}R_{1}R_{2}R_{4} + C_{1}C_{3}R_{1}R_{4}R_{5}\right) + s\left(C_{1}C_{3}R_{1}R_{2}R_{4} + C_{1}C_{3}R$  $\frac{C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{4}R_{5}s^{3}+C_{3}R_{4}+s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{2}R_{4}+C_{1}C_{3}C_{5}R_{1}R_{4}R_{5}+C_{2}C_{3}C_{5}R_{2}R_{4}R_{5}\right)+s\left(C_{1}C_{3}R_{1}R_{2}R_{4}+C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{3}C_{$ 

9.2079 X-INVALID-ORDER-2079 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_5R_1R_4R_5 + C_1C_3C$ 

**9.2080** X-INVALID-ORDER-2080 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $-C_1R_4 + C_1R_5 + s^4 \left(C_1C_2C_3C_4C_6R_2R_3R_4R_5R_6 - C_1C_2C_3C_5C_6R_2R_3R_4R_5R_6 + C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_2C_3C_6R_3R_4R_5 + C_1C_2C_3C_6$ 

```
9.2081 X-INVALID-ORDER-2081 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)
                                                                                        H(s) = \frac{C_1C_2C_3R_1R_2R_3R_4R_6s^3 + R_4R_6 + s^2\left(C_1C_2R_1R_2R_4R_6 + C_1C_3R_1R_3R_4R_6 + C_2C_3R_2R_3R_4R_6\right) + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6 + C_3R_3R_4R_6\right)}{s^3\left(C_1C_2C_3R_1R_3R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_3R_3R_4R_5\right) + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6 + C_3R_3R_4R_6\right)}
9.2082 X-INVALID-ORDER-2082 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)
                                         \frac{C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}s^{3}+R_{4}+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{4}+C_{1}C_{3}R_{1}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}R_{4}\right)+s\left(C_{1}R_{1}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4}\right)}{s^{4}\left(C_{1}C_{2}C_{3}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{4}R_{5}-C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{3}R_{4}R_{5}\right)+s^{2}\left(-C_{1}C_{6}R_{3}R_{4}+C_{1}C_{6}R_{3}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{2}C_{6}R_{4}R_{5}\right)+s^{2}\left(-C_{1}C_{6}R_{3}R_{4}+C_{1}C_{6}R_{3}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{2}C_{6}R_{4}R_{5}\right)+s^{2}\left(-C_{1}C_{6}R_{3}R_{4}+C_{1}C_{6}R_{3}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_{6}R_{4}R_{5}+C_{1}C_
9.2083 X-INVALID-ORDER-2083 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_6R_1R_2R_3R_4R_6s^4 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_4R_6 + C_2C_3C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_3R_1R_3R_4 + C_1C_6R_1R_4R_6 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_1C_3R_1R_3R_4 + C_1C_6R_1R_4R_6 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_1C_3R_1R_3R_4 + C_1C_6R_2R_4R_6 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_2R_2R_4 + C_1C_3R_1R_3R_4 + C_1C_3R
9.2084 X-INVALID-ORDER-2084 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_1C_2C_3R_1R_2R_3R_4R_6s^3 + R_4R_6 + s^2(C_1C_2R_1R_2R_4R_6 + C_1C_3R_1R_3R_4R_6 + C_2C_3R_1R_3R_4R_6 + C_3C_3R_1R_3R_4R_6 + C_3C_3R_3R_3R_4R_6 + C_3C_3R_3R_3R_4R_6 + C_3C_3R_3R_5R_5 + C_3C_3R_3R_5R_5 + C_3C_3R_3R_5 + C_3C_3R_5 + C_3
                                         9.2085 X-INVALID-ORDER-2085 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                         H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_4R_6 + s^2\left(C_1C_2C_5R_1R_2R_4R_6 + C_1C_3C_5R_1R_3R_4R_6 + C_2C_3C_5R_2R_3R_4R_6\right) + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_1R_3R_4 + C_1C_2C_3R_2R_3R_4 - C_1C_2C_5R_2R_3R_4\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_3R_3R_4 
9.2086 X-INVALID-ORDER-2086 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                       H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_4s^3 + C_5R_4 + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_3C_5R_1R_3R_4 + C_2C_3C_5R_2R_3R_4\right) + s\left(C_1C_5R_1R_4 + C_2C_5R_2R_4 + C_3C_5R_3R_4\right)}{s^3\left(C_1C_2C_3C_6R_1R_3R_4 + C_1C_2C_5C_6R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_5C_6R_3R_4 +
9.2087 X-INVALID-ORDER-2087 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

$$H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_4R_6 + C_1C_3C_5C_6R_1R_3R_4R_6 + C_2C_3C_5C_6R_1R_3R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_3R_4R_6 + C_2C_3C_5R_2R_3R_4 + C_1C_3C_5R_3R_4 + C_1C_3C_$$

**9.2088** X-INVALID-ORDER-2088  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{R_3}{C_3 R_3 s + 1}, \ R_4, \ \frac{1}{C_5 s}, \ \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{6}s^{3}+C_{5}R_{4}R_{6}+s^{2}\left(C_{1}C_{2}C_{5}R_{1}R_{2}R_{4}R_{6}+C_{1}C_{3}C_{5}R_{1}R_{3}R_{4}R_{6}+C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{6}\right)+s\left(C_{1}C_{5}C_{5}R_{1}R_{3}R_{4}+C_{1}C_{2}C_{3}R_{1}R_{3}R_{4}+C_{1}C_{2}C_{5}R_{1}R_{3}R_{4}+C_{1}C_{2}C_{5}R_{2}R_{3}R$ 

9.2089 X-INVALID-ORDER-2089  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_4R_6 + s^2\left(C_1C_2C_5R_1R_2R_4R_6 + C_1C_3C_5R_1R_3R_4R_6 + C_2C_3C_5R_2R_3R_4R_6\right) + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6 + C_1C_2C_5R_2R_3R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4 + C_1C_2C_3R_2R_4$ 

**9.2090** X-INVALID-ORDER-2090  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{c_1c_2c_3c_5r_1r_2r_3r_4s^{-1} + c_5r_4 + c_5r_4 + c_1c_2c_5r_4r_1r_2r_4 + c_1c_3c_5r_4r_1r_2r_4 +$ 

```
9.2091 X-INVALID-ORDER-2091 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_3R_4R_6 + C_2C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_2C_5C_6R_1R_3R_4R_6 + C_2C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_2C_5C_6R_1R_3R_4R_6 + C_2C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_2C_5C_6R_1R_3R_4R_6 + C_1C_2C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2C_5R_1R_2R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_3R_4 + C_1C_2C_5C_6R$ 

**9.2092** X-INVALID-ORDER-2092  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\overline{C_1R_3 + C_1R_4 + C_2R_4 + s^4 \left(C_1C_2C_3C_5C_6R_1R_3R_4R_5R_6 + C_1C_2C_3C_5C_6R_2R_3R_4R_5 + C_1C_2C_3C_5R_1R_3R_4R_5 + C_1C_2C_3C_6R_1R_3R_4R_6 + C_1C_2C_3C_6R_1R_3R_4R_6 + C_1C_2C_5C_6R_1R_4R_5R_6 - C_1C_2C_5C_6R_2R_3R_4R_6 + C_1C_2C_3C_5R_2R_3R_4R_5 + C_1C_2C_3C_5R_2R_3R_4R_6 + C_1C_2C_3C_6R_2R_3R_4R_6 + C_1C_2C_5C_6R_2R_3R_4R_6 + C_1C_2C_5C_6R_2R_3R_4R_6 + C_1C_2C_3C_5R_2R_3R_4R_6 + C_1C_2C_3C_5R_3R_3R_4R_6 + C_1C_2C_3C_5R_3R_3R_4R_5 + C_1C_2C_3C_5R_3R_3R_4R_5 + C_1C_2C_3C_5R_3R_3R_4R_5 + C_$ 

9.2093 X-INVALID-ORDER-2093  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_4R_5R_6s^4 + R_4R_6 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_6 + C_1C_3C_5R_1R_2R_4R_5R_6 + C_2C_3C_5R_2R_3R_4R_5 + C_1C_2R_1R_2R_4R_6 + C_1C_3R_1R_3R_4R_6 + C_1C_3R_1R_3R_4R_6 + C_1C_3R_1R_3R_4R_6 + C_2C_3R_2R_3R_4R_6 + C_2C_3R_3R_4R_6 + C_2C_3R_$ 

**9.2094** X-INVALID-ORDER-2094  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}s^{4} + R_{4} + s^{3}\left(C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{1}R_{2}R_{4}R_{5} + C_{1}C_{3}C_{5}R_{1}R_{3}R_{4}R_{5} + C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}R_{2}R_{3}R_{4} + C_{2}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}R_{3}R_{4}R_{5} + C_{2}C_$ 

9.2095 X-INVALID-ORDER-2095  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_4 + s^4\left(C_1C_2C_3C_5R_1R_2R_3R_4R_5 + C_1C_2C_5C_6R_1R_2R_4R_5R_6 + C_1C_3C_5C_6R_1R_3R_4R_5R_6 + C_2C_3C_5C_6R_2R_3R_4R_5R_6 + S^4\left(C_1C_2C_3R_1R_2R_3R_4R_5 + C_1C_2C_5R_1R_2R_4R_5 + C_1C_2C_5R_1R_2R_5 + C_1C_2C_5R_1$  $s^{4}\left(C_{1}C_{2}C_{3}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}R_{5}\right)+s^{3}\left(C_{1}C_{2}C_{6}R_{5}R_{5}R_{5}R_{5}R_{5}R_{5}\right)+s^{3}\left(C_{1}$ 

**9.2096** X-INVALID-ORDER-2096  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ R_2 + \frac{1}{C_2 s}, \ \frac{R_3}{C_3 R_3 s + 1}, \ R_4, \ \frac{R_5}{C_5 R_5 s + 1}, \ \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{C_1C_2C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_4R_6 + s^2(C_1C_2C_3R_1R_2R_3R_4R_6 + C_1C_2C_5R_1R_2R_4R_5R_6 + C_1C_3C_5R_1R_3R_4R_5R_6 + C_1C_3C_5R_1R_3R_4R_5R_6 + C_1C_3C_5R_1R_3R_4R_5R_6 + C_1C_2C_3R_1R_3R_4R_5 + C_1C_2C_3R$ 

**9.2097** X-INVALID-ORDER-2097  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3R_1R_2R_3R_6s^3 + R_6 + s^2\left(C_1C_2R_1R_2R_6 + C_1C_3R_1R_3R_6 + C_2C_3R_2R_3R_6\right) + s\left(C_1R_1R_6 + C_2R_2R_6 + C_3R_3R_6\right)}{s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_3R_2R_3R_5\right) + s^2\left(C_1C_2R_1R_5 - C_1C_2R_2R_3 + C_1C_2R_2R_5 + C_1C_2R_3R_5 + C_1C_3R_3R_5 + C_1C_4R_3R_5 + C_2C_3R_3R_5\right) + s\left(-C_1R_3 + C_1R_5 + C_2R_5\right)}$ 

**9.2098** X-INVALID-ORDER-2098  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3R_1R_2R_3s^3 + s^2\left(C_1C_2R_1R_2 + C_1C_3R_1R_3 + C_2C_3R_2R_3\right) + s\left(C_1R_1 + C_2R_2 + C_3R_3\right) + 1}{s^4\left(C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_4C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_4C_6R_3R_5 + C_1C_4C_6R_5 + C_1C_$ 

**9.2099** X-INVALID-ORDER-2099  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_6R_1R_2R_3R_6s^4 + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_6R_1R_2R_6 + C_1C_3C_6R_1R_3R_6 + C_2C_3C_6R_2R_3R_6\right) + s^2\left(C_1C_2R_1R_2 + C_1C_3R_1R_3 + C_1C_6R_1R_6 + C_2C_3R_2R_3 + C_2C_6R_2R_6 + C_3C_6R_3R_6\right) + s\left(C_1R_1 + C_2R_2 + C_3R_3 + C_6R_6\right) + 1}{s^4\left(C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_6R_2R_3R_5\right) + s^3\left(C_1C_2C_6R_1R_5 - C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_5 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5\right) + s^2\left(C_1C_2R_1R_2 + C_1C_3R_1R_3 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5\right) + s^2\left(C_1C_2R_1R_2 + C_1C_3R_1R_3 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5\right) + s^2\left(C_1C_2R_1R_3 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_3R_5\right) + s^2\left(C_1C_2R_1R_3 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_3R_5\right) + s^2\left(C_1C_2R_1R_3 + C_1C_3C_6R_3R_5\right) + s^2\left(C_1C_3R_3R_5\right) + s^2\left(C_1$ 

**9.2100** X-INVALID-ORDER-2100  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{s^4 \left(C_1 C_2 C_3 C_6 R_1 R_3 R_5 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 R_2 R_3 R_5 + C_1 C_2 C_4 R_2 R_3 R_5 + C_1 C_2 C_6 R_2 R_3 R_5 + C_1 C_2 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_6 R_3$ 

```
9.2101 X-INVALID-ORDER-2101 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                 H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_6s^3 + C_5R_6 + s^2\left(C_1C_2C_5R_1R_2R_6 + C_1C_3C_5R_1R_3R_6 + C_2C_3C_5R_2R_3R_6\right) + s\left(C_1C_5R_1R_6 + C_2C_5R_2R_6 + C_3C_5R_3R_6\right)}{C_1 + C_2 + s^2\left(C_1C_2C_3R_1R_3 + C_1C_2C_3R_2R_3 + C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3\right) + s\left(C_1C_2R_1 + C_1C_2R_2 + C_1C_2R_3 + C_1C_3R_3 + C_1C_4R_3 - C_1C_5R_3 + C_2C_3R_3\right)}
9.2102 X-INVALID-ORDER-2102 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                               H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3s^3 + C_5 + s^2\left(C_1C_2C_5R_1R_2 + C_1C_3C_5R_1R_3 + C_2C_3C_5R_2R_3\right) + s\left(C_1C_5R_1 + C_2C_5R_2 + C_3C_5R_3\right)}{s^3\left(C_1C_2C_3C_6R_1R_3 + C_1C_2C_3C_6R_2R_3 + C_1C_2C_5C_6R_2R_3\right) + s^2\left(C_1C_2C_6R_1 + C_1C_2C_6R_2 + C_1C_2C_6R_3 + C_1C_3C_6R_3 + C_1C_4C_6R_3 - C_1C_5C_6R_3 + C_2C_3C_6R_3\right) + s\left(C_1C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_6R_3\right)}
9.2103 X-INVALID-ORDER-2103 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_3R_6s^4 + C_5 + s^3\left(C_1C_2C_3C_5R_1R_2R_3 + C_1C_2C_5C_6R_1R_2R_6 + C_1C_3C_5C_6R_1R_3R_6 + C_2C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_2C_5R_1R_2 + C_1C_3C_5R_1R_3 + C_1C_5C_6R_1R_6 + C_2C_3C_5R_2R_3 + C_2C_5C_6R_2R_6 + C_3C_5C_6R_3R_6\right) + s\left(C_1C_5R_1 + C_2C_5R_2 + C_3C_5C_6R_2R_3 + C_3C_5C_6R_3R_6\right) + s\left(C_1C_5R_1 + C_2C_5C_6R_2R_3 + C_3C_5C_6R_2R_3 + C_3C_5C_6R_3R_6\right) + s\left(C_1C_5R_1 + C_2C_5C_6R_2R_3 + C_3C_5C_6R_3R_6\right) + s\left(C_1C_5R_1 + C_3C_5C_6R_3 + C_1C_5C_6R_3 + C_1C_5C_5C_6R_3 + C_1C_5C_5C_6R_3 + C_1C_5C_5C_6R_3 + C_1C_5C
9.2104 X-INVALID-ORDER-2104 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.2105 X-INVALID-ORDER-2105 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_6s^3 + C_5R_6 + s^2\left(C_1C_2C_5R_1R_2R_6 + C_1C_3C_5R_1R_3R_6 + C_2C_3C_5R_2R_3R_6\right) + s\left(C_1C_5R_1R_6 + C_2C_5R_2R_6 + C_3C_5R_3R_6\right)}{C_1 + C_2 + s^3\left(C_1C_2C_3C_5R_1R_3R_5 + C_1C_2C_3C_5R_2R_3R_5 + C_1C_2C_4R_2R_3 + C_1C_2C_5R_2R_3 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_2R_5 + C_1C_2C_5R_3R_5 + C_1C_3C_5R_3R_5 + C_1C_4C_5R_3R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5
9.2106 X-INVALID-ORDER-2106 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                  \frac{C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}s^{3}+C_{5}+s^{2}\left(C_{1}C_{2}C_{5}R_{1}R_{2}+C_{1}C_{3}C_{5}R_{1}R_{3}+C_{2}C_{3}C_{5}R_{2}R_{3}\right)+s\left(C_{1}C_{5}R_{1}+C_{2}C_{5}R_{2}+C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}+C_{1}C_{2}C_{5}C_{
9.2107 X-INVALID-ORDER-2107 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_3R_6s^4 + C_5 + s^3\left(C_1C_2C_3C_5R_1R_2R_3 + C_1C_2C_5C_6R_1R_3R_6 + C_2C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_2C_5R_1R_2 + C_1C_3C_5R_1R_3 + C_1C_5C_6R_1R_6 + C_2C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_2C_5R_1R_2 + C_1C_3C_5R_1R_3 + C_1C_5C_6R_1R_3 + C_1C_5C_6R_1R_3 + C_1C_2C_5C_6R_2R_3 + C_1C_2C_5C_6
9.2108 X-INVALID-ORDER-2108 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                 \frac{1}{C_1 + C_2 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_3 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_5 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_4 C_6 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_1 R_3 R_5 + C_1 C_2 C_3 C_6 R_1 R_3 R_6 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_6 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_1 R_3 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_1 R_3 R_5 + C_1 C_
9.2109 X-INVALID-ORDER-2109 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
```

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_5s^4 + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_5R_1R_2R_5 + C_1C_3C_5R_1R_3R_5 + C_2C_3C_5R_2R_3R_5\right) + s^2\left(C_1C_2R_1R_2 + C_1C_3R_1R_3 + C_1C_5R_1R_5 + C_2C_3R_2R_3 + C_2C_5R_2R_5 + C_3C_5R_3R_5\right) + s\left(C_1R_1 + C_2R_2 + C_3R_3 + C_5R_5\right) + 1}{s^4\left(C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_2C_6R_2R_3R_5\right) + s^3\left(C_1C_2C_6R_2R_3 + C_1C_2C_6R_2R_3 + C_1C_2C_6R_3R_5 + C_1C_2C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_3R_5\right) + s^2\left(C_1C_2R_1R_2 + C_1C_3R_1R_3 +$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_5R_6s^4 + R_6 + s^3\left(C_1C_2C_3R_1R_2R_3R_6 + C_1C_2C_5R_1R_2R_5R_6 + C_1C_3C_5R_1R_3R_5R_6 + C_2C_3C_5R_2R_3R_5R_6\right) + s^2\left(C_1C_2R_1R_2R_6 + C_1C_3R_1R_3R_6 + C_1C_5R_1R_5R_6 + C_2C_5R_2R_5R_6 + C_3C_5R_3R_5R_6\right) + s\left(C_1R_1R_6 + C_2R_2R_6 + C_1C_3R_1R_3R_5 + C_1C_2R_3R_5 + C_1C_2R_3R_$ 

**9.2110** X-INVALID-ORDER-2110  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

- **9.2111** X-INVALID-ORDER-2111  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_3R_5R_6s^5 + s^4\left(C_1C_2C_3C_5R_1R_2R_3R_5 + C_1C_2C_3C_6R_1R_2R_3R_6 + C_1C_2C_5C_6R_1R_2R_5R_6 + C_1C_3C_5C_6R_1R_3R_5R_6 + C_2C_3C_5C_6R_2R_3R_5R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_5R_1R_2R_5 + C_1C_2C_6R_1R_2R_6 + C_1C_3C_5R_1R_3R_5 + C_1C_2C_5R_1R_2R_5 + C_1C$
- **9.2112** X-INVALID-ORDER-2112  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_5R_6s^4 + R_6 + s^3\left(C_1C_2C_3R_1R_2R_3R_6 + C_1C_2C_5R_1R_2R_5R_6 + C_1C_3C_5R_1R_3R_5R_6 + C_2C_3C_5R_2R_3R_5R_6\right) + s^2\left(C_1C_2C_3C_6R_1R_3R_5R_6 + C_1C_2C_3C_6R_2R_3R_5R_6 + C_1C_2C_3C_6R_2R_3R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_3R_5R_6 + C_1C_2C_3R_2R_3R_5 + C_1C_2C_3R_2$
- **9.2113** X-INVALID-ORDER-2113  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$
- $H(s) = \frac{C_1C_2C_3C_4R_1R_2R_3R_4R_6s^4 + R_6 + s^3\left(C_1C_2C_3R_1R_2R_3R_6 + C_1C_2C_4R_1R_2R_4R_6 + C_1C_3C_4R_1R_3R_4R_6 + C_2C_3C_4R_2R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_6 + C_1C_3R_1R_3R_6 + C_1C_4R_1R_4R_6 + C_2C_3R_2R_3R_6 + C_1C_2C_4R_1R_3R_4R_5 + C_1C_2C_3C_4R_2R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_2R_6 + C_1C_3R_1R_3R_6 + C_1C_4R_1R_4R_6 + C_2C_3R_2R_3R_6 + C_1C_2C_4R_2R_3R_4 + C_1C_2$
- 9.2114 X-INVALID-ORDER-2114  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_1C_2C_3C_4R_1R_2R_3R_4s^4 + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_4R_1R_2R_4 + C_1C_3C_4R_1R_3R_4 + C_2C_3C_4R_2R_3R_4\right) + s^2\left(C_1C_2R_1R_2 + C_1C_3R_1R_3 + C_1C_2C_4C_6R_1R_3R_4 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_2C_4C_6R_4R_5 + C_1C_2C_4C$
- **9.2115** X-INVALID-ORDER-2115  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_6s^5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_3R_6 + C_1C_2C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_3R_4R_6 + C_2C_3C_4C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_4R_1R_2R_4 + C_1C_2C_6R_1R_2R_6 + C_1C_3C_4R_1R_3R_4 + C_1C_3C_6R_1R_3R_6 + C_1C_3C_4R_1R_3R_4 + C_1C$
- **9.2116** X-INVALID-ORDER-2116  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_3 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_4 R_5 R_6 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_2$
- 9.2117 X-INVALID-ORDER-2117  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_3R_4R_6s^4 + C_5R_6 + s^3\left(C_1C_2C_3C_5R_1R_2R_3R_6 + C_1C_2C_4C_5R_1R_2R_4R_6 + C_1C_3C_4C_5R_1R_3R_4R_6 + C_2C_3C_5R_1R_2R_6 + C_1C_3C_5R_1R_3R_6 + C_1C_4C_5R_1R_3R_6 + C_1C_4C_5R_1R_4R_6 + C_2C_3C_5R_2R_3R_6 + C_2C_4C_5R_2R_4R_6 + C_2C_4C_5R_2R_3R_4R_6 + C_2C_4C_5R_2R_3R_4R_6 + C_2C_4C_5R_2R_3R_4R_6 + C_2C_4C_5R_2R_3R_4 + C_2C_$
- 9.2118 X-INVALID-ORDER-2118  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_3R_4s^4 + C_5 + s^3\left(C_1C_2C_3C_5R_1R_2R_3 + C_1C_2C_4C_5R_1R_2R_4 + C_1C_3C_4C_5R_1R_3R_4 + C_2C_3C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2C_5R_1R_2 + C_1C_3C_5R_1R_3 + C_1C_4C_5R_1R_4 + C_2C_3C_4C_5R_1R_3R_4 + C_2C_3C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2C_5R_1R_2 + C_1C_3C_5R_1R_3 + C_1C_4C_5R_1R_4 + C_2C_3C_4C_5R_1R_3R_4 + C_2C_3C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2C_5R_1R_2 + C_1C_3C_5R_1R_3 + C_1C_4C_5R_1R_4 + C_2C_3C_4C_5R_1R_3 + C_1C_4C_5R_1R_4 + C_2C_3C_4C_5R_1R_3 + C_1C_4C_5R_1R_4 + C_1C_4C_$
- 9.2119 X-INVALID-ORDER-2119  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_6s^5 + C_5 + s^4\left(C_1C_2C_3C_4C_5R_1R_2R_3R_4 + C_1C_2C_3C_5C_6R_1R_2R_3R_6 + C_1C_2C_4C_5C_6R_1R_3R_4R_6 + C_2C_3C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_3C_5R_1R_2R_3 + C_1C_2C_4C_5R_1R_2R_4 + C_1C_2C_5C_6R_1R_2R_6 + C_1C_3C_4C_5C_6R_1R_3R_4 + C_1C_2C_3C_4C_5R_2R_3R_4\right) + s^3\left(C_1C_2C_3C_5R_1R_2R_3 + C_1C_2C_4C_5R_1R_2R_4 + C_1C_2C_5C_6R_1R_2R_4 + C_1C_2C_4C_5R_2R_3R_4 + C_1C_2C_3C_4C_5R_2R_3R_4\right) + s^3\left(C_1C_2C_3C_6R_1R_3 + C_1C_2C_3C_6R_1R_3 + C_1C_2C_4C_5R_1R_3R_4 + C_1C_2C_4C_5R_1R_3R_4 + C_1C_2C_3C_4C_5R_2R_3R_4\right) + s^3\left(C_1C_2C_3C_5R_1R_3R_4 + C_1C_2C_4C_5R_1R_2R_4 + C_1C_2C_4C_5R_1R_2R_4 + C_1C_2C_4C_5R_1R_3R_4 + C_1C_2C$
- **9.2120** X-INVALID-ORDER-2120  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{C_1C_2}{C_1 + C_2 + s^4 \left(C_1C_2C_3C_4C_6R_1R_3R_4R_6 + C_1C_2C_3C_4C_6R_2R_3R_4R_6 C_1C_2C_4C_5C_6R_2R_3R_4R_6\right) + s^3 \left(C_1C_2C_3C_4R_1R_3R_4 + C_1C_2C_3C_6R_1R_3R_6 + C_1C_2C_3C_6R_2R_3R_6 C_1C_2C_4C_5R_2R_3R_4 + C_1C_2C_4C_6R_1R_3R_4 + C_1C_2C_3C_4R_1R_3R_4 + C_1C_2C_3C_4R_1$

**9.2121** X-INVALID-ORDER-2121  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

**9.2122** X-INVALID-ORDER-2122  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\overline{s^5 \left( C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 \right) + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_3 R_4 + C_1 C_2 C_3 C_5 C_6 R_1 R_3 R_5 + C_1 C_2 C_3 C_5 C_6 R_1 R_3 R_5 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 C_6 R_2 R_5 R_5 + C_1 C_2 C_4 C_5 C_6 R_2 R_5 R_5 + C_1$ 

**9.2123** X-INVALID-ORDER-2123  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_6s^5 + C_5 + s^4\left(C_1C_2C_3C_4C_5R_1R_2R_3R_4 + C_1C_2C_3C_5C_6R_1R_2R_3R_6 + C_1C_2C_4C_5C_6R_1R_2R_4R_6 + C_1C_3C_4C_5C_6R_1R_2R_4R_6 + C_1C_3C_4C_5C_6R_1R_3R_4 + C_1C_2C_3C_4C_5C_6R_1R_3R_4 + C_1C_2C_3C_5C_6R_1R_3R_4 +$ 

**9.2124** X-INVALID-ORDER-2124  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\overline{C_1 + C_2 + s^5 \left( C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_6 + C$ 

9.2125 X-INVALID-ORDER-2125  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5R_6s^5 + R_6 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4R_6 + C_1C_2C_3C_5R_1R_2R_3R_5R_6 + C_1C_2C_4C_5R_1R_2R_4R_5R_6 + C_1C_3C_4C_5R_1R_3R_4R_5R_6 + C_2C_3C_4C_5R_2R_3R_4R_5R_6 \right) + s^3\left(C_1C_2C_3R_1R_2R_3R_6 + C_1C_2C_4R_1R_2R_4R_6 + C_1C_2C_5R_1R_2R_5R_6 + C_1C_3C_4C_5R_1R_3R_4R_5 + C_1C_2C_3R_1R_3R_4R_5 + C_1C_2C_3R_1R_3R_5 + C_1C_2$ 

**9.2126** X-INVALID-ORDER-2126  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5s^5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4 + C_1C_2C_3C_5R_1R_2R_3R_5 + C_1C_2C_4C_5R_1R_2R_4R_5 + C_1C_3C_4C_5R_1R_3R_4R_5 + C_2C_3C_4C_5R_1R_2R_3 + C_1C_2C_4R_1R_2R_4 + C_1C_2C_5R_1R_2R_5 + C_1C_3C_4R_1R_3R_4 + C_1C_3C_5R_1R_3R_4R_5 + C_1C_2C_4C_5R_1R_3R_4R_5 + C_1C_2C_4C_5R_1R_3R_4R_5 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_2C_4C_6R_2R_$ 

**9.2127** X-INVALID-ORDER-2127  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^6 + s^5\left(C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5 + C_1C_2C_3C_4C_6R_1R_2R_3R_4R_6 + C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_4C_5C_6R_1R_3R_4R_5R_6 + C_1C_3C_4C_5C_6R_1R_3R_4R_5R_5 + C_1C_3C_4C_5C_6R_1R_3R_4R_5 + C_1C_3C_4C_5C_6R_1R_3R_4R_5 + C_1C_3C_4C_5C_6R_1R_3R_4R_5 + C_1C_3C_4C_5C_6R_1R_3R_4R_5 + C_1C_3C_4C_5C_6R_1R_3R_4R_5 + C_1C_3C_4C_5C_6R_1R_3R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_5C_6R_1R_5C_5C_5C_6R_5C_5C_5C_6R_5C_5C_5C_5C_5C_5C_$ 

**9.2128** X-INVALID-ORDER-2128  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{c_1c_2c_3c_4c_5n_1n_2n_3n_4n_6}{s^5\left(C_1C_2C_3C_4C_6R_1R_3R_4R_5R_6+C_1C_2C_3C_4C_6R_2R_3R_4R_5R_6-C_1C_2C_4C_5C_6R_2R_3R_4R_5+C_1C_2C_3C_4R_1R_3R_4R_5+C_1C_2C_3C_6R_1R_3R_5R_6+C_1C_2C_3C_6R_2R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_3R_4R_5+C_1C_2C_4C_5R_4R_4R_5+C_1C_2C_4C_5R_4R_5+C_1C_2C_4C_5R_4R_5+C_1C_2C_4C_5R_5+C_1C_2C_4C_5R_5+C_1C_2C_4C_5R_5+C_1C_2C_4C_5R_5+C_1C_2C_4C_5R_5+C_1C_2C_4C_5R_5+C_1C_2C_4C_5R_5+C_1C_2C_4C_5+C_2C_4C_5+C_2C_4C_5+C_2C_4C_5+C_2C_4C_5+C_2C_4C_5+C_2C_4C_5+C_2C_4C_5+C_2C_4C_5+C_2C_4C_5+C_2C_4+C_2C_4+C_2C_4+C_2C_4+C_2C_4+C_2C_4+C_$ 

**9.2129** X-INVALID-ORDER-2129  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3R_1R_2R_3R_4R_6s^3 + R_4R_6 + s^2\left(C_1C_2R_1R_2R_4R_6 + C_1C_3R_1R_3R_4R_6 + C_2C_3R_2R_3R_4R_6\right) + s\left(C_1R_1R_4R_6 + C_2R_2R_4R_6 + C_3R_3R_4R_6\right)}{s^3\left(C_1C_2C_3R_1R_3R_4R_5 + C_1C_2C_3R_2R_3R_4R_5 + C_1C_2R_2R_3R_4R_5 + C_1C_2R_2R_3R_4R_5 + C_1C_2R_3R_4R_5 +$ 

**9.2130** X-INVALID-ORDER-2130  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $\frac{C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}s^{3}+R_{4}+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{4}+C_{1}C_{3}R_{1}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}R_{4}\right)+s\left(C_{1}R_{1}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4}\right)}{s^{4}\left(C_{1}C_{2}C_{3}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{2}C_{6}R_{3}R_{4}R_{5}+C_{1$ 

```
9.2131 X-INVALID-ORDER-2131 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_2C_3C_6R_1R_2R_3R_4R_6s^4 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_3C_6R_1R_3R_4R_6 + C_2C_3C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_3R_1R_3R_4 + C_1C_6R_1R_4R_6 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_4R_6 + C_3C_6R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_2R_3R_4R_6 + C_2C_3R_2R_3R_4 + C_1C_3R_3R_4R_6 + C_2C_3R_2R_3R_4 + C_2C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_4 + C_2R_3R_4R_6 + C_2C_3R_2R_3R_4 + C_2C_3R_2$ 

**9.2132** X-INVALID-ORDER-2132 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $C_1C_2C_3R_1R_2R_3R_4R_6s^3 + R_4R_6 + s^2$ 

 $\frac{C_1C_2C_3R_1R_3R_4R_5F_6 + C_1C_2C_3R_2R_3R_4R_5F_6 + C_1C_2C_3R_2R_3R_4R_5F_6 + C_1C_2C_3R_2R_3R_4R_5F_6 + C_1C_2C_3R_2R_3R_4R_5 + C_1C_2C_3R_2R_$ 

**9.2133** X-INVALID-ORDER-2133 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_4R_6 + s^2\left(C_1C_2C_5R_1R_2R_4R_6 + C_1C_3C_5R_1R_3R_4R_6 + C_2C_3C_5R_2R_3R_4R_6\right) + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_1R_3R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_2C_5R_2R_3R_4\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_2R_3 + C_1C_2R_3R_4 + C_1C_3R_3R_4 + C_1C_4R_3R_4 + C_1C_4R_3R_4$ 

**9.2134** X-INVALID-ORDER-2134  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}s^{3}+C_{5}R_{4}+s^{2}\left(C_{1}C_{2}C_{5}R_{1}R_{2}R_{4}+C_{1}C_{3}C_{5}R_{1}R_{3}R_{4}+C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}\right)+s\left(C_{1}C_{5}R_{1}R_{4}+C_{2}C_{5}R_{2}R_{4}+C_{3}C_{5}R_{3}R_{4}\right)}{s^{3}\left(C_{1}C_{2}C_{3}C_{6}R_{1}R_{3}R_{4}+C_{1}C_{2}C_{6}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}$ 

9.2135 X-INVALID-ORDER-2135  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_3R_4R_6 + C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R_1R_3R_4R_6 + C_2C_3C_5C_6R_2R_3R_4 + C_1C_2C_5R_1R_2R_4 + C_1C_2C_5R_1R_4R_6 + C_2C_3C_5R_2R_3R_4 + C_1C_2C_5R_3R_4 + C_1C_$ 

**9.2136** X-INVALID-ORDER-2136  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_4R_6 + s^2(C_1C_2C_5R_1R_2R_4R_6 + C_1C_3C_5R_1R_3R_4R_6)$ 

 $\frac{C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{6}s^{3} + C_{5}R_{4}R_{6} + s^{2}\left(C_{1}C_{2}C_{5}R_{1}R_{2}R_{4}R_{6} + C_{1}C_{3}C_{5}R_{1}R_{3}R_{4}R_{6}\right)}{C_{1}R_{3} + C_{1}R_{4} + c_{2}R_{4} + s^{3}\left(C_{1}C_{2}C_{3}C_{6}R_{1}R_{3}R_{4}R_{6} + C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{6} + C_{1}C_{2}C_{5}C_{6}R_{2}R_{3}R_{4}R_{6}\right) + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{4}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{4}R_{6} + C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{6}\right) + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{4}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{4}R_{6} + C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{6}\right) + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{4}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{4}R_{6} + C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{6}\right) + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{4}R_{6} + C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{6}\right) + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{4}R_{6} + C_{1}C_{2}C_{6}R_{2}R_{3}R_{4}R_{6}\right) + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{4}R_{6}\right) + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{6}R_{1}R_{3}R_{4}\right) + s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{1}R_{3}R_{4} + C_{$ 

**9.2137** X-INVALID-ORDER-2137  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_4R_6 + s^2\left(C_1C_2C_5R_1R_2R_4R_6 + C_1C_3C_5R_1R_3R_4R_6 + C_2C_3C_5R_2R_3R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_2C_5R_2R_3R_4 + C_1C_$ 

**9.2138** X-INVALID-ORDER-2138  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_1C_2C_3C_5R_1R_2R_3R_4s^\circ + C_5R_4 + s^\circ (C_1C_2C_5R_1R_2R_3R_4s^\circ + C_5R_4 + s^\circ (C_1C_2C_5R_1R_2R_3R_4 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R$ 

**9.2139** X-INVALID-ORDER-2139  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_4R_6 + C_1C_3C_5C_6R_1R_3R_4R_6 + C_2C_3C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_3C_5C_6R_1R_3R_4R_5 + C_1C_2C_5C_6R_2R_3R_4R_5 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_2C_5C_6R$ 

**9.2140** X-INVALID-ORDER-2140  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_{1}R_{3} + C_{1}R_{4} + C_{2}R_{4} + s^{4}\left(C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{2}C_{3}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{2}C_{4}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{1}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{1}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{$ 

```
9.2141 X-INVALID-ORDER-2141 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
```

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_3R_4R_5R_6s^4 + R_4R_6 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_6 + C_1C_2C_5R_1R_2R_4R_5R_6 + C_1C_3C_5R_1R_3R_4R_5R_6 + C_2C_3C_5R_2R_3R_4R_5 + C_1C_2R_1R_2R_4R_6 + C_1C_3R_1R_3R_4R_6 + C_1C_5R_1R_4R_5R_6 + C_2C_3R_2R_3R_4R_6 + C_2C_5R_2R_4R_5R_6 + C_2C_3R_2R_3R_4R_5 + C_1C_2R_3R_4R_5 + C_1C_2R_$ 

**9.2142** X-INVALID-ORDER-2142 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

 $C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}s^{4} + R_{4} + s^{3}\left(C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{1}R_{2}R_{4}R_{5} + C_{1}C_{3}C_{5}R_{1}R_{3}R_{4}R_{5} + C_{2}C_{3}C_{5}R_{2}R_{3}R_{4} + C_{1}C_{5}R_{1}R_{3}R_{4} + C_{1}C_{5}R_{1}R_{4}R_{5} + C_{2}C_{3}R_{2}R_{3}R_{4} + C_{2}C_{5}R_{2}R_{4}R_{5} + C_{3}C_{5}R_{3}R_{4}R_{5} + C_{3}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}C_{5}R_{2}R_$ 

**9.2143** X-INVALID-ORDER-2143 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

 $s^{4} \left(C_{1} C_{2} C_{3} C_{6} R_{1} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{4} C_{6} R_{2} R_{3} R_{4} R_{5}-C_{1} C_{2} C_{5} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}+C_{1} C_{2} C_{3} C_{6} R_{2} R_{3} R_{4} R_{5}\right)+s^{3} \left(C_{1} C_{2} C_{3} C_{6} R_{2} R_$ 

**9.2144** X-INVALID-ORDER-2144 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $\frac{C_1C_2C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_4R_6 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_6 + C_1C_2C_5R_1R_2R_3R_4R_6 + C_1C_2C_5R_1R_2R_3R_4R_6 + C_1C_2C_5R_1R_2R_3R_4R_5 + C_1C_2C_3C_6R_1R_3R_4R_5R_6 + C_1C_2C_3C_6R_2R_3R_4R_5R_6 + C_1C_2C_5C_6R_2R_3R_4R_5R_6 + C_1C_2C_5R_2R_3R_4R_5 + C_1C_2C_3R_2R_3R_4R_5 + C_1C_2C_3R_2R_3R_4R_5 + C_1C_2C_5R_2R_3R_4R_5 + C_1C_2C_5R_3R_4R_5 +$ 

**9.2145** X-INVALID-ORDER-2145  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1R_1R_2R_4s + R_2R_4}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5\right)}$ 

**9.2146** X-INVALID-ORDER-2146  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_6R_1R_2R_4R_6s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5\right)}$ 

**9.2147** X-INVALID-ORDER-2147  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1 R_1 R_2 R_4 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 R_2 R_3 R_4 R_5 + C_1 C_6 R_1 R_4 R_5 R_6 - C_1 C_6 R_2 R_3 R_4 R_6 + C_1 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_6 R_2 R_4 R_5 R_6 + C_1 C_6 R_5 R_5 R_6 + C_$ 

**9.2148** X-INVALID-ORDER-2148  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^3\left(C_1C_2C_6R_1R_2R_4R_6 + C_1C_2C_6R_2R_3R_4R_6 - C_1C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 - C_1C_5R_2R_3R_4 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_1C_6R_2R_4R_6\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_1C_6R_2R_4R_6\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_4R_6\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_3R_4 + C_1R_3R_4 + C_1R_3R_4 + C_1R_3R_4\right) + s\left(C_1R_1R_4 + C_1R_3R_4 + C_1R_3R_4 + C_1R_3R_4 + C_1R_3R_4 + C_1R_3R_4\right) + s\left(C_1R_1R_4 + C_1R_3R_$ 

**9.2149** X-INVALID-ORDER-2149  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^3\left(C_1C_2C_5R_1R_2R_4R_5 + C_1C_2C_5R_2R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_5R_1R_4R_5 - C_1C_5R_2R_3R_4 + C_1C_5R_2R_4R_5 + C_1C_5R_2R_4R_5\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_5R_4R_5\right)}$ 

**9.2150** X-INVALID-ORDER-2150  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_1C_5R_1R_2R_4S_5 + C_5R_2R_4}{C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_2R_4R_5 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_3R_4R_5 + C_1C_5C_6R_3R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C$ 

```
9.2151 X-INVALID-ORDER-2151 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_5C_6R_1R_2R_4R_6s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_2R_4R_5 + C_1C_2C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_6R
9.2152 X-INVALID-ORDER-2152 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{R_4 + s^4 \left( C_1 C_2 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_2 R_3 R_4 R_6 + C_1 C_5 C_6 R_2 R_3 R_4 R_6
9.2153 X-INVALID-ORDER-2153 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                   H(s) = \frac{C_1C_5R_1R_2R_4R_5s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right)}
9.2154 X-INVALID-ORDER-2154 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                  H(s) = \frac{C_1C_5C_6R_1R_2R_4R_5R_6s^3 + R_2R_4 + s^2\left(C_1C_5R_1R_2R_4R_5 + C_1C_6R_1R_2R_4R_6 + C_5C_6R_2R_4R_5R_6\right) + s\left(C_1R_1R_2R_4 + C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5\right)}
9.2155 X-INVALID-ORDER-2155 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_5R_1R_2R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^3\left(C_1C_2C_6R_1R_2R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6 + C_1C_5R_2R_3R_4R_5 + C_1C_5R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_4R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_4R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C_6R_5R_5 + C_1C
9.2156 X-INVALID-ORDER-2156 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                           H(s) = \frac{C_1 R_1 R_2 s + R_2}{C_6 R_5 s + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_5 + C_1 C_2 C_6 R_2 R_3 R_5 + C_1 C_4 C_6 R_2 R_3 R_5\right) + s^2 \left(C_1 C_6 R_1 R_5 - C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_5 + C_1 C_6 R_3 R_5 + C_2 C_6 R_2 R_5\right)}
9.2157 X-INVALID-ORDER-2157 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                           H(s) = \frac{C_1C_6R_1R_2R_6s^2 + R_2 + s\left(C_1R_1R_2 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_2C_6R_1R_2R_5 + C_1C_2C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5\right)}
9.2158 X-INVALID-ORDER-2158 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                          \frac{C_{1}R_{1}R_{2}R_{6}s+R_{2}R_{6}}{R_{5}+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{5}R_{6}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{5}R_{6}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{5}+C_{1}C_{4}R_{2}R_{3}R_{5}+C_{1}C_{4}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{4}R_{2}R_{3}R_{5}+C_{1}C_{4}R_{2}R_{3}R_{5}+C_{1}C_{4}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C
9.2159 X-INVALID-ORDER-2159 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
               H(s) = \frac{C_1C_5R_1R_2R_6s^2 + C_5R_2R_6s}{s^3\left(C_1C_2C_6R_1R_2R_6 + C_1C_2C_6R_2R_3R_6 + C_1C_4C_6R_2R_3R_6 - C_1C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_1C_6R_2R_6 + C_1C_6R_3R_6 + C_2C_6R_2R_6\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_2R_2 + C_6R_6\right) + 1}
9.2160 X-INVALID-ORDER-2160 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                H(s) = \frac{C_1C_5R_1R_2R_6s^2 + C_5R_2R_6s}{s^3\left(C_1C_2C_5R_1R_2R_5 + C_1C_2C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_5R_1R_5 - C_1C_5R_2R_3 + C_1C_5R_2R_5 + C_1C_5R_2R_5 + C_1C_5R_2R_5\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_2R_2 + C_5R_5\right) + 1}
```

```
9.2161 X-INVALID-ORDER-2161 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_5R_1R_2s + C_5R_2}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_2R_5 + C_1C_2C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_2R_3 + C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_2R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_3 + C_2C_6R_3 + C_1C_5C_6R_3R_5\right) + s\left(C_1C_6R_1 + C_1C_6R_3 + C_1C_6R_3 + C_1C_6R_3 + C_1C_6R_3 + C_1C_6R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_3 + C_1C_6R_3 + C_1C_6R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_3 +
9.2162 X-INVALID-ORDER-2162 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_5C_6R_1R_2R_6s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_5C_6R_2R_6\right)}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_2R_5 + C_1C_2C_5C_6R_2R_3R_5 + C_1C_4C_5R_2R_3R_5\right) + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_2R_3 + C_1C_5C_6R_2R_3 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_5 + C_1C_5C_6R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5 + C_1
9.2163 X-INVALID-ORDER-2163 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_5R_1}{s^4\left(C_1C_2C_5C_6R_1R_2R_5R_6 + C_1C_2C_5C_6R_2R_3R_5R_6 + C_1C_4C_5R_2R_3R_5R_6 + C_1C_2C_5R_1R_2R_5 + C_1C_2C_6R_1R_2R_6 + C_1C_2C_6R_2R_3R_6 + C_1C_4C_6R_2R_3R_6 + C_1C_5C_6R_2R_3R_6 + C_1C_5C_6R_2R_5R_5 + C_1C_5C_6R_2R_5R_5 + C_1C_5C_6R_2R_5R_5 + C_1C_5C_6R_2R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5 + C_1C_5C_6R_5R_5
9.2164 X-INVALID-ORDER-2164 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                   H(s) = \frac{C_1C_5R_1R_2R_5s^2 + R_2 + s\left(C_1R_1R_2 + C_5R_2R_5\right)}{C_6R_5s + s^3\left(C_1C_2C_6R_1R_2R_5 + C_1C_2C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5\right)}
9.2165 X-INVALID-ORDER-2165 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                   H(s) = \frac{C_1C_5C_6R_1R_2R_5R_6s^3 + R_2 + s^2\left(C_1C_5R_1R_2R_5 + C_1C_6R_1R_2R_6 + C_5C_6R_2R_5R_6\right) + s\left(C_1R_1R_2 + C_5R_2R_5 + C_6R_2R_6\right)}{C_6R_5s + s^3\left(C_1C_2C_6R_1R_2R_5 + C_1C_2C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 - C_1C_5C_6R_2R_3R_5\right) + s^2\left(C_1C_6R_1R_5 - C_1C_6R_2R_3 + C_1C_6R_2R_5 + C_1C_6R_3R_5 + C_2C_6R_2R_5\right)}
9.2166 X-INVALID-ORDER-2166 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                  \frac{C_{1}C_{5}R_{1}R_{2}R_{5}R_{6}s^{2}+R_{2}R_{6}+s\left(C_{1}R_{1}R_{2}R_{6}+C_{5}R_{2}R_{5}R_{6}\right)}{R_{5}+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{5}R_{6}+C_{1}C_{2}C_{6}R_{2}R_{3}R_{5}R_{6}-C_{1}C_{5}C_{6}R_{2}R_{3}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{5}+C_{1}C_{2}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{6}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{5}+C_{1}C_{6}R_{2}R_{3}R_{
9.2167 X-INVALID-ORDER-2167 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
H(s) = \frac{C_1C_4R_1R_2R_4R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_4R_2R_4R_6\right)}{R_5 + s^3\left(C_1C_2C_4R_1R_2R_4R_5 + C_1C_2R_2R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_2R_5 + C_1C_2R_2R_3R_5 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_4R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5 + C_4R_4R_5\right)}
9.2168 X-INVALID-ORDER-2168 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4R_1R_2R_4s^2 + R_2 + s\left(C_1R_1R_2 + C_4R_2R_4\right)}{C_6R_5s + s^4\left(C_1C_2C_4C_6R_1R_2R_4R_5 + C_1C_2C_4C_6R_2R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_1R_2R_5 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_
9.2169 X-INVALID-ORDER-2169 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{1}{R_5 + s^4 \left( C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 R_2 R_3 R_4 R_5 + C_1 C_2 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_4 C_6 R_4 R_5 R_6 + C_1 C_4 C_6 R_4 R_5 R_6 + C_1 C$ 

 $H(s) = \frac{C_1C_4C_6R_1R_2R_4R_6s^3 + R_2 + s^2\left(C_1C_4R_1R_2R_4 + C_1C_6R_1R_2R_6 + C_4C_6R_2R_4R_6\right) + s\left(C_1R_1R_2 + C_4R_2R_4 + C_6R_2R_6\right)}{C_6R_5s + s^4\left(C_1C_2C_4C_6R_1R_2R_4 + C_1C_2C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_4R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_$ 

**9.2170** X-INVALID-ORDER-2170  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

```
9.2171 X-INVALID-ORDER-2171 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                               H(s) = \frac{C_1C_4C_5R_1R_2R_4R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_4C_5R_2R_4R_6\right)}{s^3\left(C_1C_2C_4R_1R_2R_4 + C_1C_2C_4R_2R_3R_4 - C_1C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_1R_4 + C_1C_4R_2R_3 + C_1C_4R_2R_4 + C_1C_4R_4R_4 + C_1
9.2172 X-INVALID-ORDER-2172 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4C_5R_1R_2R_4s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_4C_5R_2R_4\right)}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_2R_4 + C_1C_2C_4C_6R_2R_3R_4 - C_1C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_4R_4 + C_1C_4C_6R_4 + C_1C_4C_6R_4 + C_1C_4C_6R_4 + C_1C_4C_6R_4 + C_1C_4C_6R_4 + C_1C_4
9.2173 X-INVALID-ORDER-2173 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4C_5C_6R_1R_2R_4R_6s^3 + C_5R_2 + s^2\left(C_1C_4C_5R_1R_2R_4 + C_1C_5C_6R_1R_2R_6 + C_4C_5C_6R_2R_4R_6\right) + s\left(C_1C_5R_1R_2 + C_4C_5R_2R_4 + C_5C_6R_2R_4\right)}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_2R_4 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_3 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_2R_4 + C_1C_5C_6R_2R_3 + C_2C_4C_6R_2R_4\right) + s\left(C_1C_5R_1R_2 + C_4C_5R_2R_4 + C_1C_4C_6R_2R_4 + C_1C_4C_6R_4 + C_1C_4C
9.2174 X-INVALID-ORDER-2174 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                              \frac{C_{1}C_{4}C_{5}R_{1}R_{2}R_{4}R_{6}s^{3}+C_{1}C_{2}C_{4}C_{6}R_{1}R_{2}R_{4}R_{6}-C_{1}C_{4}C_{5}C_{6}R_{2}R_{3}R_{4}R_{6}-C_{1}C_{4}C_{5}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{4}R_{1}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{1}R_{2}R_{6}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{4}R_{6}+C_{1}C_{4}C_{6}R_{2}R_{4}+C_{1}C_{4}C_{6}R_{2}R_{4}+C_{1}C_{4}C_{6}R_{4}+C_{1}C_{4}C_{6}R_{4}+C_{1}C_{4}C_{6}R_{4}+C_{1}C
9.2175 X-INVALID-ORDER-2175 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_4C_5R_1R_2R_4R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2\right)}{s^4\left(C_1C_2C_4C_5R_1R_2R_4R_5 + C_1C_2C_4C_5R_2R_3R_4 + C_1C_2C_5R_1R_2R_5 + C_1C_4C_5R_2R_3R_4 + C_1C_4C_5R_2R_3R_4 + C_1C_4C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_4 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_5R_3R_4R_5 + C_1C_4C_5R_4R_5R_5 + C_1C_4C_5R_4R_5R_5 + C_1C_4C_5R_4R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_4C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R
9.2176 X-INVALID-ORDER-2176 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C}{C_6 + s^4 \left(C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_4 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_2 R_5 + C_1 C_2 C_5 C_6 R_2 R_3 R_5 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_4 C_5 C_6 R_2 R_3 R_5 + C_1 C_4 C_5 C_6 R_5 R_5 R_5 + C_1 C_4 C_5 C_6 R_5 R_5 R_5 
9.2177 X-INVALID-ORDER-2177 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_4C_5C_6R_1R_2R_4R_6s^3 + C_5R_2 + s^2 (C_1C_2C_4C_5C_6R_1R_2R_4R_5 + C_1C_2C_4C_5R_1R_2R_4 + C_1C_2C_4C_6R_1R_2R_4 + C_1C_2C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_2R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_3R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_5C_6R_5R_5 + C_1C_4C_
9.2178 X-INVALID-ORDER-2178 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $\overline{s^5 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_2 R_3 R_4 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_4 R_5 R_6 - C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_4 R_5 R_5 + C_1 C_2 C_4 C_5 R_4 R_5 R_5 + C_1 C_4 C_5 R_5 R_5 R_5 + C_1 C_4 C_5 R_5 R_5 R_5 + C_1 C_4 C_5 R_5 R_5 R_5 + C$ 

9.2179 X-INVALID-ORDER-2179  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_4C_5R_1R_2R_4R_5R_6s^3 + R_2R_6 + s^2\left(C_1C_4R_1R_2R_4R_6 + C_1C_5R_1R_2R_5R_6 + C_4C_5R_2R_4R_5R_6\right) + s\left(C_1R_1R_2R_6 + C_4R_2R_4R_6 + C_5R_2R_5R_6\right)}{R_5 + s^3\left(C_1C_2C_4R_1R_2R_4R_5 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_4 + C_1C_4R_2R_4R_5 + C_1C_4R_4R_4R_5 + C_1C_4$ 

**9.2180** X-INVALID-ORDER-2180  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_4C_5R_1R_2R_4R_5s^3 + R_2 + s^2\left(C_1C_4R_1R_2R_4 + C_1C_5R_1R_2R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_1R_1R_2 + C_4R_2R_4 + C_5R_2R_5\right)}{C_6R_5s + s^4\left(C_1C_2C_4C_6R_1R_2R_4 + C_1C_2C_4C_6R_2R_3R_4R_5 - C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_6R_3R_4R_5 + C_1C_4C_$ 

```
9.2181 X-INVALID-ORDER-2181 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_4C_5C_6R_1R_2R_4R_5R_6s^4 + R_2 + s^3\left(C_1C_4C_5R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_6 + C_1C_5C_6R_1R_2R_5R_6 + C_4C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_4R_1R_2R_4 + C_1C_5R_1R_2R_5 + C_1C_6R_1R_2R_6 + C_4C_5R_2R_4R_5 + C_4C_6R_2R_4R_6 + C_5C_6R_2R_4R_5 + C_4C_5R_2R_4R_5 + C_4C_5R_4R_4R_5 + C_4C_5R_4R_4R_5$ 

**9.2182** X-INVALID-ORDER-2182  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{R_5 + s^4 \left( C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_6 R_2 R_3 R_4 R_5 R_6 - C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 R_2 R_3 R_4 R_5 + C_1 C_2 C_6 R_2 R_3$ 

**9.2183** X-INVALID-ORDER-2183  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1 R_1 R_2 R_4 s + R_2 R_4}{C_6 R_4 R_5 s + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_2 R_3 R_4 R_5 + C_1 C_4 C_6 R_2 R_3 R_4 R_5\right) + s^2 \left(C_1 C_6 R_1 R_4 R_5 - C_1 C_6 R_2 R_3 R_4 + C_1 C_6 R_2 R_3 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_2 R_4 R_5\right)}$ 

**9.2184** X-INVALID-ORDER-2184  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_6R_1R_2R_4R_6s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_3R_4R_5 + C_2C_6R_2R_4R_5\right)}$ 

**9.2185** X-INVALID-ORDER-2185  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1 R_1 R_2 R_4 R_6 s + R_2 R_4 R_6}{R_4 R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_4 R_2 R_3 R_4 R_5 + C_1 C_4 R_2 R_3 R_4 R_5 + C_1 C_6 R_2 R_4 R_5 + C_1 C_6 R_4 R_5 + C_1 C_6 R_5 R_5$ 

**9.2186** X-INVALID-ORDER-2186  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^3\left(C_1C_2C_6R_1R_2R_4R_6 + C_1C_2C_6R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_6 - C_1C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_5R_2R_3R_4 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_4R_2R_3R_4 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_6 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_4R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_4R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_4R_2R_3R_4 + C_1C_6R_2R_3R_4 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_4R_2R_3R_4 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_4R_2R_3R_4 + C_1C_6R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_4R_2R_4R_6\right) + s^2\left(C_1C_2R_1R_4R_4 + C_1C_4R_4R_4\right) + s^2\left(C_1C_2R_1R_4R_4 + C_1C_4R_4R_4\right) + s^2\left(C_1C_2R_1R_4R_4 + C_1C_4R_4R_4\right) + s^2\left(C_1C_2R_4R_4R_4\right) + s^2\left(C_1C_4R_4R_4\right) + s^2\left(C_1C_4R$ 

**9.2187** X-INVALID-ORDER-2187  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_5R_1R_2R_4R_6s^2 + C_5R_2R_4R_6s}{R_4 + s^3\left(C_1C_2C_5R_1R_2R_4R_5 + C_1C_2C_5R_2R_3R_4R_5 + C_1C_4C_5R_2R_3R_4 + C_1C_2R_2R_3R_4 + C_1C_5R_1R_4R_5 - C_1C_5R_2R_3R_5 + C_1C_5R_2R_4R_5 + C_1C_5R_4R_4R_5 + C_1C_5R_4R_4R_5 + C_1C_5R_4R_4R_5 + C_1C_5R_4R_4R_5 + C_1C_5R_4R_4R_5 + C_1C_5R_4R_4R_5 + C_1C_5R_4R_5 + C_1C_5R_5R_5R_5 + C_1C_$ 

**9.2188** X-INVALID-ORDER-2188  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_1C_5R_1R_2R_4s + C_5R_2R_4$ 

 $H(s) = \frac{C_1C_5R_1R_2R_4s + C_5R_2R_4}{C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_2R_4R_5 + C_1C_2C_5C_6R_2R_3R_4R_5 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_3R_4 + C_$ 

**9.2189** X-INVALID-ORDER-2189  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_5C_6R_1R_2R_4R_6s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_2R_4R_5 + C_1C_2C_5C_6R_2R_3R_4R_5 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_3R_4 + C_1C_5C_6R$ 

**9.2190** X-INVALID-ORDER-2190  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\overline{R_4 + s^4 \left( C_1 C_2 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_5 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_6 R_2 R_3 R_4 R_5 +$ 

```
9.2192 X-INVALID-ORDER-2192 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                       H(s) = \frac{C_1C_5C_6R_1R_2R_4R_5R_6s^3 + R_2R_4 + s^2\left(C_1C_5R_1R_2R_4R_5 + C_1C_6R_1R_2R_4R_6 + C_5C_6R_2R_4R_5R_6\right) + s\left(C_1R_1R_2R_4 + C_5R_2R_4R_5 + C_6R_2R_4R_6\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right)}
9.2193 X-INVALID-ORDER-2193 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_5R_1R_2R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^3\left(C_1C_2C_6R_1R_2R_4R_5R_6 + C_1C_2C_6R_2R_3R_4R_5R_6 - C_1C_5C_6R_2R_3R_4R_5 + C_1C_2R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 + C_1C_4R_4R_5R_5 + C_1C_4R_4R_5 + C_1C_4R_4R_5 + C_1C_4R_4R_5 + C_1C_4R_4R_5 + C_1C_4R_5 + C_1C
9.2194 X-INVALID-ORDER-2194 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                   H(s) = \frac{C_1C_3R_1R_2R_4s + C_3R_2R_4}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.2195 X-INVALID-ORDER-2195 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                   H(s) = \frac{C_1C_3C_6R_1R_2R_4R_6s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.2196 X-INVALID-ORDER-2196 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{C_1C_2C_3C_6R_1R_2R_4R_5R_6s^3 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + c_1C_2C_6R_2R_4R_5R_6 + C_1C_3C_6R_1R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5 + C_1C
9.2197 X-INVALID-ORDER-2197 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1C_2C_3C_6R_1R_2R_4R_6s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_
9.2198 X-INVALID-ORDER-2198 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1C_2C_3C_5R_1R_2R_4R_5s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_2R_5 + C_1C_5R_4R_5 + C_2C_3R_2R_4 + C_3C_5R_4R_5 + C_3C_3R_4R_5 +
9.2199 X-INVALID-ORDER-2199 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_2C_3C_5C_6R_1R_2R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_6R_4 + C_1C_
9.2200 X-INVALID-ORDER-2200 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_2C_3C_5C_6R_1R_2R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + c_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5\right) + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_
```

 $H(s) = \frac{C_1C_5R_1R_2R_4R_5s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_5R_2R_4R_5\right)}{C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 - C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right)}$ 

**9.2191** X-INVALID-ORDER-2191  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

```
9.2201 X-INVALID-ORDER-2201 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_2R_4R_5R_6s^4 + C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_4R_5 + C_1C_2C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_2R_4R_5R_5 + C_1C_3C_5C_6R_2R_4R_5R_5 + C_1C_3C_5C_6R_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5C_5R_5R_5R_5C_5C_5C_5R_5R_5R_5C_5C_5C_5C_5R_5R_5C_5C_
9.2202 X-INVALID-ORDER-2202 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                      H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.2203 X-INVALID-ORDER-2203 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                     H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 - C_1C_5C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_3C_6R_4R_6\right)}
9.2204 X-INVALID-ORDER-2204 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{C_1C_2C_3C_6R_1R_2R_4R_5R_6s^3 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + c_3R_4R_5 + s^2\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_2R_2R_4R_5 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_2R_2R_4R_5 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_4R_5 + C_1C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_2R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(C_1C_2R_4R_5R_5\right) + s\left(C_1C_2R_4R_5\right) + 
9.2205 X-INVALID-ORDER-2205 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                        H(s) = \frac{C_1C_3R_1R_2s + C_3R_2}{C_1C_2C_3C_6R_1R_2R_5s^3 + s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}
9.2206 X-INVALID-ORDER-2206 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                      H(s) = \frac{C_1C_3C_6R_1R_2R_6s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_6R_2R_6\right)}{C_1C_2C_3C_6R_1R_2R_5s^3 + s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}
9.2207 X-INVALID-ORDER-2207 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_6s + C_3R_2R_6}{C_1C_2C_3C_6R_1R_2R_5R_6s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_3R_1R_2R_5 + C_1C_3C_6R_2R_5R_6 + C_1C_3C_6R_2R_5R_6 + C_1C_4C_6R_2R_5R_6 + C_1C_4C_6R_4R_5R_5 + C_1C_4C_6R_4R_5R_5 + C_1C_4C_6R_4R_5R_5 + C_1C_4C_6R_5R_5 + C_1C_4C_6R_5R_5R_5 + C_1C_4C_6R_5R_5R_5 + C_1C_4C_6R_5R_
9.2208 X-INVALID-ORDER-2208 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                 \frac{C_{1}C_{3}C_{5}R_{1}R_{2}R_{6}s^{2}+C_{3}C_{5}R_{2}R_{6}s}{C_{1}C_{2}C_{3}C_{6}R_{1}R_{2}R_{6}s^{3}+C_{1}+C_{3}+s^{2}\left(C_{1}C_{2}C_{3}R_{1}R_{2}+C_{1}C_{2}C_{6}R_{2}R_{6}+C_{1}C_{3}C_{6}R_{2}R_{6}+C_{1}C_{3}C_{6}R_{2}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{6}+C_{1}C_{5}C_{6}R_{2}R_{6}+C_{2}C_{3}C_{6}R_{2}R_{6}\right)+s\left(C_{1}C_{2}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{3}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{6}R_{6}+C_{2}C_{3}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{5}R_{2}+C_{1}C_{
9.2209 X-INVALID-ORDER-2209 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                 H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1C_2C_3C_5R_1R_2R_5s^3 + C_1 + C_3 + s^2\left(C_1C_2C_3R_1R_2 + C_1C_2C_5R_2R_5 + C_1C_3C_5R_1R_5 + C_1C_4C_5R_2R_5 + C_2C_3C_5R_2R_5\right) + s\left(C_1C_2R_2 + C_1C_3R_1 + C_1C_3R_2 + C_1C_4R_2 - C_1C_5R_2 + C_1C_5R_5 + C_2C_3R_5 + C_1C_4C_5R_5\right)}
9.2210 X-INVALID-ORDER-2210 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                \frac{C_1C_3C_5R_1R_2s + C_3C_5R_2}{C_1C_2C_3C_5C_6R_1R_2R_5s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_3C_6R_1R_2 + C_1C_2C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5 + C_1C_3C_6R_2 + C_1
```

```
9.2211 X-INVALID-ORDER-2211 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_5C_6R_2R_6\right)}{C_1C_2C_3C_5C_6R_1R_2R_5s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_3C_6R_1R_2 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_3C_6R_2 + C_1C
9.2212 X-INVALID-ORDER-2212 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_2}{C_1C_2C_3C_5C_6R_1R_2R_5R_6s^4 + C_1 + C_3 + s^3\left(C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_6R_1R_2R_6 + C_1C_3C_5C_6R_2R_5R_6 + C_1C_3C_5C_6R_2R_5R_5R_6 + C_1C_3C_5C_6R_2R_5R_5R_5 + C_1C_3C_5C_6R_5R_5R_5 + C_1C_3C_5C_5C_6R_5R_5R_5 + C_1C_3C_5C_5C_6R_5R_5R_5 + C_1C_5C_5C_5C_5R_5R_5R_5 + C_1C_5C_5C_5C_5R_5R_5R_5 + C_1C_5C_5C_5C_5R_5R_5R_5 + C_1C_5C_5C_5C_5R_5R_5R_5 + C_1C_5C_5C_5
9.2213 X-INVALID-ORDER-2213 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                          H(s) = \frac{C_1C_3C_5R_1R_2R_5s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_5R_2R_5\right)}{C_1C_2C_3C_6R_1R_2R_5s^3 + s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}
9.2214 X-INVALID-ORDER-2214 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                         H(s) = \frac{C_1C_3C_5C_6R_1R_2R_5R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_6 + C_3C_5C_6R_2R_5R_6\right) + s\left(C_1C_3R_1R_2 + C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{C_1C_2C_3C_6R_1R_2R_5s^3 + s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_2R_5 + C_1C_4C_6R_2R_5 - C_1C_5C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_2 + C_1C_6R_5 + C_3C_6R_5\right)}
9.2215 X-INVALID-ORDER-2215 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6\right)}{C_1C_2C_3C_6R_1R_2R_5R_6s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_3R_1R_2R_5 + C_1C_3C_6R_1R_5R_6 + C_1C_3C_6R_2R_5R_6 + C_1C_4C_6R_2R_5R_6 + C_1C
9.2216 X-INVALID-ORDER-2216 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
H(s) = \frac{C_1C_3C_4R_1R_2R_4R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6\right)}{C_1C_2C_3C_4R_1R_2R_4R_5s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_3R_1R_2R_5 + C_1C_2C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_3R_1R_5 + C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 + C_2C_3R_2R_5 + C_3C_4R_4R_5\right)}
9.2217 X-INVALID-ORDER-2217 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4R_1R_2R_4s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4\right)}{C_1C_2C_3C_4C_6R_1R_2R_4S^4 + s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_2C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2
9.2218 X-INVALID-ORDER-2218 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_6R_1R_2R_4R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_6R_2R_4R_6\right) + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4 + C_3C_6R_2R_6\right)}{C_1C_2C_3C_4C_6R_1R_2R_4R_5s^4 + s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_2R_5 + C_1C_3C_6R_2R_
9.2219 X-INVALID-ORDER-2219 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_4R_5R_6s^4 - C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_2C_3C_4R_1R_2R_4R_5 + C_1C_2C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_5 + C_1C_3C_4C_6R_3R_4R_5R_5 + C_1C_3C_4C_6R_3R_5R_5 + C_1C_3C_4C_6R_5R_5R_5 + C_1C_3C_4C_6R_5R_5R_5 + C_
```

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s + s^2\left(C_1C_3C_5R_1R_2R_6 + C_3C_4C_5R_2R_4R_6\right)}{C_1C_2C_3C_4R_1R_2R_4s^3 + C_1 + C_3 + s^2\left(C_1C_2C_3R_1R_2 + C_1C_2C_4R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_4C_5R_2R_4 + C_2C_3C_4R_2R_4\right) + s\left(C_1C_2R_2 + C_1C_3R_1 + C_1C_3R_2 + C_1C_4R_4 - C_1C_5R_2 + C_2C_3R_4 + C_2C_3C_4R_4\right)}$ 

**9.2220** X-INVALID-ORDER-2220  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

```
9.2221 X-INVALID-ORDER-2221 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4\right)}{C_1C_2C_3C_4C_6R_1R_2R_4s^3 + C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_3C_6R_1R_2 + C_1C_2C_4C_6R_2R_4 + C_1C_3C_4C_6R_2R_4 + C_1C_4C_5C_6R_2R_4 + C_1C_3C_4C_6R_2R_4 + C_1C_3C_6R_2 
9.2222 X-INVALID-ORDER-2222 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
9.2223 X-INVALID-ORDER-2223 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_1C_2C_3C_4C_6R_1R_2R_4R_6s^3 + C_1C_2C_3C_4C_6R_1R_2R_4R_6s^3 + C_1C_2C_3C_4C_6R_1R_2R_4R_6s^4 + C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_4C_6R_2R_4R_6 + C_1C_3C_4C_6R_2R_4R_6 + C_1C_3C_4C_4C_4R_4R_6 + C_1C_3C_4C
9.2224 X-INVALID-ORDER-2224 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s + s^2 (C_1C_2C_3C_4R_1R_2R_4R_5s^4 + C_1 + C_3 + s^3 (C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_5R_1R_2R_5 + C_1C_3C_4C_5R_2R_4R_5 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_5R_4R_5 + C_1C_3C_4R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_
9.2225 X-INVALID-ORDER-2225 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5s^4 + C_1C_6 + C_3C_6 + s^3\left(C_1C_2C_3C_4C_6R_1R_2R_4 + C_1C_2C_3C_5C_6R_1R_2R_5 + C_1C_3C_4C_5C_6R_2R_4R_5 + C_1C_3C_4C_5C_6R_4R_5 + C_1C_3C_4C_5C_6R_4R_5 + C_1C_3C_4C_5C_6R_4R_5 + C_1C_3C_5C_6R_4R_5 + C_1C_3C_5C_5C_6R_4R_5 + C_1C_3C_5C_5C_6R_5R_5C_5C_6R_5R_5C_5C_6R_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_
9.2226 X-INVALID-ORDER-2226 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                        \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_2R_4}{C_1C_2C_3C_4C_5C_6R_1R_2R_4 + C_1C_2C_3C_5C_6R_1R_2R_5 + C_1C_2C_4C_5C_6R_2R_4R_5 + C_1C_3C_4C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1
9.2227 X-INVALID-ORDER-2227 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5R_6s^5 + C_1 + C_3 + s^4(C_1C_2C_3C_4C_5R_1R_2R_4R_5 + C_1C_2C_3C_4C_6R_1R_2R_4R_6 + C_1C_2C_4C_5C_6R_2R_4R_5R_6 + C_1C_3C_4C_5C_6R_1R_4R_5R_6 + C_1C_3C_4C_5C_6R_2R_4R_5R_6 + C_1C_3C_4C_5C_6R_4R_5R_5C_6R_5R_5R_5C_6R_5R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5R_5C_6R_5R_5C_5R_5C_6R_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5R_5C_5
```

9.2228 X-INVALID-ORDER-2228  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_2R_6 + s^2\left(C_1C_3C_4R_1R_2R_4R_6 + C_1C_3C_5R_1R_2R_5R_6 + C_3C_4C_5R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6\right)}{C_1C_2C_3C_4R_1R_2R_4R_5s^3 - C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_3R_1R_2R_5 + C_1C_3C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5 - C_1C_4C_5R_2R_4R_5 + C_1C_3C_4R_2R_4R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_3R_1R_5 + C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 - C_1C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_2R_5 + C_1C_3R_1R_5 + C_1C_3R_4R_5 + C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 - C_1C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_2R_5 + C_1C_3R_1R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 + C_1C_3R_4R_5\right) + s\left(C_1C_3R_4R_4R_5 + C_1C_3R_4R_5 + C_1C_3R_4R_5 + C_1C_3R_4R_5\right) + s\left(C_1C_3R_4R_4R_5 + C_1C_3R_4R_5 + C_1C_3R_4R_5 + C_1C_3R_4R_5\right) + s\left(C_1C_3R_4R_4R_5 + C_1C_3R_4R_5 + C_1C_3R_4R_5\right) + s\left(C_1C_3R_4R_5 + C_1C_3R_4R_5\right) + s\left(C_1C_3R_4R_5\right) + s\left(C_1C$ 

9.2229 X-INVALID-ORDER-2229  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_5s^3 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_3C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_4 + C_3C_5R_2R_5\right)}{C_1C_2C_3C_4C_6R_1R_2R_4R_5s^4 + s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_2R_4\right) + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_4\right) + s^2\left(C_1C_3C_4R_4R_5 + C_1C_3C_4C_6R_2R_4\right) + s^2\left(C_1C_3C_4R_4R_5 + C_1C_3C_4C_6R_4R_5\right) + s^2\left(C_1C_3C_$ 

9.2230 X-INVALID-ORDER-2230  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_2 + s^3\left(C_1C_3C_4C_5R_1R_2R_4R_5 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_5C_6R_1R_2R_5R_6 + C_3C_4C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_5R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_5R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5 + C_3C_4C_6R_2R_4R_5\right) + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_5 + C$ 

```
H(s) = \frac{1}{C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 s^4 - C_1 R_2 + C_1 R_5 + C_3 R_5 + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_2 R_4 R_5 R_6 + C_1 C_3 C_4
9.2232 X-INVALID-ORDER-2232 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                          H(s) = \frac{C_1C_3R_1R_2R_4s + C_3R_2R_4}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.2233 X-INVALID-ORDER-2233 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                         H(s) = \frac{C_1C_3C_6R_1R_2R_4R_6s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_4C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.2234 X-INVALID-ORDER-2234 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6}{C_1C_2C_3C_6R_1R_2R_4R_5R_6s^3 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_2C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R
9.2235 X-INVALID-ORDER-2235 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1C_2C_3C_6R_1R_2R_4R_6s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_4C_6R_2R_4R_6 + C_1C_5C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_6 + C_1C_3C_6R_2R_4R_
9.2236 X-INVALID-ORDER-2236 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1C_2C_3C_5R_1R_2R_4R_5s^3 + C_1R_2 + C_1R_4 + C_3R_4 + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5 + C_1C_4C_5R_2R_4R_5 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_1C_5R_4 +
9.2237 X-INVALID-ORDER-2237 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4
H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_2C_3C_5C_6R_1R_2R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_1R_2R_4 + C_1C_2C_5C_6R_2R_4R_5 + C_1C_3C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_2R_4R_5 + C_1C_4C_5C_6R_4R_5 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_5R_5R_5 + C_1C_5C_5C_6R_5R_5R_5 + C_1C_5C_5C_6R_5R_5R_5 + C_1C_5C_5C_6R_5R_5R_5 + C_1C_5C_5C_6R_5R
9.2238 X-INVALID-ORDER-2238 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_2C_3C_5C_6R_1R_2R_4R_5s^3 + C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_3C_5C_6R_2R_4R_5 
9.2239 X-INVALID-ORDER-2239 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_2R_4R_5R_6s^4 + C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_4R_5 + C_1C_2C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_2R_4R_5R_6 + C_1C_3C_5C_6R_2R_4R_5R_5 + C_1C_3C_5C_6R_5R_5R_5R_5C_5R_5R_5R_5R_5C_5C_5R_5R_5R_5R_5C_5C_5R_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5R_5R_5R_5C_5C_5R_5R_5C_5C_5R_
9.2240 X-INVALID-ORDER-2240 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                             H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_4C_6R_2R_4R_5 + C_1C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
```

**9.2231** X-INVALID-ORDER-2231  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

```
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_4R_5 + C_1C_3
9.2242 X-INVALID-ORDER-2242 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{C_1C_2C_3C_6R_1R_2R_4R_5R_6s^3 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + s^2\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_3C_6R_2R_4R_5R_6 
9.2243 X-INVALID-ORDER-2243 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
 H(s) = \frac{C_1C_3R_1R_2R_4s + C_3R_2R_4}{s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_5 + C_1C_6R_4R_5 + C_3C_6R_4R_5\right)}
9.2244 X-INVALID-ORDER-2244 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
 H(s) = \frac{C_1C_3C_6R_1R_2R_4R_6s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_6R_2R_4R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_2C_6R_2R_4R_5 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_1C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_4R_5 + C_1C_3C_6R_4R_5\right)}
9.2245 X-INVALID-ORDER-2245 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_4R_6s + C_3R_2R_4R_6s + C_3R_2R_4R_6s
9.2246 X-INVALID-ORDER-2246 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_4R_6 + C_1C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R
9.2247 X-INVALID-ORDER-2247 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
9.2248 X-INVALID-ORDER-2248 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4
H(s) = \frac{C_1C_3C_5R_1R_2R_4s + C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^3\left(C_1C_2C_3C_5C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_2R_3R_4 + C_1C_2C_3C_6R_2R_3R_4 + C_1C_3C_5C_6R_2R_3R_4 + C_1C_5C_5C_6R_2R_3R_4 + C_1C_5C_5C_6R_2R_3R_4 + C_1C_5C_5C_5C_5C_5C_5C_5C_5C_5C_
9.2249 X-INVALID-ORDER-2249 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_4 + c\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_4 + c\left(C_1C_3C_5C_6R_1R_2R_4 + c\left(C_1C_3C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_2R_3R_4 + c\left(C_1C_3C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_2R_3R_4 + c\left(C_1C_3C_5C_6R_2R_3R_4 + c\left(C_1C_3C_5C_5C_6R_2R_3R_4 + c\left(C_1C_3C_5C_5C_6R_2R_3R_4 + c\left(C_1C_3C_5C_5C_6R
9.2250 X-INVALID-ORDER-2250 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

**9.2241** X-INVALID-ORDER-2241  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_{1}R_{2} + C_{1}R_{4} + C_{3}R_{4} + s^{4}\left(C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5}R_{6} + C_{1}C_{2}C_{3}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}\right) + s^{3}\left(C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{6}R_{1}R_{2}R_{4}R_{6} + C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}R_{6} + C_{1}C_{2}C_{5}C_{6}R_{2}R_{4}R_{5}R_{6} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{4}R_{5}R_{6} + C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{2}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{1}R_{2}R_{2}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{1}R_{2$ 

```
9.2253 X-INVALID-ORDER-2253 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_4}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5R_6 - C_1C_3C_5C_6R_2R_3R_4R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_2C_3R_2R_3R_4R_5 + C_1C_2C_6R_2R_4R_5R_6 - C_1C_3C_5R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5 + C_1C_3C_5R_5R_5R
9.2254 X-INVALID-ORDER-2254 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                         H(s) = \frac{C_1C_3R_1R_2s + C_3R_2}{s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_3R_5\right) + s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C
9.2255 X-INVALID-ORDER-2255 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                         H(s) = \frac{C_1C_3C_6R_1R_2R_6s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_3C_4C_6R_2R_3R_5\right) + s^2\left(C_1C_2C_6R_2R_5 + C_1C_3C_6R_1R_5 - C_1C_3C_6R_2R_5 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_3
9.2256 X-INVALID-ORDER-2256 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_6s + C_3R_2R_6}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_5R_6 + C_1C_3C_4R_2R_3R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_2R_5 + C_1C_2C_3R_2R_3R_5 + C_1C_2C_3R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_3R_5 + C_1C_3C_6R_5 + C_1C_3
9.2257 X-INVALID-ORDER-2257 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_2C_3C_6R_1R_2R_6 + C_1C_3C_4C_6R_2R_3R_6 + C_1C_3C_5R_2R_3 + C_1C_2C_3R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_3R_3 + C_1C_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s
9.2258 X-INVALID-ORDER-2258 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_6s^2 + C_3C_5R_2R_6s}{C_1 + C_3 + s^3\left(C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_5R_2R_3R_5 + C_1C_3C_4R_2R_3 + C_1C_2C_3R_2R_3 + C_1C_2C_5R_2R_5 + C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_3 + C_1C_3C_5R_2R_5 + C_1C_3C_5R_3R_5 + C_1C_
9.2259 X-INVALID-ORDER-2259 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_1C_3C_5R_1R_2s + C_3C_5R_2
H(s) = \frac{C_1C_3C_5R_1R_2s + C_3C_5R_2}{C_1C_6 + C_3C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_2R_5 + C_1C_3C_5C_6R_2R_3R_5 + c_1C_3C_5C_6R_2R_3R_5 + c_1C_3C_5C_6R_2R_3R_5 + c_1C_3C_5C_6R_2R_3 + c_1C_3C_5C_6R_3R_3 + c_1C_3C_5C_6R_3R_3 + c_1C_3C_5C_6R_
9.2260 X-INVALID-ORDER-2260 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_1C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_2 + s(C_1C_3C_5R_1R_2 + C_3C_5C_6R_2R_6)
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_6s + C_3C_5C_6R_1R_2R_6s + C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_2R_3 + C_1C_3C_5C_5C_6R_2R_3 + C_1C_5C_5C_5C_6R_2R_3 + C_1C_5C_5C_5C_6R_2R_3 + C_1C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      436
```

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)}{s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_2R_3R_4R_5 - C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_4R_5 + C_1C$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5 + C_3C_6R_2R_4R_5 +$ 

**9.2251** X-INVALID-ORDER-2251  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

**9.2252** X-INVALID-ORDER-2252  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

```
H(s) = \frac{1}{C_1 + C_3 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_5 R_6 + C_1 C_3 C_4 C_5 R_2 R_3 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_5 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_3 C_4 C_6 R_2 R_3 R_6 + C_1 C_3 C_4 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_3 C_4 C_6 R_2 R_3 R_6 + C_1 C_3 C_4 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_3 R_5 + C_1 C_3 C_4 C_5 R_3 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_3 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 R_3 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_3 R_5 + C_1 C_2 C_3 C_5 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_3 R_5 + C_1 C_2 C_3 C_5 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_5 R_5 + C_1 C_2 C_3 C_5 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_4 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_5 R_5 R_5 + C_1 C_5 C_5 R_5 R
9.2262 X-INVALID-ORDER-2262 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_5s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_5R_2R_5\right)}{s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1C
9.2263 X-INVALID-ORDER-2263 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5C_6R_1R_2R_5R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_5R_1R_2R_5 + C_1C_3C_6R_1R_2R_6 + C_3C_5C_6R_2R_5R_6\right) + s\left(C_1C_3R_1R_2 + C_3C_5R_2R_5 + C_3C_6R_2R_6\right)}{s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_5 + C_1
9.2264 X-INVALID-ORDER-2264 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 +
9.2265 X-INVALID-ORDER-2265 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_1C_3C_4R_1R_2R_4R_6s^2 + C_3R_2R_6 + s(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6)
H(s) = \frac{C_1C_3C_4R_1R_2R_4R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_2C_3C_4R_1R_2R_4R_5 + C_1C_2C_3R_1R_2R_5 + C_1C_2C_3R_2R_3R_5 + C_1C_2C_4R_2R_4R_5 + C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_5 + C_1C_3C_4R_3R_3R_5 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_3R_5 + C_1C_3C_4R_3R_5 + 
9.2266 X-INVALID-ORDER-2266 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C_1C_3C_4R_1R_2R_4s^2 + C_3R_2 + s\left(C_1C_3R_1R_2 + C_3C_4R_2R_2R_3R_3\right)
                                     \frac{C_1C_3C_4R_1R_2R_4s^2 + C_3R_2 + s(C_1C_3R_1R_2 + C_3C_4R_2)}{s^4(C_1C_2C_3C_4C_6R_1R_2R_4 + C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_3R_5 + C_1C_
9.2267 X-INVALID-ORDER-2267 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_1C_3C_4C_6R_1R_2R_4R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_6R_2R_4R_6\right)
H(s) = \frac{C_1C_3C_4C_6R_1R_2R_4R_6s^3 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4 + C_1C_3C_6R_1R_2R_6 + C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_3C_4C_6R_1R_2R_4R_5 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R_4R_4R_5 + C_1C_3C_4C_6R_4R_4R_5 + C_1C_3C_4C_6R_4R_4R_5 + C_1C_3C_4C_6R_4R_4R_5 + C_1C_3C_4C_6R_4R_4R_5 
9.2268 X-INVALID-ORDER-2268 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-}{-C_1R_2 + C_1R_5 + C_3R_5 + s^4\left(C_1C_2C_3C_4C_6R_1R_2R_4R_5R_6 + C_1C_2C_3C_4C_6R_2R_3R_4R_5 + C_1C_2C_3C_4R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_5R_6 + C_1C_2C_3C_6R_2R_3R_5R_6 + C_1C_2C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_2C_3C_4R_2R_3R_4R_5 + C_1C_2C_3C_6R_2R_3R_5R_6 + C_1C_2C_3C_4C_6R_2R_4R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_2C_3C_4R_2R_3R_4R_5 + C_1C_2C_3C_4R_4R_5R_5 + C_1C_2C_3C_4R_5R_5 + C
9.2269 X-INVALID-ORDER-2269 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_2R_6s + s^2\left(C_1C_3C_5R_1R_2R_6 + C_3C_4C_5R_2R_4R_6\right)}{C_1 + C_3 + s^3\left(C_1C_2C_3C_4R_1R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_4R_4 + C_1C_3C_4R_4 + C_1C_3C_4R_4 
9.2270 X-INVALID-ORDER-2270 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C_1C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4\right)
```

**9.2261** X-INVALID-ORDER-2261  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

```
9.2271 X-INVALID-ORDER-2271 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

**9.2272** X-INVALID-ORDER-2272 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{C_1 + C_3 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4 R_6 - C_1 C_3 C_4 C_5 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_4 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_4 R_6 \right) + s^$ 

9.2273 X-INVALID-ORDER-2273 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{1}{C_1 + C_3 + s^4 \left( C_1 C_2 C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 R_1 R_2 R_4 + C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_3 R_4 + C_1 C_3 C_4 C_5 R_2 R_3 R_4 + C_1 C_3 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_3 R_4 + C_1 C_3 C_4 C_5 R_2 R_3 R_4 + C_1 C_3 C_4 C_5 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_2 R_3 R_4 + C_1 C_3 C_4 C_5 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 R_5 R_5 + C_1 C_3 C_4 C_5 R_5 R_5 + C_1 C_3 C_5 R_5 R_5 + C_1 C_3 C_5 R_5 R_5 + C_1 C_3 C_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5$ 

**9.2274** X-INVALID-ORDER-2274 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

**9.2275** X-INVALID-ORDER-2275 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{1}{C_1C_6 + C_3C_6 + s^4 \left( C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5 + C_1C_2C_3C_4C_5R_2R_3R_4R_5 \right) + s^3 \left( C_1C_2C_3C_4C_6R_1R_2R_4 + C_1C_2C_3C_4C_6R_1R_2R_5 + C_1C_2C_3C_5C_6R_2R_3R_5 + C_1C_2C_4C_5C_6R_2R_3R_5 + C_1C_2C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_3R_5 + C_1C_2C_3C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_3R_5 + C_1C_2C_3C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_3R_5 + C_1C_2C_3C_4C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_2R_3C_5C_5C_6R_2R_3R_4 + C_1C_2C_3C_4C_5C_5C_6R_2R_3C_5C_5C_5C_5C_5C_$ 

9.2276 X-INVALID-ORDER-2276 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{C_1 + C_3 + s^5 (C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_2 R_3 R_4$ 

9.2277 X-INVALID-ORDER-2277 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $C_{1}C_{3}C_{4}C_{5}R_{1}R_{2}R_{4}R_{5}R_{6}s^{3} + C_{3}R_{2}R_{6} + s^{2}\left(C_{1}C_{3}C_{4}R_{1}R_{2}R_{4}R_{6} + C_{1}C_{3}C_{5}R_{1}R_{2}R_{5}R_{6} + C_{3}C_{4}C_{5}R_{2}R_{4}R_{5}R_{6}\right) + c_{3}C_{4}C_{5}R_{2}R_{4}R_{5}R_{6}s^{3} + c_{3}R_{2}R_{6} + s^{2}\left(C_{1}C_{3}C_{4}R_{1}R_{2}R_{4}R_{6} + C_{1}C_{3}C_{5}R_{1}R_{2}R_{5}R_{6} + C_{3}C_{4}C_{5}R_{2}R_{4}R_{5}R_{6}\right) + c_{3}C_{4}C_{5}R_{2}R_{4}R_{5}R_{6}s^{3} + c_{3}R_{2}R_{6}s^{3} + c_{3}R_{2}R_{$  $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_2R_6 + s^2\left(C_1C_3C_4R_1R_2R_4R_6 + C_1C_3C_5R_1R_2R_5R_6 + C_3C_4C_5R_2R_4R_5\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^3\left(C_1C_2C_3C_4R_1R_2R_4R_5 + C_1C_3C_4R_2R_3R_4R_5 + C_1C_3C_4R_2R_3R_4R_5 + C_1C_3C_4R_2R_3R_4R_5 + C_1C_3C_4R_2R_3R_4R_5 + C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + C_1C_3C_4R$ 

**9.2278** X-INVALID-ORDER-2278 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

 $C_1C_3C_4C_5R_1R_2R_4R_5s^3 + C_3R_2 + s^2(C_1C_3C_4R_1R_2)$ 

 $\frac{C_1C_3C_4C_5R_1R_2R_4R_5s^5 + C_3R_2 + s^2\left(C_1C_3C_4R_1R_2R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 - C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 + C_1C_3C_4C_6$ 

9.2279 X-INVALID-ORDER-2279 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_2 + s^3\left(C_1C_3C_4C_5R_1R_2R_4R_5 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_5C_6R_1R_2R_5R_6 + C_3C_4C_5C_6R_2R_4R_5R_6\right) - s^4\left(C_1C_2C_3C_4C_6R_1R_2R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4 + C_1C_3C_4C_6R_2R_4R_5 + C_1C_3C_4C_6R$ 

9.2280 X-INVALID-ORDER-2280 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

```
9.2281 X-INVALID-ORDER-2281 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_1C_3R_1R_2R_4s + C_3R_2R_4
H(s) = \frac{C_1C_3R_1R_2R_4s + C_3R_2R_4}{s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_4R_5 + C_1C_3C_6R_2R_
9.2282 X-INVALID-ORDER-2282 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                        \frac{C_{1}C_{3}C_{6}R_{1}R_{2}R_{4}R_{6}s^{2}+C_{3}R_{2}R_{4}+s\left(C_{1}C_{3}R_{1}R_{2}R_{4}+C_{3}C_{6}R_{2}R_{4}R_{6}\right)}{s^{3}\left(C_{1}C_{2}C_{3}C_{6}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}F_{5}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}F_{5}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}F_{5}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}F_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}
9.2283 X-INVALID-ORDER-2283 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5R_6 + C_1C_2C_3C_6R_2R_3R_4R_5R_6\right) + s^2\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_2C_3R_2R_3R_4R_5 + C_1C_2C_6R_2R_4R_5R_6 + C_1C_3C_4R_2R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_4R_5R_5 + C_1C_3C_4R_4R_5 + C_1C_3C_4R_5R_5 + 
9.2284 X-INVALID-ORDER-2284 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                       \frac{c_1c_3c_5n_1n_2n_4n_6s_5}{C_1R_2+C_1R_4+C_3R_4+S^3\left(C_1C_2C_3C_6R_1R_2R_4R_6+C_1C_3C_4C_6R_2R_3R_4R_6-C_1C_3C_5C_6R_2R_3R_4R_6\right)+s^2\left(C_1C_2C_3R_1R_2R_4+C_1C_2C_3R_2R_3R_4+C_1C_3C_4R_2R_3R_4-C_1C_3C_5R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_6R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_2R_3R_4+C_1C_3C_4R_3R_4+C_1C_3C_4R_3R_4+C_1C_3C_4R_3R_4+C_1C_3C_4R_3R_4+C_1C_3C_4R_3R_4+C_1C_3C_4R_3R_4+C_1C_3C
9.2285 X-INVALID-ORDER-2285 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_6s^2 + C_3C_5R_2R_4R_6s}{C_1R_2 + C_1R_4 + C_3R_4 + s^3\left(C_1C_2C_3C_5R_1R_2R_4R_5 + C_1C_3C_5R_2R_3R_4R_5 + C_1C_3C_5R_2R_3R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_3R_4 + C_1C_3C_5R_5R_
9.2286 X-INVALID-ORDER-2286 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

9.2287 X-INVALID-ORDER-2287 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_6 s^2 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_2 R_3 R_4 + C_1 C_3 C_5 C_6 R_2 R_3 R_4 + C_1 C_3 C_5$ 

9.2288 X-INVALID-ORDER-2288  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\overline{C_{1}R_{2} + C_{1}R_{4} + C_{3}R_{4} + s^{4}\left(C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5}R_{6} + C_{1}C_{2}C_{3}C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6} + C_{1}C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5}$ 

**9.2289** X-INVALID-ORDER-2289  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5s^2 + C_3R_2R_4 + s\left(C_1C_3R_1R_2R_4 + C_3C_5R_2R_4R_5\right)}{s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C$ 

9.2290 X-INVALID-ORDER-2290  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $\frac{C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5}R_{6}s^{3}+C_{3}R_{2}R_{4}+s^{2}\left(C_{1}C_{3}C_{5}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{2}R_{4}R_$ 

```
9.2291 X-INVALID-ORDER-2291 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
9.2292 X-INVALID-ORDER-2292 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)
                               H(s) = \frac{C_1C_3R_1R_2R_3R_4R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6\right)}{C_1C_2C_3R_1R_2R_3R_4R_5s^3 + R_4R_5 + s^2\left(C_1C_2R_1R_2R_4R_5 + C_1C_2R_2R_3R_4R_5 + C_1C_3R_1R_3R_4R_5 + C_2C_3R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5 + C_3R_3R_4R_5\right)}
9.2293 X-INVALID-ORDER-2293 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3R_1R_2R_3R_4s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4\right)}{C_1C_2C_3C_6R_1R_2R_3R_4R_5s^4 + C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5
9.2294 X-INVALID-ORDER-2294 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_6R_1R_2R_3R_4R_6s^3 + R_2R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_6R_1R_2R_4R_6 + C_3C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4 + C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_3R_4R_5s^4 + C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_3R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_3R_4 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_2R_4R_5 + C_1C_6R_2R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 - C_1C_6R_4R_5\right) + s^2\left(C_1C_6R_4R_5\right) + s^2\left(C_1C_6R_4R_5\right) + s^2\left(C_1C_6R_4R_5\right) + s^2\left(C_1C_6R_4R_5\right) + s^2\left(C_1C_6R_4R_5\right) + s^2\left(C_1C_6R_4R_5\right) + s^2\left(C
9.2295 X-INVALID-ORDER-2295 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3R_1R_2R_3R_4R_6s^2 + C_1C_3C_6R_1R_2R_3R_4R_5R_6s^4 + R_4R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_3R_4R_5R_5 + C_1C_3C_6R_3R_4R_5 + C_1C_3C_6R_3R_3R_4R_5 + C_1C_3C_6R_3R_3R_4R_5 + C_1C_3C_6R_3R_3R_4R_5 + C_1C_3C_6R_3R_3R_4R_5 + C_1C_3C_6R_3R_3R_4R_5 + C_1C_3C_6R_3R_3R_4R_
9.2296 X-INVALID-ORDER-2296 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_6\right)}{C_1C_2C_3R_1R_2R_3R_4s^3 + R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_3R_1R_3R_4 + C_1C_3R_2R_3R_4 + C_2C_3R_2R_3R_4 + C_2C_3R_2R_3R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4\right)}
9.2297 X-INVALID-ORDER-2297 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                       H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4\right)}{C_1C_2C_3C_6R_1R_2R_3R_4s^3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_
9.2298 X-INVALID-ORDER-2298 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                       H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_2R_3R_4R_6\right) + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_3R_4s^3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_5C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_2R_4 + C_1C_6R_2R_4\right)}
9.2299 X-INVALID-ORDER-2299 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6s + c_1C_3C_6R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_6 + C_1C_3C_6R_2R_3R_4R_6 + C_1C_3C_6R_2
9.2300 X-INVALID-ORDER-2300 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
```

 $\frac{C_1C_3C_5R_1R_2R_3R_4R_6s + C_5R_2R_4R_6s + C_5R_2R_4R_6s$ 

 $C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_4R_6s^3)$ 

```
9.2301 X-INVALID-ORDER-2301 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_1C_3C_5R_1R_2R_3R_4s^2 + C_5R_2R_3
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4s^2 + C_5R_2R_3R_4s^2 + C_5R_2R_3R_4s^2 + C_5R_2R_3R_4s^2 + C_5R_2R_3R_4R_5 + C_1C_2C_3C_6R_1R_2R_3R_4s^2 + C_1C_2C_5C_6R_2R_3R_4R_5 + C_1C_3C_5C_6R_2R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_4 + C_1C_3C_5C_6R_3R_3R_4 + C_1C_3C_5C_6R_3R_3R_4 + C_1C_3C_5C_6R_3R_3R_4 + C
9.2302 X-INVALID-ORDER-2302 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $C_1C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_2R_4 + s^2(C_1C_3C_5R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_5C_6R_1R_5C_6R_5$  $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_2R_4 + s^2\left(C_1C_3C_5R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_3R_4R_5 + C_1C_3C_5C_6R_1R_3R_4R_5 + C_1C_3C_5C_6R_1R_3R_4 +$ 

**9.2303** X-INVALID-ORDER-2303  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_4 + s^4\left(C_1C_2C_3C_5R_1R_2R_3R_4R_5 + C_1C_2C_3C_6R_1R_2R_3R_4R_5 + C_1C_2C_5C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_5C_6R_1R_3R_4R_5R_6 + C_1C_3C_5C_6R_2R_3R_4R_5R_6 + C_1C_3C_5C_6R_3R_3R_4R_5R_5 + C_1C_3C_5C_6R_3R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_5R_5 + C_1C_3C_5C_6R_3R_5R_5 + C_1C_3C_5C_5R_5R_5R_5R_5 + C_1C_5C_5C_5R_5R_$ 

**9.2304** X-INVALID-ORDER-2304  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $\frac{C_{1}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}s^{3}+R_{2}R_{4}R_{6}+s^{2}\left(C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{$ 

**9.2305** X-INVALID-ORDER-2305  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_5s^3 + R_2R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_5R_1R_2R_4R_5 + C_3C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4 + C_5R_2R_4R_5\right)}{C_1C_2C_3C_6R_1R_2R_3R_4R_5s^4 + C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_5C_6R_2R_3R_4R_5\right) + s^2\left(C_1C_6R_1R_4R_5 + C_1C_6R_2R_3R_4 + C_1C_6R_3R_4 + C_1C_6R_3R_4$ 

**9.2306** X-INVALID-ORDER-2306  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_2R_4 + s^3\left(C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_1C_5C_6R_1R_2R_3R_4R_5 + C_1C_5C_6R_1R_2R_4R_5 + C_1C_5C_6R_1R_2R_4R_5 + C_1C_5R_1R_2R_4R_5 + C_1C_5R_2R_3R_4R_5 + C_1C_5R_$ 

9.2307 X-INVALID-ORDER-2307  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_1C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_2R_4R_6 + s^2$  (C

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_2R_4R_6 + s^2\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_3C_6R_2R_3R_4R_5R_6 + C_1C_3C_6R_3R_4R_5R_5 + C_1C_3C_6R_3R_4R_5R_5 + C_1C_3C_6R_3R_5R_5 + C_1C_3C_6R_5R_5R_5 + C_1C_3C_6R_5R_5R_5 + C_1C_3C_6R_5R_5R_5 + C_1C_3C_6R_5R_5R_5 + C_1C_3C_6R_5R_5R_5 +$ 

**9.2308** X-INVALID-ORDER-2308  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_1C_3R_1R_2R_3R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_3R_2R_3R_6\right)}{C_1C_2C_3R_1R_2R_3R_5s^3 + R_5 + s^2\left(C_1C_2R_1R_2R_5 + C_1C_2R_2R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_3R_2R_3R_5 + C_1C_4R_2R_3R_5 + C_2C_3R_2R_3R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5 + C_3R_3R_5\right)}$ 

**9.2309** X-INVALID-ORDER-2309  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3R_1R_2R_3s^2 + R_2 + s\left(C_1R_1R_2 + C_3R_2R_3\right)}{C_1C_2C_3C_6R_1R_2R_3R_5s^4 + C_6R_5s + s^3\left(C_1C_2C_6R_1R_2R_5 + C_1C_2C_6R_2R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 + C_1C_6R_2R_3 + C_1C_6R_2R_3 + C_1C_6R_2R_5 +$ 

**9.2310** X-INVALID-ORDER-2310  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_6R_1R_2R_3R_6s^3 + R_2 + s^2\left(C_1C_3R_1R_2R_3 + C_1C_6R_1R_2R_6 + C_3C_6R_2R_3R_6\right) + s\left(C_1R_1R_2 + C_3R_2R_3 + C_6R_2R_6\right)}{C_1C_2C_3C_6R_1R_2R_3R_5s^4 + C_6R_5s + s^3\left(C_1C_2C_6R_1R_2R_5 + C_1C_2C_6R_2R_3R_5 + C_1C_3C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 + C_1C_4C_6R_2R_3R_5 + C_1C_6R_2R_3 + C_1C_6R_3R_3 + C_1C_$ 

```
9.2311 X-INVALID-ORDER-2311 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9.2312 X-INVALID-ORDER-2312 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                    H(s) = \frac{C_1C_3C_5R_1R_2R_3R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_3C_5R_2R_3R_6\right)}{C_1C_2C_3R_1R_2R_3s^3 + s^2\left(C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_3R_1R_3 + C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3 + C_2C_3R_2R_3\right) + s\left(C_1R_1 + C_1R_2 + C_1R_3 + C_2R_2 + C_3R_3\right) + 1}
9.2313 X-INVALID-ORDER-2313 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                           H(s) = \frac{C_1C_3C_5R_1R_2R_3s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_3C_5R_2R_3\right)}{C_1C_2C_3C_6R_1R_2R_3s^3 + C_6 + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3 + C_2C_3C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2 + C_3C_6R_3\right)}
9.2314 X-INVALID-ORDER-2314 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                           H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_6s^3 + C_5R_2 + s^2\left(C_1C_3C_5R_1R_2R_3 + C_1C_5C_6R_1R_2R_6 + C_3C_5C_6R_2R_3R_6\right) + s\left(C_1C_5R_1R_2 + C_3C_5R_2R_3 + C_5C_6R_2R_6\right)}{C_1C_2C_3C_6R_1R_2R_3s^3 + C_6 + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3 + C_2C_3C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2 + C_3C_6R_3\right)}
9.2315 X-INVALID-ORDER-2315 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_3C_5R_2R_3R_6\right)}{C_1C_2C_3C_6R_1R_2R_3R_6s^4 + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_6R_1R_2R_6 + C_1C_3C_6R_2R_3R_6 + C_1C_3C
9.2316 X-INVALID-ORDER-2316 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_6s^3 + C_5R_2R_6s + s^2\left(C_1C_5R_1R_2R_6 + C_3C_5R_2R_3R_6\right)}{C_1C_2C_3C_5R_1R_2R_3R_5s^4 + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_5R_1R_2R_5 + C_1C_3C_5R_1R_3R_5 + C_1C_3C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5 + C_1C_5R_2R_3R_5 + C_1C_4C_5R_2R_3R_5 + C_1C_4C_5R
9.2317 X-INVALID-ORDER-2317 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_3C_5R_2R_3\right)}{C_1C_2C_3C_5C_6R_1R_2R_3R_5 + C_1C_2C_5C_6R_1R_2R_3 + C_1C_2C_5C_6R_1R_2R_3 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C_5C_6R_3R_5 + C_1C_3C_5C_6R_3R_5 + C_1C_3C_5C_6R_3R_5 + C_1C_3C_5C_6R_3R_5 + C_1C_3C_5C_5C_6R_3R_5 + C_1C_5C_5C_6R_3R_5 + C_1C_5C_5C_6R_3R_5 + C_1C_5C_5C_6R_3R_5 + C_1C_5C_5C_6R_3
9.2318 X-INVALID-ORDER-2318 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_6s^3 + C_5R_2 + s^2\left(C_1C_3C_5R_1R_2R_3 + C_1C_5C_6R_1R_2R_6 + C_3C_5C_6R_2R_3R_6\right) + s^2\left(C_1C_3C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_3C_5C_6R_1R_3R_5 + C_1C_3C_5C_6R_2R_3R_5 + C_1C_3C$ 

**9.2319** X-INVALID-ORDER-2319  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

9.2320 X-INVALID-ORDER-2320  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_5R_6s^3 + R_2R_6 + s^2\left(C_1C_3R_1R_2R_3R_6 + C_1C_5R_1R_2R_5R_6 + C_3C_5R_2R_3R_5R_6\right) + s\left(C_1R_1R_2R_6 + C_3R_2R_3R_6 + C_5R_2R_5R_6\right)}{C_1C_2C_3R_1R_2R_3R_5s^3 + R_5 + s^2\left(C_1C_2R_1R_2R_5 + C_1C_2R_2R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5 + C_2C_3R_2R_3R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5 + C_3R_3R_5\right)}$ 

```
9.2321 X-INVALID-ORDER-2321 Z(s) = \left(R_1 + \frac{1}{C_1s}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_2R_2s+1}, \frac{R_5}{C_2R_2s+1}, \frac{R_5}{C_2s}, \frac{R_5}{C_2R_2s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_2s+1}, \frac{1}{C_4s}\right)
= \frac{C_1C_3C_5R_1R_2R_3R_5s^4 + C_2C_5R_1R_2R_3c_5 + C_3C_5R_1R_2R_3c_5 + C_3C_5R_2R_3R_5 + C_3C_5R_2R_3c_5 + C_3C_5R_2R_3c_5
```

9.2324 X-INVALID-ORDER-2324  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $C(s) = \frac{C_1C_3C_4R_1R_2R_3R_4R_6s^3 + R_2R_6 + s^2\left(C_1C_3R_1R_2R_3R_6 + C_1C_4R_1R_2R_4R_6 + C_3C_4R_2R_3R_4R_6\right) + s\left(C_1C_2C_3C_4R_1R_2R_3R_4R_5s^4 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_5 + C_1C_2C_4R_1R_2R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 + C_1C_3C_4R_2R_3R_4R_5\right) + s^2\left(C_1C_2R_1R_2R_5 + C_1C_2R_2R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_3R_2R_3R_5 + C_1C_4R_1R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 + C_1C_3$ 

**9.2325** X-INVALID-ORDER-2325  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4R_1R_2R_3R_4s^3 + R_2 + s^2\left(C_1C_3R_1R_2R_3 + C_1C_2C_4C_6R_1R_2R_3R_4s^3 + R_2 + s^2\left(C_1C_3R_1R_2R_3 + C_1C_2C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_3R_3R_4R_5 + C_1C_3C_4C_6R_3R_3R_5 + C_1C_3C_4C_6R_3R_3R_5 + C_1C_3C_4C_6R_3R_3R_5 + C_1C_3C_4C_6R_3R_3R_5 + C_1C_3C_4C_6R_3R_3R_5 + C_1C_3C_4C_6R_3$ 

**9.2326** X-INVALID-ORDER-2326  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_6R_1R_2R_3R_4R_6s^4 + R_2 + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_6 + C_1C_4C_6R_1R_2R_4R_6 + C_3C_4C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5s^5 + C_6R_5s + s^4\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_2C_4C_6R_1R_2R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5\right) + s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5\right) + s^3\left(C_1C_3C_4R_3R_4R_5 + C_1C_3C_4C_6R_3R_3R_4R_5\right) + s^3\left(C_1C_3C_4R_3R_4R_5 + C_1C_3C_4C_6R_3R_3R_4R_5\right) + s^3\left(C_1C_3C_4R_3R_4R_5 + C_1C_3C_4C_4R_3R_4R_5\right) + s^3\left(C_1C_3C_4R_3R_4R_5 + C_1C_3C_4C_4R_3R_4R_5\right) + s^3\left(C_1C_3C_4R_3R_4R_5 + C_1C_3C_4C_4R_4R_5\right) + s^3\left(C_1C_$ 

**9.2327** X-INVALID-ORDER-2327  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6s^5 + R_5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4R_5 + C_1C_2C_4C_6R_1R_2R_4R_5R_6 + C_1C_2C_4C_6R_1R_3R_4R_5R_6 + C_1C_3C_4C_6R_1R_3R_4R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_3R_4R_5R_6 + C_1C_3C_4C_6R_3R_5R_5R_6 + C_1C_3C_4C_6R_5R_5R_5R_6 + C_1C_3C_4C_6R_5R_5R_5R_5R_5R_5R_5R_5R_5R_5R_5R_5R_$ 

**9.2328** X-INVALID-ORDER-2328  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4R_6s^4 + C_5R_2R_6s + s^3\left(C_1C_3C_5R_1R_2R_3R_6 + C_1C_4C_5R_1R_2R_4R_6 + C_3C_4C_5R_2R_3R_4R_6\right) + s^2\left(C_1C_5R_1R_2R_6 + C_3C_5R_2R_3R_6\right)}{C_1C_2C_3C_4R_1R_2R_3R_4s^4 + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_4R_1R_2R_4 + C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_3R_4 + C_1C_3C_4R_3R_3R_4 + C_1C_3C_4R_3R_4 + C_1C_3C_4R_3R_4 + C_1C_3C_4R_3R_4 + C_1C_3C_4R_3R_4 +$ 

9.2329 X-INVALID-ORDER-2329  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4s^3 + C_5R_2 + s^2\left(C_1C_3C_5R_1R_2R_3 + C_1C_4C_5R_1R_2R_4 + C_3C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_3C_3C_4C_6R_1R_2R_3R_4 + C_4C_5C_6R_2R_3R_4 + C_4C_5C_6R_4R_3R_4 + C_4C_5C_6R_4R_3R_4 + C_4C_5C_6R_4R_3R_4 + C_4C_5C_6R_4R_4R_4 + C_4C_5C_6R_4R_4R_4 + C_4C_5C_6R_4R_4R_4 + C_4C_5C_6R_4R_4R_4 + C$ 

**9.2330** X-INVALID-ORDER-2330  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_2 + s^3\left(C_1C_3C_4C_5R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_6 + C_1C_4C_5C_6R_1R_2R_4R_6 + C_3C_4C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_3C_5R_1R_2R_3 + C_1C_4C_5R_1R_2R_4 + C_1C_4C_5R_1R_2R_4 + C_1C_4C_5C_6R_2R_3R_4 + C_1C_4C$ 

- **9.2331** X-INVALID-ORDER-2331  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_6s^5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_3R_6 + C_1C_2C_4C_6R_2R_3R_4R_6 + C_1C_3C_4C_6R_2R_3R_4R_6 + C_1C_3C_4C_6R_3R_4R_6 + C_1C_3C_4C_6R_$
- **9.2332** X-INVALID-ORDER-2332  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$
- 9.2333 X-INVALID-ORDER-2333  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 + C_6 + s^4\left(C_1C_2C_3C_4C_6R_1R_2R_3R_4 + C_1C_2C_4C_5C_6R_1R_2R_3R_4 + C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_5C_6R_1R_3R_4R_5 + C_1C_3C_4C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_5C_6R_1R_5C_5C_5C_6R_1R_5C_5C_5C_5C_6R_1R_5C_5C_5C_5C_5C_5C_5C_$
- **9.2334** X-INVALID-ORDER-2334  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 + C_6 + s^4\left(C_1C_2C_3C_4C_6R_1R_2R_3R_4 + C_1C_2C_3C_5C_6R_1R_2R_3R_5 + C_1C_2C_4C_5C_6R_1R_2R_4R_5 + C_1C_3C_4C_5C_6R_1R_3R_4R_5 + C_1C_3C_4C_5C_6R_2R_3R_4R_5 + C_1C_3C_4C_5C_6R_3R_3R_4R_5 + C_1C_3C_4C_5C_6R_3R_3R_4C_5C_6R_3R_3R_5 + C_1C_3C_4C_5C_6R_3R_3R_4C_5C_5C_6R_3R_3R_5 + C_1C_3C_5C_5C_6R_3R_5C_5C_6R_3R_5C_5C_6R_5C_5C_5C_5C_5C_5C_5C_5C_$
- 9.2335 X-INVALID-ORDER-2335  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- **9.2336** X-INVALID-ORDER-2336  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$
- $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4R_5R_6s^4 + R_2R_6 + s^3\left(C_1C_3C_4R_1R_2R_3R_4R_6 + C_1C_3C_5R_1R_2R_3R_5R_6 + C_1C_4C_5R_1R_2R_4R_5R_6 + C_3C_4C_5R_2R_3R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_3R_6 + C_1C_4C_5R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 + C_1C_3C_4R_2R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + C_1C_3C_4R_3R_4R_5 + C_1C_3C_4R$
- 9.2337 X-INVALID-ORDER-2337  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_1C_3C_4C_5R_1R_2R_3R_4R_5s^4 + R_2 + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_5R_1R_2R_3R_5 + C_1C_4C_5R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_2R_3R_4R_5 + C_1C_3C_4C_4C_4R_4R_5R_5C_4C_4C_4R_4R_5 + C_1C_3C_4C_4C_4R_4R_5C_4C_4C_4R_4R_5 + C_1C_3C_4C_4C_4R_4R_5 + C_1C_$
- 9.2338 X-INVALID-ORDER-2338  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_1C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_2 + s^4\left(C_1C_3C_4C_5R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_6 + C_1C_4C_5C_6R_1R_2R_3R_4R_5 + C_1C_4C_5C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_$
- 9.2339 X-INVALID-ORDER-2339  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6s^5 + R_5 + s^4(C_1C_2C_3C_4R_1R_2R_3R_4R_5 + C_1C_2C_4C_6R_1R_2R_4R_5R_6 + C_1C_2C_4C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_1R_3R_4R_5R_6 + C_1C_3C_4C_6R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_3R_3R_4R_5R_6 + C_1C_3C_4C_6R_3R_3R_4R_5 + C_1C_3C_4C_6R_3R_3R_4R_5 + C_1C_3C_4C_6R_3R_3R_4R_5 + C_1C_3C_4C_6R_3R_3R_5R_6 + C_1C_3C_4C_6R_3R_3R_4R_5 + C_1C_3C_4C_6R_3R_3$
- **9.2340** X-INVALID-ORDER-2340  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$
- $H(s) = \frac{C_1C_3R_1R_2R_3R_4R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6\right)}{C_1C_2C_3R_1R_2R_3R_4R_5s^3 + R_4R_5 + s^2\left(C_1C_2R_1R_2R_4R_5 + C_1C_3R_1R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_3R_3R_4R$

```
9.2341 X-INVALID-ORDER-2341 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3R_1R_2R_3R_4s^2 + R_2R_4 + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4\right)}{C_1C_2C_3C_6R_1R_2R_3R_4R_5s^4 + C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 + C_1C_4C_6R_2R_3R_4R_5 + C_1C_6R_2R_3R_4R_5 + C_1C_6R_2R_3
9.2342 X-INVALID-ORDER-2342 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_6R_1R_2R_3R_4R_6s^3 + R_2R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_6R_1R_2R_4R_6 + C_3C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4 + C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_3R_4R_5s^4 + C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_
9.2343 X-INVALID-ORDER-2343 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
9.2344 X-INVALID-ORDER-2344 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)
                                                                               H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2\left(C_1C_5R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_6\right)}{C_1C_2C_3R_1R_2R_3R_4s^3 + R_4 + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2R_2R_3R_4 + C_1C_3R_2R_3R_4 + C_1C_4R_2R_3R_4 - C_1C_5R_2R_3R_4 + C_2C_3R_2R_3R_4\right) + s\left(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4\right)}
9.2345 X-INVALID-ORDER-2345 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4\right)}{C_1C_2C_3C_6R_1R_2R_3R_4s^3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C
9.2346 X-INVALID-ORDER-2346 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                      \frac{C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{6}s^{3}+C_{5}R_{2}R_{4}+s^{2}\left(C_{1}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2
9.2347 X-INVALID-ORDER-2347 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2}{C_1C_2C_3C_6R_1R_2R_3R_4R_6s^4 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_4R_6 + C_1C_3C_6R_2R_3R_4R_6 + C_1C_4C_6R_2R_3R_4R_6 + C_1C_5C_6R_2R_3R_4R_6 + C_1C_5C_6R_2R_5R_5C_5C_5C_6R_5R_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_
9.2348 X-INVALID-ORDER-2348 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_1C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_2R_4R_6s + s^2(C_1C_5R_1R_5)
                                      \frac{C_{1}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{6}s^{3}+C_{5}R_{2}R_{4}R_{6}s+s^{2}\left(C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}s^{4}+R_{4}+s^{3}\left(C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{5}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{5}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{5}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}R_{5}R_{5}R_{5}R_{5}R_{5}+C_{1}C_{5}R_{5}R_{5}R_{5}R_{5}R_{5}+C_{1}C_{5}R_{5}R_{5}R_{5}R_{5}
9.2349 X-INVALID-ORDER-2349 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_1C_3C_5}{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5 + C_1C_3C_5C_6R_2R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_
```

 $\frac{C_1C_3C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_2R_4 + s^4(C_1C_3C_5R_1R_2R_3R_4R_6s^4 + C_5R_2R_4 + s^4(C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_3C_5C_6R_1R_2R_3R_4R_5 + C_1C_3C_5C_6R_1R_3R_4R_5 + C_1C_3C_5C_6R_2R_3R_4R_5 +$ 

 $C_1C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_2R_4 + s^2(C_1C_3C_5R_5)$ 

**9.2350** X-INVALID-ORDER-2350  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

```
9.2351 X-INVALID-ORDER-2351 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_4 + s^4\left(C_1C_2C_3C_5R_1R_2R_3R_4R_5 + C_1C_2C_5C_6R_1R_2R_4R_5R_6 + C_1C_3C_5C_6R_1R_3R_4R_5R_6 + C_1C_3C_5C_6R_2R_3R_4R_5R_6 + C_1C_3C_5C_6R_2R_3R_4R_5R_5 + C_1C_3C_5C_6R_2R_3R_4R_5R_5 + C_1C_3C_5C_6R_2R_3R_4R_5R_5 + C_1C_3C_5C_6R_3R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_4R_5 + C_1C_3C_5C_6R_3R_3R_5R_5 + C_1C_3C_5C_6R_3R_3R_5R_5 + C_1C_3C_5C_6R_3R_5R_5 + C_1C_3C_5C_6R_5R_5R_5 + C_1C_5C_5C_6R_5R_5R_5 + C_$ 

**9.2352** X-INVALID-ORDER-2352  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $\frac{C_{1}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}s^{3}+R_{2}R_{4}R_{6}+s^{2}\left(C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}R_{1}R_{2}R_{4}R_{5}R_{6}\right)+s\left(C_{1}R_{1}R_{2}R_{4}R_{6}+C_{3}R_{2}R_{3}R_{4}R_{6}+C_{5}R_{2}R_{4}R_{5}R_{6}\right)}{C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}+c_{1}C_{2}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{3}R_{4}R_{5}+C_{1$ 

**9.2353** X-INVALID-ORDER-2353  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4R_5s^3 + R_2R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_5R_1R_2R_4R_5 + C_3C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_2R_4 + C_3R_2R_3R_4 + C_5R_2R_4R_5\right)}{C_1C_2C_3C_6R_1R_2R_3R_4R_5s^4 + C_6R_4R_5s + s^3\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_3C_6R_2R_3R_4R_5 + C_1C_5C_6R_2R_3R_4R_5 + C_1C_5C_6R_2R_3R_4 +$ 

**9.2354** X-INVALID-ORDER-2354  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_2R_4 + s^3\left(C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_1R_2R_4R_5R_6 + C_3C_5C_6R_2R_3R_4R_5 + C_1C_5R_1R_2R_4R_5 + C_1C_6R_1R_2R_4R_6 + C_3C_5R_2R_3R_4R_5 + C_1C_6R_1R_2R_4R_5 + C_1C_5C_6R_2R_3R_4R_5 + C_1C_5C_6R_2R_3R_4R_$ 

**9.2355** X-INVALID-ORDER-2355  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1 C_3 C_5 R_1 R_2 R_3 R_4 R_5 R_6}{C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_6 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_6 R_$ 

**9.2356** X-INVALID-ORDER-2356  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{R_1 R_2 R_4 R_6}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + s \left(-C_1 R_1 R_2 R_3 R_4 + C_1 R_1 R_2 R_3 R_5 + C_1 R_1 R_2 R_4 R_5 + C_1 R_1 R_3 R_4 R_5\right)}$$

**9.2357** X-INVALID-ORDER-2357  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{R_1 R_2 R_4}{s^2 \left( -C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_4 R_5 + C_1 C_6 R_1 R_3 R_4 R_5 \right) + s \left( C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5 \right)}$$

**9.2358** X-INVALID-ORDER-2358  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_6R_1R_2R_4R_6s + R_1R_2R_4}{s^2\left(-C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_4R_5 + C_1C_6R_1R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$$

**9.2359** X-INVALID-ORDER-2359  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{-C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_6 s^3 + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(-C_1 C_5 R_1 R_2 R_3 R_6 + C_1 C_6 R_1 R_2 R_4 R_6 + C_1 C_6 R_1 R_2 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 - C_5 R_2 R_3 R_4 + C_6 R_1 R_4 R_6 + C_6 R_2 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_6 R_1 R_4 R_6 + C_6 R_2 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_6 R_1 R_4 R_6 + C_6 R_2 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_3 R_4 + C_1 R_4 R_6 + C_6 R_2 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_4 R_6 + C_6 R_4 R_4 R_6 + C_6 R_4 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_4 R_6 + C_6 R_4 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_4 + C_1 R_4 R_6 + C_6 R_4 R_4 R_6\right) + s \left(C_1 R_4 R_4 R_6 + C_6 R_4 R_4 R_6\right) + s \left(C_1 R_4 R_4 R_6 + C_6 R_4 R_4 R_6\right) + s \left(C_1 R_4 R_4 R_6 + C_6 R_4 R_4 R_6\right) + s \left(C_1 R_4 R_4 R_6 + C_6 R_4 R_4 R_6\right) + s \left(C_1 R_4 R_4 R_6 R_4 R_6\right) + s \left(C_1 R_4 R_4 R_6 R_4 R_6\right) + s \left(C_1 R_4 R_4 R_6 R_4 R_6\right) + s \left(C_1 R_4 R_6 R_4 R_6\right) + s \left(C_1 R_4 R_6 R_4 R_6\right) + s \left(C_1 R_4 R_6 R_4 R_6\right) + s \left(C_1 R_4 R_6 R_6 R_6\right) + s \left(C_1 R_4 R_6 R_6\right) + s \left(C_1 R_4 R_6 R_6 R_6\right) + s \left(C_1 R_4 R_6\right) + s \left(C_1 R_4$ 

**9.2360** X-INVALID-ORDER-2360  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{R_{1}R_{4} + R_{2}R_{3} + R_{2}R_{4} + R_{3}R_{4} + s^{3}\left(-C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{6} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}R_{6} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}R_{6} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}R_{1}R_{2}R_{3}R_{5} +$ 

**9.2361** X-INVALID-ORDER-2361  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_5 R_1 R_2 R_4 R_5 s + R_1 R_2 R_4}{-C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_4 R_5 + C_1 C_6 R_1 R_3 R_4 R_5 - C_5 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$ **9.2362** X-INVALID-ORDER-2362  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3, R_4, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$  $H(s) = \frac{C_5C_6R_1R_2R_4R_5R_6s^2 + R_1R_2R_4 + s\left(C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{-C_1C_5C_6R_1R_2R_3R_4R_5s^3 + s^2\left(-C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_4R_5 + C_1C_6R_1R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$ **9.2363** X-INVALID-ORDER-2363  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $C_5R_1R_2R_4R_5R_6s + R_1R_2R_4R_6$  $H(s) = \frac{C_5 R_1 R_2 R_4 R_5 R_6 s + R_1 R_2 R_4 R_6}{-C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 R_6 s^3 + R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 - C_1 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_1 C_6 R_1 R_3 R_4 R_5 R_6 - C_5 C_6 R_2 R_3 R_4 R_5 R_6) + s \left(-C_1 R_1 R_2 R_3 R_4 R_5 - C_1 C_6 R_1 R_2 R_3 R_4 R_5 - C_1 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_1 C_6 R_1 R_2 R_3 R_4 R_5 R_6 - C_5 C_6 R_2 R_3 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_2 R_3 R_4 R_5 - C_1 C_6 R_1 R_2 R_3 R_4 R_5 - C_1 C_6 R_1 R_2 R_3 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_2 R_3 R_4 R_5 - C_1 C_6 R_1 R_2 R_3 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_2 R_3 R_4 R_5 - C_1 C_6 R_1 R_2 R_3 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_2 R_3 R_5 R_6\right) + s \left(-C_1 R_1 R_2 R_5 R_6\right) + s \left$ **9.2364** X-INVALID-ORDER-2364  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{R_1 R_2}{C_1 C_4 C_6 R_1 R_2 R_3 R_5 s^3 + s^2 \left(-C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_5 + C_1 C_6 R_1 R_3 R_5 + C_4 C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5\right)}$ **9.2365** X-INVALID-ORDER-2365  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_6 R_1 R_2 R_6 s + R_1 R_2}{C_1 C_4 C_6 R_1 R_2 R_3 R_5 s^3 + s^2 \left(-C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_5 + C_1 C_6 R_1 R_3 R_5 + C_4 C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5\right)}$ **9.2366** X-INVALID-ORDER-2366  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{R_1 R_2 R_6}{C_1 C_4 C_6 R_1 R_2 R_3 R_5 R_6 s^3 + R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^2 \left(C_1 C_4 R_1 R_2 R_3 R_6 + C_1 C_6 R_1 R_2 R_3 R_6 + C_1 C_6 R_1 R_2 R_3 R_5 + C_1 R_1 R_2 R_3 + C_1 R_$ **9.2367** X-INVALID-ORDER-2367  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$  $H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s^3 \left( C_1 C_4 C_6 R_1 R_2 R_3 R_6 - C_1 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^2 \left( C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_6 + C_1 C_6 R_1 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3 + C_6 R_1 R_6 + C_6 R_2 R_6 + C_6 R_3 R_6 \right)}$ **9.2368** X-INVALID-ORDER-2368  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$  $H(s) = \frac{C_5 R_1 R_2 R_6 s}{C_1 C_4 C_5 R_1 R_2 R_3 R_5 s^3 + R_1 + R_2 + R_3 + s^2 \left(C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3 + C_1 C_5 R_1 R_2 R_5 + C_1 C_5 R_1 R_3 R_5 + C_4 C_5 R_2 R_3 R_5\right) + s \left(C_1 R_1 R_2 + C_1 R_1 R_3 + C_4 R_2 R_3 + C_5 R_1 R_5 - C_5 R_2 R_3 + C_5 R_2 R_5 + C_5 R_3 R_5\right)}$ **9.2369** X-INVALID-ORDER-2369  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_5 R_1 R_2}{C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_5 s^3 + C_6 R_1 + C_6 R_2 + C_6 R_3 + s^2 \left(C_1 C_4 C_6 R_1 R_2 R_3 - C_1 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_5 + C_1 C_5 C_6 R_1 R_3 R_5 + C_4 C_5 C_6 R_2 R_3 R_5\right) + s \left(C_1 C_6 R_1 R_3 + C_4 C_6 R_2 R_3 + C_5 C_6 R_1 R_3 + C_5 C_6 R_2 R_3 + C_5 C_6 R_3 +$ **9.2370** X-INVALID-ORDER-2370  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

447

**9.2373** X-INVALID-ORDER-2373  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_2R_5R_6s^2 + R_1R_2 + s\left(C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{s^3\left(C_1C_4C_6R_1R_2R_3R_5 - C_1C_5C_6R_1R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_2R_5 + C_4C_6R_2R_3R_5 - C_5C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$ 

 $H(s) = \frac{C_5 R_1 R_2 R_5 s + R_1 R_2}{s^3 \left(C_1 C_4 C_6 R_1 R_2 R_3 R_5 - C_1 C_5 C_6 R_1 R_2 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_5 + C_1 C_6 R_1 R_3 R_5 + C_4 C_6 R_2 R_3 R_5 - C_5 C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5\right)}$ 

9.2374 X-INVALID-ORDER-2374  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_5 R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^3 \left(C_1 C_4 C_6 R_1 R_2 R_3 R_5 R_6 - C_1 C_5 C_6 R_1 R_2 R_3 R_5 R_6\right) + s^2 \left(C_1 C_4 R_1 R_2 R_3 R_5 - C_1 C_5 R_1 R_2 R_3 R_5 - C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_6 R_1 R_2 R_3 R_5 R_6 - C_5 C_6 R_2 R_3 R_5 R_6\right) + s \left(-C_1 R_1 R_2 R_3 R_5 - C_1 C_5 R_1 R_2 R_3 R_5 - C_1 C_6 R_1 R_2 R_3$ 

**9.2375** X-INVALID-ORDER-2375  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4 R_1 R_2 R_4 s + R_1 R_2}{s^3 \left(-C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_3 R_3 +$ 

**9.2376** X-INVALID-ORDER-2376  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_6R_1R_2R_4R_6s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_6R_1R_2R_6\right)}{s^3\left(-C_1C_4C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_3 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_2R_5 + C_4C_6R_2R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_4R_5\right) + s\left(C_6R_1R_2R_3R_4 + C_4C_6R_1R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_4R_5\right) + s\left(C_6R_1R_2R_3R_5 + C_4C_6R_1R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_4R_5\right) + s\left(C_6R_1R_2R_3R_5 + C_4C_6R_1R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_4R_5\right) + s\left(C_6R_1R_2R_3R_5 + C_4C_6R_1R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_4R_5\right) + s\left(C_6R_1R_3R_4R_5 + C_4C_6R_1R_3R_4R_5\right) + s\left(C_6R_1R_3R_4R_5 + C_4C_6R_1R_4R_5\right) + s\left(C_6R_1R_3R_4R_5 + C_4C_6R_1R_4R_5\right) + s\left(C_6R_1R_4R_5 + C_4C_6R_4R_4R_5\right) + s\left(C_6R_4R_4R_5 + C_4C_6R_4R_4R_5\right) + s\left(C_6R_4R_4R_5\right) + s\left(C_6R_4R_4R_5\right) + s\left(C_6R$ 

**9.2377** X-INVALID-ORDER-2377  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(-C_1C_4C_6R_1R_2R_3R_4R_6 + C_1C_4C_6R_1R_2R_3R_5R_6 + C_1C_4C_6R_1R_2R_4R_5R_6 + C_1C_4C_6R_1R_3R_4R_5R_6\right) + s^2\left(-C_1C_4R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_5 + C_1C_4R_1R_2R_4R_5 + C_1C_4R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_5 + C_1C_$ 

**9.2378** X-INVALID-ORDER-2378  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{-C_1C_4C_5R_1R_2R_3R_4s^3 + R_1 + R_2 + R_3 + s^2\left(C_1C_4R_1R_2R_3 + C_1C_4R_1R_2R_4 + C_1C_4R_1R_3R_4 - C_1C_5R_1R_2R_3 - C_4C_5R_2R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_3 + C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3\right)}$ 

9.2379 X-INVALID-ORDER-2379  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4s + C_5R_1R_2}{-C_1C_4C_5C_6R_1R_2R_3R_4s^3 + C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_1C_4C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_3 - C_4C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_3 + C_4C_6R_2R_3 + C_4C_6R_3R_3 + C_4C_6R_$ 

**9.2380** X-INVALID-ORDER-2380  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_4 + C_5C_6R_1R_2R_6\right)}{-C_1C_4C_5C_6R_1R_2R_3R_4s^3 + C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_1C_4C_6R_1R_2R_3 + C_1C_4C_6R_1R_3R_4 - C_1C_5C_6R_1R_2R_3 - C_4C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_2 + C_4C_6R_1R_3 + C_4C_6R_2R_3 + C_4C_6R_3R_3 + C$ 

```
9.2381 X-INVALID-ORDER-2381 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_3R_4R_5s^2 + C_5R_1R_2R_3R_4R_5s^2 + C_5R_1R_2R_3R_5s^2 + C_5R_1R_2R_3R_5s^2 + C_5R_1R_2R_3R_5s^2 + C_5R_1R_2R$ 

**9.2382** X-INVALID-ORDER-2382  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^3\left(-C_1C_4C_5R_1R_2R_3R_4 + C_1C_4C_5R_1R_2R_3R_5 + C_1C_4C_5R_1R_2R_4R_5 + C_1C_4C_5R_1R_2R_3 + C_1C_4R_1R_2R_4 + C_1C_4R_1R_2R_4 + C_1C_5R_1R_2R_3 + C_1C_5R$ 

**9.2383** X-INVALID-ORDER-2383  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(-C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3$ 

**9.2384** X-INVALID-ORDER-2384  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_4C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4R_6s^2 + C_5R_1R_2R_4 + C_4C_5C_6R_1R_2R_4 + C_4C_5C_6R_1R_4 + C_4C_5C_6R$ 

**9.2385** X-INVALID-ORDER-2385  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_1 + R_2 + R_3 + s^4 \left(-C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_4 C_5 R_1 R_2 R_3 R_4 + C_1 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_4 C_5 R_1 R_2 R_3 R_4 + C_1 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_4 C_5 R_1 R_2 R_5 + C_1 C_4 C_5 R_1$ 

**9.2386** X-INVALID-ORDER-2386  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $\frac{C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_6 + s\left(C_4R_1R_2R_4R_6 + C_5R_1R_2R_5R_6\right)}{-C_1C_4C_5R_1R_2R_3R_4R_5s^3 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(-C_1C_4R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_5 + C_1C_4R_1R_3R_5 + C_1C_4R_1$ 

**9.2387** X-INVALID-ORDER-2387  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $C_4C_5R_1R_2R_4R_5s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_5R_1R_2R_5\right)$ 

 $H(s) = \frac{C_4C_5R_1R_2R_4R_5s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_5R_1R_2R_5\right)}{-C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_5C_6R_1R_2R_3R_5 - C_4C_5C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_3R_5 + C_1C_6R_$ 

**9.2388** X-INVALID-ORDER-2388  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $\frac{C_4C_5C_6R_1R_2R_4R_5R_6s^3 + R_1R_2 + s^2\left(C_4C_5R_1R_2R_4R_5 + C_4C_6R_1R_2R_4R_6 + C_5C_6R_1R_2R_5R_6\right) + s\left(C_4R_1R_2R_4 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right) + s\left(C_4R_1R_2R_4 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right) + s\left(C_4R_1R_2R_4R_5 + C_4C_6R_1R_2R_4R_5 + C_4C_6R_1R_4R_5 + C_4C_6R_1R_4R_5$ 

**9.2389** X-INVALID-ORDER-2389  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-C_1C_4C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(-C_1C_4C_5R_1R_2R_3R_4R_5 - C_1C_4C_6R_1R_2R_3R_4R_6 + C_1C_4C_6R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_3R_4R_5R_6 + C_1C_4C_6R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_5 + C_1C_4C_6R_1$ 

**9.2390** X-INVALID-ORDER-2390  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{R_1 R_2 R_4}{C_1 C_4 C_6 R_1 R_2 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_4 R_5 + C_1 C_6 R_1 R_3 R_4 R_5 + C_4 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$ 

```
9.2391 X-INVALID-ORDER-2391 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                        H(s) = \frac{C_6R_1R_2R_4R_6s + R_1R_2R_4}{C_1C_4C_6R_1R_2R_3R_4R_5s^3 + s^2\left(-C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_4C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}
9.2392 X-INVALID-ORDER-2392 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R_1 R_2 R_4 R_6
                                9.2393 X-INVALID-ORDER-2393 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^3 \left(C_1 C_4 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_6\right) + s^2 \left(C_1 C_4 R_1 R_2 R_3 R_4 - C_1 C_5 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_6 + C_1 C_6 R_1 R_3 R_4 R_6 + C_4 C_6 R_2 R_3 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 R_6\right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 - C_1 C_5 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 
9.2394 X-INVALID-ORDER-2394 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_5R_1R_2R_4R_6s
H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{C_1 C_4 C_5 R_1 R_2 R_3 R_4 R_5 s^3 + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_1 C_4 R_1 R_2 R_3 R_4 + C_1 C_5 R_1 R_2 R_3 R_5 + C_1 C_5 R_1 R_2 R_3 R_4 + C_1 C_5 R_1 R_
9.2395 X-INVALID-ORDER-2395 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_5 R_1 R_2 R_4}{C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 s^3 + C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s^2 \left(C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_4 C_5 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_5 C_6 R_1 R_2 R_4 + 
9.2396 X-INVALID-ORDER-2396 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4
H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_1C_4C_5C_6R_1R_2R_3R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_4C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_5 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_3R_4 + C_
9.2397 X-INVALID-ORDER-2397 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 R_6 s^4 + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^3 \left( C_1 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C
9.2398 X-INVALID-ORDER-2398 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                            9.2399 X-INVALID-ORDER-2399 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
        H(s) = \frac{C_5C_6R_1R_2R_4R_5R_6s^2 + R_1R_2R_4 + s\left(C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^3\left(C_1C_4C_6R_1R_2R_3R_4R_5 - C_1C_5C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_4R_5 + C_1C_6R_1R_4R_5 + C_1C_6R_1R
```

 $H(s) = \frac{C_5 R_1 R_2 R_4 R_5 R_6 s + R_1 R_2 R_4 R_5}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + R_3 R_4 R_5 - C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 - C_1 C_5 R_1 R_2 R_3 R_4 R_5 - C_1 C_6 R_1$ 

**9.2400** X-INVALID-ORDER-2400  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

```
 \begin{aligned} \textbf{9.2401} \quad & \textbf{X-INVALID-ORDER-2401} \ Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \ R_2, \ \frac{1}{C_2s}, \ R_4, \ R_5, \ \frac{R_6}{C_6R_6s+1}\right) \\ & \frac{C_3R_1R_2R_4R_6s}{C_1C_3C_6R_1R_2R_4R_5R_6s^3 - R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(C_1C_3R_1R_2R_4R_6 + C_1C_6R_1R_2R_5R_6 + C_1C_6R_1R_4R_5R_6 + C_3C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6\right) + s\left(-C_1R_1R_2R_4 + C_1R_1R_2R_5 + C_1R_1R_4R_5 + C_3R_1R_4R_5 + C_3R_2R_4R_5 - C_6R_2R_4R_6 + C_3C_6R_1R_4R_5R_6 + C_3C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6\right) + s\left(-C_1R_1R_2R_4 + C_1R_1R_2R_5 + C_1R_1R_4R_5 + C_3R_1R_4R_5 + C_3R_2R_4R_5 - C_6R_2R_4R_6 + C_3C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6\right) + s\left(-C_1R_1R_2R_4 + C_1R_1R_2R_5 + C_1R_1R_4R_5 + C_3R_2R_4R_5 - C_6R_2R_4R_6\right) + s\left(-C_1R_1R_2R_4 + C_1R_1R_4 + C_3R_2R_4 + C_1R_2R_4 + C_1R_2
```

9.2404 X-INVALID-ORDER-2404  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_1C_3C_5C_6R_1R_2R_4R_5s^3 + C_6R_2 + C_6R_4 + s^2\left(C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_5 + C_1C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4 + C_3C_6R_1R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_5C_6R_2R_4 + C_5C_6R_4R_4 + C_5C_$ 

**9.2405** X-INVALID-ORDER-2405  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_1C_3C_5C_6R_1R_2R_4R_5s^3 + C_6R_2 + C_6R_4 + s^2\left(C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_5 + C_1C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4 + C_3C_6R_1R_4 + C_3C_6R_1R_4 + C_3C_6R_2R_4 + C_5C_6R_2R_4 + C_5C_6R_4R_4 +$ 

**9.2406** X-INVALID-ORDER-2406  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5}{C_1C_3C_5C_6R_1R_2R_4R_5R_6s^4 + R_2 + R_4 + s^3\left(C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_6 + C_1C_5C_6R_1R_2R_5R_6 + C_1C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4R_6 - C_1C_5C_6R_1R_2R_4R_6 + C_1C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_2R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4R_6 - C_1C_5C_6R_1R_2R_4R_6 + C_1C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4R_6 - C_1C_5C_6R_1R_2R_4R_6 + C_1C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4R_6 - C_1C_5C_6R_1R_2R_4R_6 + C_1C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4R_6 - C_1C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4R_6 - C_1C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_2R_4R_5 - C_1C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_4R_5R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4 - C_1C_5R_1R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_4R_5R_5 - C_1C_5C_6R_1R_4R_5R_5\right) + s^2\left(C_1C_3R_1R_4R_5R_5 - C_1C_5C_6R_1R_4R_5\right) + s^2\left(C_1C_3R_4R_5R_5 - C_1C_5C_6R_1R_4R_5\right) + s^2\left(C_1C_3R_4R_5R_5 - C_1C_5C_6R_1R_4R_5\right) + s^2\left(C_1C_3R_4R_5R_5 - C_1C_5C_6R_1R_4R_5\right) + s^2\left(C_1C_3R_4R_5R_5\right) + s^2\left(C_1C_3R_4R_5R_5\right) + s^2\left(C_1C_3R_4R_5\right) +$ 

**9.2407** X-INVALID-ORDER-2407  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_1C_3C_6R_1R_2R_4R_5R_6 - C_1C_5C_6R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5 - C_1C_6R_1R_2R_4R_6 + C_1C_6R_1R_2R_4R_5R_6 + C_3C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6 - C_5C_6R_2R_4R_5R_6\right) + s\left(-C_1R_1R_2R_4R_5 - C_1C_6R_1R_2R_4R_5 - C_1C_6R_1R_2R_4R_5 - C_1C_6R_1R_4R_5R_6 + C_3C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6 - C_5C_6R_2R_4R_5R_6\right) + s\left(-C_1R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5 - C_1C_6R_1R_2R_4R_5 - C_1C_6R_1R_4R_5R_6 + C_3C_6R_1R_4R_5R_6 + C_3C_6R_2R_4R_5R_6\right) + s\left(-C_1R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5 - C_1C_5R_1R_2R_5 - C_1C_5R_1R_2R_5 - C_1C_5R_1R_2R_5 - C_1C_5R_1R_2R$ 

9.2408 X-INVALID-ORDER-2408  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_6 s}{-R_2 + R_5 + s^3 \left(C_1 C_3 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 + C_1 C_4 R_1 R_2 R_5 - C_1 C_6 R_1 R_2 R_6 + C_1 C_6 R_1 R_5 R_6 + C_3 C_6 R_2 R_5 R_6 + C_4 C_6 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 + C_1 R_1 R_5 + C_3 R_1 R_5 + C_4 R_2 R_5 - C_6 R_2 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 + C_1 R_1 R_5 + C_3 R_1 R_5 + C_4 R_2 R_5 - C_6 R_2 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 + C_1 R_1 R_5 + C_3 R_1 R_5 + C_4 R_2 R_5 - C_6 R_2 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 + C_1 R_1 R_5 + C_3 R_1 R_5 + C_4 R_2 R_5 - C_6 R_2 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 + C_1 R_1 R_5 + C_3 R_1 R_5 + C_4 R_2 R_5 - C_6 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 + C_3 R_1 R_5 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_6 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_6 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_6 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_6 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_6 + C_3 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_5 R_6 + C_3 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 +$ 

**9.2409** X-INVALID-ORDER-2409  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^3\left(C_1C_3C_6R_1R_2R_6 + C_1C_4C_6R_1R_2R_6 - C_1C_5C_6R_1R_2R_6\right) + s^2\left(C_1C_3R_1R_2 + C_1C_4R_1R_2 - C_1C_5R_1R_2 + C_1C_6R_1R_6 + C_3C_6R_2R_6 + C_4C_6R_2R_6 - C_5C_6R_2R_6\right) + s\left(C_1R_1 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_6R_6\right) + 1}$ 

**9.2410** X-INVALID-ORDER-2410  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^3\left(C_1C_3C_5R_1R_2R_5 + C_1C_4C_5R_1R_2R_5\right) + s^2\left(C_1C_3R_1R_2 + C_1C_4R_1R_2 - C_1C_5R_1R_2 + C_1C_5R_1R_5 + C_3C_5R_1R_5 + C_3C_5R_2R_5 + C_4C_5R_2R_5\right) + s\left(C_1R_1 + C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2 + C_5R_5\right) + 1}$ 

```
9.2411 X-INVALID-ORDER-2411 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_3C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_1R_2R_5\right) + s^2\left(C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_5C_6R_1R_5 + C_3C_5C_6R_1R_5 + C_3C_5C_6R_2R_5\right) + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 + C_5C_6R_2\right)}{c_6 + s^3\left(C_1C_3C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_5C_6R_1R_2 + C_1C_5C_6R_1R_5 + C_3C_5C_6R_1R_5 + C_3C_5C_6R_2R_5\right) + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 + C_5C_6R_2\right)}$ 

**9.2412** X-INVALID-ORDER-2412  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_3C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_5C_6R_1R_2 + C_1C_5C_6R_1R_5 + C_3C_5C_6R_1R_5 + C_3C_5C_6R_2R_5 + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_1 + C_3C_6R_2 + C_5C_6R_2 +$ 

**9.2413** X-INVALID-ORDER-2413  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^4\left(C_1C_3C_5C_6R_1R_2R_5R_6 + C_1C_4C_5C_6R_1R_2R_5 + C_1C_3C_6R_1R_2R_5 + C_1C_4C_5R_1R_2R_6 + C_1C_5C_6R_1R_2R_6 + C_1C_5C_6R_1R_5R_6 + C_3C_5C_6R_1R_5R_6 + C_3C_5C_6R_1R_5R_5 + C_3C_5C_5R_5R_5 + C_3C_5C_5$ 

**9.2414** X-INVALID-ORDER-2414  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_1C_3C_6R_1R_2R_5R_6 + C_1C_4C_6R_1R_2R_5R_6 - C_1C_5C_6R_1R_2R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_5 - C_1C_5R_1R_2R_5 - C_1C_5R_1R_2R_5 - C_1C_6R_1R_2R_6 + C_3C_6R_1R_5R_6 + C_3C_6R_2R_5R_6 + C_4C_6R_2R_5R_6 - C_5C_6R_2R_5R_6\right) + s\left(-C_1R_1R_2 + C_1R_1R_2R_5 - C_1C_5R_1R_2R_5 - C_1C_6R_1R_2R_5 - C_1C_6R_1R_5 - C_1C_6$ 

**9.2415** X-INVALID-ORDER-2415  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{C_1C_3C_4R_1R_2R_4R_5s^3 - R_2 + R_5 + s^2\left(C_1C_3R_1R_2R_5 - C_1C_4R_1R_2R_4 + C_1C_4R_1R_2R_5 + C_1C_4R_1R_4R_5 + C_3C_4R_1R_4R_5\right) + s\left(-C_1R_1R_2 + C_1R_1R_5 + C_3R_1R_5 + C_3R_2R_5 - C_4R_2R_4 + C_4R_2R_5 + C_4R_4R_5\right)}$ 

**9.2416** X-INVALID-ORDER-2416  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4R_1R_2R_4s + C_3R_1R_2}{C_1C_3C_4C_6R_1R_2R_4s + C_3C_4C_6R_1R_2R_5 - C_1C_4C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_5 + C_1C_4C_6R_1R_4R_5 + C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_1R_5 + C_3C_6R_1R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_4R_5 +$ 

**9.2417** X-INVALID-ORDER-2417  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_6R_1R_2R_4R_6s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_6\right)}{C_1C_3C_4C_6R_1R_2R_4R_5s^3 - C_6R_2 + C_6R_5 + s^2\left(C_1C_3C_6R_1R_2R_5 - C_1C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_4R_5 + C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_1R_2 + C_1C_6R_1R_5 + C_3C_6R_1R_5 + C$ 

**9.2418** X-INVALID-ORDER-2418  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4R_1R_2R_4}{C_1C_3C_4C_6R_1R_2R_4R_5R_6s^4 - R_2 + R_5 + s^3\left(C_1C_3C_4R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_6 + C_1C_4C_6R_1R_4R_5R_6 + C_3C_4C_6R_1R_4R_5R_6 + C_3C_4C_6R_1R_4R_5R_5 + C_3C_4C_6R_1R_4C_6R_1R_5R_5 + C_3C_4C_6R_1R_4R_5R_5 + C_3C_4C_6R_1R_4R_5R_5 + C_3C_4C_6R_1R_4R_5R_5 + C_3C_4C_6R_1R_4R_5R_5 + C_3C_4C_6R_1R_4R_5R_5 + C_3C_4C_6R_1R_4R_5R_5 + C_3C_4C_6R_1R_5R_5 + C_3C_4C_6R_1R_5R_5 + C_3C_4C_6R_1R_5R_5 + C_3C_4C_6R_1R_5R_5 + C_3C_4C_6R_5R_5 + C_3C_4C_6R_5R_5 + C_3C_4C_6R_5R_5 + C_3C_4C_6R_5R_5 + C_3C_5$ 

**9.2419** X-INVALID-ORDER-2419  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{s^3\left(C_1C_3C_4R_1R_2R_4 - C_1C_4C_5R_1R_2R_4\right) + s^2\left(C_1C_3R_1R_2 + C_1C_4R_1R_2 + C_1C_4R_1R_4 - C_1C_5R_1R_2 + C_3C_4R_1R_4 + C_3C_4R_2R_4 - C_4C_5R_2R_4\right) + s\left(C_1R_1 + C_3R_1 + C_3R_2 + C_4R_2 + C_4R_4 - C_5R_2\right) + 1}$ 

**9.2420** X-INVALID-ORDER-2420  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_3C_4C_6R_1R_2R_4 - C_1C_4C_5C_6R_1R_2R_4\right) + s^2\left(C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_4 - C_4C_5C_6R_2R_4\right) + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_4 - C_5C_6R_2\right)}$ 

```
9.2421 X-INVALID-ORDER-2421 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                   H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{C_6 + s^3\left(C_1C_3C_4C_6R_1R_2R_4 - C_1C_4C_5C_6R_1R_2R_4\right) + s^2\left(C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_4C_6R_1R_4 + C_3C_4C_6R_1R_4 + C_3C_4C_6R_2R_4\right) + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_4 - C_5C_6R_2\right)}
9.2422 X-INVALID-ORDER-2422 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2
H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{s^4\left(C_1C_3C_4C_6R_1R_2R_4R_6 - C_1C_4C_5R_1R_2R_4 + C_1C_4C_6R_1R_2R_6 + C_1C_4C_6R_1R_2R_6 + C_3C_4C_6R_1R_4R_6 - C_4C_5C_6R_2R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_4 + C_1C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_4R_6 - C_1C_5C_6R_1R_2R_6 + C_3C_4C_6R_1R_4R_6 + C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_3R_1R_2R_4 + C_1C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_4R_6 + C_3C_4C_6R_1R_4R_6 + C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_3R_1R_2R_4 + C_1C_4C_6R_1R_4R_6 + C_1C_4C_6R_1R_4R_6 + C_3C_4C_6R_1R_4R_6 + C_4C_5C_6R_2R_4R_6\right) + s^2\left(C_1C_3R_1R_2R_4 + C_1C_4C_6R_1R_4R_6 + C_3C_4C_6R_1R_4R_6 + C_3C_4C_6R_2R_4R_6\right) + s^2\left(C_1C_3R_1R_2R_4 + C_1C_4C_6R_1R_4R_6 + C_3C_4C_6R_1R_4R_6\right) + s^2\left(C_1C_3R_1R_2R_4 + C_1C_4C_6R_1R_4R_6 + C_3C_4C_6R_1R_4R_6\right) + s^2\left(C_1C_3R_1R_2R_4 + C_1C_4C_6R_1R_4R_6\right) + s^2\left(C_1C_3R_1R_4R_6\right) + s^2\left(C_1C_3R_4R_6\right) + 
9.2423 X-INVALID-ORDER-2423 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{C_1C_3C_4C_5R_1R_2R_4C_5r_1R_2R_4 + C_1C_3C_5R_1R_2R_5 + C_1C_4C_5R_1R_2R_5 + C_1C_4C_5R_1R_4R_5 + C_3C_4C_5R_1R_4R_5 + C_3C_4C_5R_1R_2 + C_1C_4R_1R_2 + C_1C_4R_1R_2 + C_1C_5R_1R_2 + C_1C_
9.2424 X-INVALID-ORDER-2424 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s
9.2425 X-INVALID-ORDER-2425 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + S^2\left(C_3C_4C_5R_1R_4R_5 + S^2\left(C_3C_4C_
9.2426 X-INVALID-ORDER-2426 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
                            9.2427 X-INVALID-ORDER-2427 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
```

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_6 + C_3C_5R_1R_2R_5R_6\right)}{-R_2 + R_5 + s^3\left(C_1C_3C_4R_1R_2R_4R_5 - C_1C_4C_5R_1R_2R_4R_5\right) + s^2\left(C_1C_3R_1R_2R_5 - C_1C_4R_1R_2R_4 + C_1C_4R_1R_2R_5 + C_1C_4R_1R_4R_5 - C_1C_5R_1R_2R_5 + C_3C_4R_1R_4R_5 - C_4C_5R_2R_4R_5\right) + s\left(-C_1R_1R_2 + C_1R_1R_5 + C_3R_1R_5 + C_3R_2R_5 - C_4R_2R_4 + C_3C_5R_1R_2R_5\right)}$ 

**9.2428** X-INVALID-ORDER-2428  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5\right)}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_3C_4C_6R_1R_2R_4R_5 - C_1C_4C_5R_1R_2R_4 + C_1C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_5 + C_1C_4C_6R_1R_2$  $C_{3}C_{4}C_{5}R_{1}R_{2}R_{4}R_{5}s^{2} + C_{3}R_{1}R_{2} + s\left(C_{3}C_{4}R_{1}R_{2}R_{4} + C_{3}C_{5}R_{1}R_{2}R_{5}\right)$ 

**9.2429** X-INVALID-ORDER-2429  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_2R_5R_6\right) + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5 + C_3C_4C_6R_1R_2R_4 + C_3C_5R_1R_2R_5 + C_3C_4C_6R_1R_2R_4 + C_3C_5R_1R_2R_5 + C_3C_4C_6R_1R_2R_4 + C_3C_5C_6R_1R_2R_4 + C_3C_5C_6R_1R_2R_5 + C_3C_5C_6$ 

**9.2430** X-INVALID-ORDER-2430  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $-R_2 + R_5 + s^4 \left( C_1 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 - C_1 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 - C_1 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_4 R_5 R_6 - C_1 C_5 C_6 R_1 R_2 R_5 R_6 + C_3 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_4 C_5 R_1 R_2 R_4 R_5 - C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 - C_1 C_5 C_6 R_1 R_2 R_5 R_6 + C_3 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_4 C_5 R_1 R_2 R_4 R_5 - C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_4 C_6 R_1 R_2 R_4 R_5 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_5 R_6 + C_1 C_4 C_5 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_$ 

9.2433 X-INVALID-ORDER-2433  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_1C_3C_5R_1R_2R_4R_5 + C_1C_4C_5R_1R_2R_4 + C_1C_4R_1R_2R_4 - C_1C_5R_1R_2R_4 + C_1C_5R_1R_2R_5 + C_1C_5R_1R_4R_5 + C_3C_5R_2R_4R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_3R_1R_4 + C_4R_2R_4 - C_5R_2R_4R_5 + C_4C_5R_1R_4R_5 + C_3C_5R_2R_4R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_3R_1R_4 + C_4R_2R_4 - C_5R_2R_4R_5 + C_4C_5R_1R_4R_5 + C_4C_5R_2R_4R_5\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_3R_1R_4 + C_4R_2R_4 - C_5R_2R_4R_5\right) + s\left(C_1R_1R_2 + C_4R_1R_4 + C_4R_4R_4 + C_4R_4R_4 + C_4R_4R_4 + C_4R_4R_4 + C_4R_4R_4\right) + s\left(C_1R_1R_4 + C_4R_4R_4 + C_4R_4R_4 + C_4R_4R_4 + C_4R_4R_4\right) + s\left(C_1R_1R_4 + C_4R_4R_4 + C_4R_4R_4 + C_4R_4R_4 + C_4R_4R_4\right) + s\left(C_1R_1R_4 + C_4R_4R_4 + C_4R_4R_4 + C_4R_4R_4\right) + s\left(C_1R_1R_4 + C_4R_4R_4 + C_4R_4R_4\right) + s\left(C_1R_4R_4 + C_4R_4R_4 + C_4R_4R_4\right) + s\left(C_1R_4R_4 + C_4R_4R_4\right) + s\left($ 

**9.2434** X-INVALID-ORDER-2434  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_3C_5C_6R_1R_2R_4R_5 + C_1C_4C_5C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 \right) + s\left(C_1C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 \right) + s\left(C_1C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 \right) + s\left(C_1C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 \right) + s\left(C_1C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 \right) + s\left(C_1C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_4C_5C_6R_1R_4R_5 + C_4C_5C_6R_2R_4R_5 + C_4C_5C_6R_4R_4R_5 + C_4C_5C_6R_4R_5 + C_4C_$ 

**9.2435** X-INVALID-ORDER-2435  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_3C_5C_6R_1R_2R_4R_5 + C_1C_4C_5C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3C_5C_6R_2R_4R_5 + C_4C_5C_6R_2R_4R_5 \right) + s\left(C_1C_6R_1R_2 + C_4C_6R_1R_2R_4 + C_4C_5C_6R_1R_2R_4 + C_4C_5C_$ 

9.2436 X-INVALID-ORDER-2436  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_2 + R_4 + s^4 \left( C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_5 C_6 R_1 R$ 

**9.2437** X-INVALID-ORDER-2437  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_1C_3C_6R_1R_2R_4R_5R_6 + C_1C_4C_6R_1R_2R_4R_5R_6\right) + s^2\left(C_1C_3R_1R_2R_4R_5 + C_1C_4R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_6 + C_1C_6R_1R_2R_4R_5R_6 + C_3C_6R_1R_4R_5R_6 + C_3$ 

9.2438 X-INVALID-ORDER-2438  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3}{-R_2R_4 + R_2R_5 + R_4R_5 + s^3(-C_1C_3C_6R_1R_2R_3R_4R_6 + C_1C_3C_6R_1R_2R_3R_5R_6 + C_1C_3C_6R_1R_2R_4R_5R_6 + C_1C_3C_6R_1R_3R_4R_5R_6) + s^2(-C_1C_3R_1R_2R_3R_5 + C_1C_3R_1R_2R_3R_5 + C_1C_3R_1R_2R_$ 

**9.2439** X-INVALID-ORDER-2439  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{-C_1C_3C_5R_1R_2R_3R_4s^3 + R_2 + R_4 + s^2\left(C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_4 + C_1C_3R_1R_3R_4 - C_1C_5R_1R_2R_4 - C_3C_5R_2R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 - C_5R_2R_4\right)}$ 

**9.2440** X-INVALID-ORDER-2440  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{-C_1C_3C_5C_6R_1R_2R_3R_4s^3 + C_6R_2 + C_6R_4 + s^2\left(C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 - C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 +$ 

```
9.2441 X-INVALID-ORDER-2441 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                   H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{-C_1C_3C_6R_1R_2R_3R_4s^3 + C_6R_2 + C_6R_4 + s^2\left(C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 - C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_4 + C_3C_6R_2R_3 + C_3C_6R_2R_4 + C_3C_6R_2R_4 + C_3C_6R_2R_4\right)}
9.2442 X-INVALID-ORDER-2442 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-C_1C_3C_5C_6R_1R_2R_3R_4R_6s^4 + R_2 + R_4 + s^3\left(-C_1C_3C_5R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4R_6 + C_1C_3C_6R_1R_2R_4R_6 - C_1C_5C_6R_1R_2R_4R_6 - C_3C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_4 + C_
9.2443 X-INVALID-ORDER-2443 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(-C_1C_3C_5R_1R_2R_3R_4 + C_1C_3C_5R_1R_2R_3R_5 + C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_5R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_1C_5R_1R_2R_4 + C_1C_5R_1R_2R_5 + C_1C_5R_1R_4R_5 + C_3C_5R_1R_4R_5 - C_3C_5R_2R_3R_4 + C_3C_5R_3R_3R_4 + C_3C_5R_3R_
9.2444 X-INVALID-ORDER-2444 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(-C_1C_3C_5C_6R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_5 + C_1C_3C_5C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_4R_5 + C_1C
9.2445 X-INVALID-ORDER-2445 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s
H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(-C_1C_3C_5C_6R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_5 + C_1C_3C_5C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_5 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 
9.2446 X-INVALID-ORDER-2446 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                         \overline{R_2 + R_4 + s^4 \left( -C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_5 R_1 R_2 R_4
```

9.2447 X-INVALID-ORDER-2447 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-C_1C_3C_5R_1R_2R_3R_4R_5s^3 - R_2R_4 + R_2R_5 + R_4R_5 + s^2\left(-C_1C_3R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_5 + C_1C_3R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5\right) + s\left(-C_1R_1R_2R_4 + C_1R_1R_2R_5 + C_1R_1R_4R_5 + C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_4\right)}$ 

**9.2448** X-INVALID-ORDER-2448  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_1C_3C_5C_6R_1R_2R_3R_4R_5s^3 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(-C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_5C_6R_1R_2R_4R_5 - C_3C_5C_6R_2R_3R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4$ 

**9.2449** X-INVALID-ORDER-2449  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_1C_3C_5C_6R_1R_2R_3R_4R_5s^3 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(-C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_5C_6R_1R_2R_4R_5 - C_1C_5C_6R_1R_2R_4R_5 - C_3C_5C_6R_2R_3R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4R_5 + C_1C_$ 

**9.2450** X-INVALID-ORDER-2450  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-C_1C_3C_5C_6R_1R_2R_3R_4R_5R_6s^4 - R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(-C_1C_3C_5R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4R_6 + C_1C_3C_6R_1R_2R_4R_5R_6 + C_1C_3C_6R_1R_2R_4R_5R_6 - C_1C_5C_6R_1R_2R_4R_5R_6 - C_3C_5C_6R_2R_3R_4R_5R_6\right) + s^2\left(-C_1C_3R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_6R_1R_2R_4R_5R_6 - C_1C_5C_6R_1R_2R_4R_5R_6 - C_3C_5C_6R_2R_3R_4R_5R_6\right) + s^2\left(-C_1C_3R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4R_5 - C_1C_3C_$ 

**9.2451** X-INVALID-ORDER-2451  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3R_1R_2R_6s}{C_1C_3C_4R_1R_2R_3R_5s^3 - R_2 + R_5 + s^2\left(-C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_5 + C_1C_3R_1R_3R_5 + C_1C_4R_1R_2R_5 + C_3C_4R_2R_3R_5\right) + s\left(-C_1R_1R_2 + C_1R_1R_5 + C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_4R_2R_5\right)}$ 

**9.2452** X-INVALID-ORDER-2452  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2}{C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_5 s^3 - C_6 R_2 + C_6 R_5 + s^2 \left(-C_1 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_6 R_1 R_2 R_5 + C_1 C_4 C_6 R_1 R_2 R_5 + C_1 C_4 C_6 R_1 R_2 R_5 + C_3 C_6 R_1 R_5 + C_3 C_6 R_1 R_5 + C_3 C_6 R_1 R_5 + C_3 C_6 R_2 R_5 + C_3 C_6 R_3 R_5 + C_3 C_6 R_5 R_5 + C_5 C_6 R_5 R_5 +$ 

**9.2453** X-INVALID-ORDER-2453  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_2R_6s + C_3R_1R_2}{C_1C_3C_4C_6R_1R_2R_3R_5s^3 - C_6R_2 + C_6R_5 + s^2\left(-C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_5 + C_3C_4C_6R_2R_3R_5\right) + s\left(-C_1C_6R_1R_2 + C_1C_6R_1R_5 + C_3C_6R_2R_3 + C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_2R_3 + C_3C_6R_3R_3 + C$ 

**9.2454** X-INVALID-ORDER-2454  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_3 R_5}{C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_5 R_6 s^4 - R_2 + R_5 + s^3 \left(C_1 C_3 C_4 R_1 R_2 R_3 R_5 - C_1 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_5 R_6 + C_1$ 

**9.2455** X-INVALID-ORDER-2455  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^3\left(C_1C_3C_4R_1R_2R_3 - C_1C_3C_5R_1R_2R_3\right) + s^2\left(C_1C_3R_1R_2 + C_1C_3R_1R_3 + C_1C_4R_1R_2 - C_1C_5R_1R_2 + C_3C_4R_2R_3 - C_3C_5R_2R_3\right) + s\left(C_1R_1 + C_3R_1 + C_3R_2 + C_3R_3 + C_4R_2 - C_5R_2\right) + 1}$ 

**9.2456** X-INVALID-ORDER-2456  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_3C_4C_6R_1R_2R_3 - C_1C_3C_5C_6R_1R_2R_3\right) + s^2\left(C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_3 + C_1C_4C_6R_1R_2 - C_1C_5C_6R_1R_2 + C_3C_4C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_1 + C_3C_6R_2 + C_3C_6R_3 + C_4C_6R_2 - C_5C_6R_2\right)}$ 

**9.2457** X-INVALID-ORDER-2457  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_3C_4C_6R_1R_2R_3 - C_1C_3C_5C_6R_1R_2R_3\right) + s^2\left(C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_3 + C_1C_4C_6R_1R_2 - C_1C_5C_6R_1R_2 + C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_3C_6R_1 + C_3C_6R_1 + C_3C_6R_3 + C_4C_6R_2 - C_5C_6R_2\right)}$ 

9.2458 X-INVALID-ORDER-2458  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^4\left(C_1C_3C_4C_6R_1R_2R_3R_6 - C_1C_3C_5C_6R_1R_2R_3R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_3 - C_1C_3C_5R_1R_2R_3 + C_1C_3C_6R_1R_2R_6 + C_1C_3C_6R_1R_2R_$ 

**9.2459** X-INVALID-ORDER-2459  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{C_1C_3C_4C_5R_1R_2R_3R_5s^4 + s^3\left(C_1C_3C_4R_1R_2R_3 - C_1C_3C_5R_1R_2R_3 + C_1C_3C_5R_1R_2R_5 + C_1C_4C_5R_1R_2R_5 + C_3C_4C_5R_2R_3R_5\right) + s^2\left(C_1C_3R_1R_2 + C_1C_3R_1R_3 + C_1C_4R_1R_2 - C_1C_5R_1R_5 + C_3C_4R_2R_3 + C_3C_5R_1R_5 - C_3C_5R_2R_3 + C_3C_5R_1R_3R_5\right) + s^2\left(C_1C_3R_1R_2 + C_1C_3R_1R_3 + C_1C_4R_1R_2 - C_1C_5R_1R_5 + C_3C_4R_2R_3 + C_3C_5R_1R_5 + C_3C_5R_1R_3R_5 + C_3C_4R_3R_5\right) + s^2\left(C_1C_3R_1R_2 + C_1C_3R_1R_3 + C_1C_5R_1R_5 + C_3C_4R_3R_5 + C_3C_5R_1R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_3R_1R_3 + C_1C_3R_1R_5 + C_3C_5R_1R_5 + C_3C_5R_1R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_3R_1R_5 + C_3C_5R_1R_5 + C_3C_5R_1R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_3R_1R_5 + C_3C_5R_1R_5 + C_3C_5R_1R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_5R_1R_5 + C_3C_5R_1R_5 + C_3C_5R_1R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_5R_1R_5 + C_3C_5R_1R_5 + C_3C_5R_1R_5\right) + s^2\left(C_1C_3R_1R_3 + C_1C_5R_1R_5 + C_3C_5R_1R_5 + C_3C_5R_1R_5\right) + s^2\left(C_1C_3R_1R_5 + C_3C_5R_1R_5\right) + s^2\left(C_1C_3R_1R_5\right) + s^2\left(C$ 

**9.2460** X-INVALID-ORDER-2460  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2s}{C_1C_3C_4C_5C_6R_1R_2R_3R_5s^4 + C_6 + s^3\left(C_1C_3C_4C_6R_1R_2R_3 - C_1C_3C_5C_6R_1R_2R_3 + C_1C_3C_5C_6R_1R_2R_5 + C_1C_3C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_1R_2R_5 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_$ 

```
9.2461 X-INVALID-ORDER-2461 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s
H(s) = \frac{C_3C_5C_6R_1R_2R_3F_5 + C_3C_5R_1R_2R_3}{C_1C_3C_4C_5C_6R_1R_2R_3 + C_1C_3C_5C_6R_1R_2R_3 + C_1C_3C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_1R_2R_5 + C_1C_4C_5C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_5C_6R_1R_2 + C_1C_5C_6R_1R_
```

**9.2462** X-INVALID-ORDER-2462 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_5 R_6 s^5 + s^4 \left( C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_5 C_6 R$ 

**9.2463** X-INVALID-ORDER-2463 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_1C_3C_4R_1R_2R_3R_5 - C_1C_3C_5R_1R_2R_3R_5\right) + s^2\left(-C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_5 + C_1C_3R_1R_2R_5 + C_1C_5R_1R_2R_5 + C_3C_4R_2R_3R_5\right) + s\left(-C_1R_1R_2 + C_1R_1R_5 + C_3R_1R_5 - C_3R_2R_3 + C_3R_2R_5 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(-C_1R_1R_2 + C_1R_1R_5 + C_3R_1R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(-C_1R_1R_2 + C_1R_1R_5 + C_3R_1R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(-C_1R_1R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(-C_1R_1R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(-C_1R_1R_5 + C_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(-C_1R_3R_3R_5 + C_3R_3R_5 + C_3R_3R_5\right) + s\left(-C_1R_3R_3R_5 + C_3R_3R_5\right) + s\left(-C_1R_3R_3R_5\right) + s\left(-C_1R_3R_$ 

9.2464 X-INVALID-ORDER-2464 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_3C_5R_1R_2R_5s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_3C_4C_6R_1R_2R_3R_5 - C_1C_3C_5C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_5 + C_1C_3C_6R_1R_5 + C_1C_3C$ 

**9.2465** X-INVALID-ORDER-2465  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_5R_6s^2 + C_3R_1R_2 + s\left(C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_3C_4C_6R_1R_2R_3R_5 - C_1C_3C_5C_6R_1R_2R_3R_5\right) + s^2\left(-C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_5 + C_1C_3C_6R_1R_5 + C_1C$ 

**9.2466** X-INVALID-ORDER-2466  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

**9.2467** X-INVALID-ORDER-2467  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(-C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_5 + C_1C_3R_1R_2R_5 + C_1C_4R_1R_2R_4 + C_1C_4R_1R_2R_5 + C_1C_4R_1R_4R_5 + C_3C_4R_1R_4R_5 - C_3C_4R_2R_3R_4 + C_3C_4R_2R_3R_5 + C_3C_4R_3R_3R_5 + C_3C_4R_3R_3R_5$ 

**9.2468** X-INVALID-ORDER-2468  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $\frac{C_{3}C_{4}K_{1}K_{2}K_{4}s+C_{3}K_{1}K_{2}}{-C_{6}R_{2}+C_{6}R_{5}+s^{3}\left(-C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{5}+C_{1}C_{3}$ 

**9.2469** X-INVALID-ORDER-2469  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_3C_4C_6R_1R_2R_4R_6s^2 + C_3R_1R_2 + s(C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_4 + C_3C_6R_1R_2R_4 + C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_2R_4 + c_3C_6R_1R_2R_4R_6s^2 + c_3R_1R_2R_4 + c_3C_6R_1R_2R_4 + c_3C_6R_1R_4 + c_3C_6R_4 + c_3C_6R_5 + c_$ 

 $H(s) = \frac{-c_3c_4c_6n_1n_2n_4n_6c_5 + c_3n_1n_2n_4n_6c_5 + c_3n_1n_2n_4$ 

**9.2470** X-INVALID-ORDER-2470  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $-R_2 + R_5 + s^4 \left(-C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_4 R_1 R_2 R_3 R_5 + C_1 C_3$ 

**9.2471** X-INVALID-ORDER-2471  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

- $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{-C_1C_3C_4C_5R_1R_2R_3R_4s^4 + s^3\left(C_1C_3C_4R_1R_2R_3 + C_1C_3C_4R_1R_2R_4 + C_1C_3C_5R_1R_2R_3 C_1C_4C_5R_1R_2R_4 C_3C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_3R_1R_2 + C_1C_4R_1R_2 + C_1C_4R_1R_4 C_1C_5R_1R_2 + C_3C_4R_1R_4 + C_3C_4R_2R_4 + C_3C_4R_4R_4 + C_3C_4R_4R$
- **9.2472** X-INVALID-ORDER-2472  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{-C_1C_3C_4C_5R_1R_2R_3R_4s^4 + C_6 + s^3\left(C_1C_3C_4C_6R_1R_2R_3 + C_1C_3C_4C_6R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_3 C_1C_4C_5C_6R_1R_2R_4 C_3C_4C_5C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_3 + C_1C_4C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_3 + C_1C_4C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_3 + C$
- **9.2473** X-INVALID-ORDER-2473  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{-C_1C_3C_4C_5C_6R_1R_2R_3R_4s^4 + C_6 + s^3\left(C_1C_3C_4C_6R_1R_2R_3 + C_1C_3C_4C_6R_1R_2R_4 + C_1C_3C_5C_6R_1R_2R_3 C_1C_4C_5C_6R_1R_2R_4 + C_3C_4C_5R_1R_2 + C_1C_3C_6R_1R_2 +$
- **9.2474** X-INVALID-ORDER-2474  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-C_1C_3C_4C_5C_6R_1R_2R_3R_4R_6s^5 + s^4\left(-C_1C_3C_4C_5R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_3R_6 + C_1C_3C_4C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_2R_3R_6 C_1C_4C_5C_6R_1R_2R_4R_6 C_3C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 C_1C_4C_5C_6R_1R_2R_4R_6 C_3C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 C_1C_3C_5C_6R_1R_2R_4R_6 C_3C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 C_1C_3C_5C_6R_1R_2R_4R_6 C_3C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 C_3C_4C_5C_6R_1R_2R_4R_6 + C_3C_4C_5C_6R_1R_2R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6\right) + s^3\left(C_1C_3C_4R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6\right) + s^3\left(C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_4R_4R_6\right) + s^3\left(C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_4R_4R_6\right) + s^3\left(C_1C_3C_4C_6R_1R_2R_4R_6 + C_1C_3C_4C_6R_1R_4R_4R_6\right) + s^3\left(C_1C_3C_4C_6R_1R_4R_4R_6 + C_1C_3C_4C_6R_1R_4R_4R_6\right) + s^3\left(C_1C_3C_4C_6R_1R_4R_4R_6\right) + s^3\left(C_1C_3C_4C_6R_4R_4R_4\right) + s^3\left(C_1C_3C_4C_6R_4R_4R_4\right) + s^3\left(C_1C_3C_4C_6R_4R_4R_4\right) + s^3\left(C$
- **9.2475** X-INVALID-ORDER-2475  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{1}{s^4 \left(-C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_3 R_4 R_5\right) + s^3 \left(C_1 C_3 C_4 R_1 R_2 R_4 + C_1 C_3 C_4 R_1 R_2 R_4 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 + C_1 C_5 R_1 R_2 R_5 + C_1 C_5 R_1 R_5 + C_1 C_5 R$
- **9.2476** X-INVALID-ORDER-2476  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left(-C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 + C_1 C_3 C_4 C_6 R_1 R_2 R_4 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1$
- **9.2477** X-INVALID-ORDER-2477  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left(-C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 + C_1 C_3 C_4$
- **9.2478** X-INVALID-ORDER-2478  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $\overline{s^5 \left(-C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6\right) + s^4 \left(-C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_$
- **9.2479** X-INVALID-ORDER-2479  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$
- $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s}{-C_1C_3C_4C_5R_1R_2R_3R_4R_5s^4 R_2 + R_5 + s^3\left(-C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_4R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_3R_5 C_1C_4C_5R_1R_2R_4R_5 C_3C_4C_5R_2R_3R_4R_5\right) + s^2\left(-C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_3R_5 C_1C_4C_5R_1R_2R_4R_5 C_3C_4C_5R_2R_3R_4R_5\right) + s^2\left(-C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_4R_5 C_1C_3C_4R_1R_2R_4R_$
- **9.2480** X-INVALID-ORDER-2480  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$
- $-C_1C_3C_4C_5C_6R_1R_2R_3R_4R_5s^4 C_6R_2 + C_6R_5 + s^3\left(-C_1C_3C_4C_6R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 C_1C_3C_5C_6R_1R_2R_3R_5 C_1C_4C_5C_6R_1R_2R_4R_5 C_3C_4C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_5 C_1C_4C_5C_6R_1R_2R_4R_5 C_3C_4C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_5 C_1C_3C_4C_6R_1R_2R_3R_5 C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_5 C_1C_3C_4C_6R_1R_2R_3R_$

```
9.2481 X-INVALID-ORDER-2481 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
```

**9.2482** X-INVALID-ORDER-2482  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

**9.2483** X-INVALID-ORDER-2483  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{C_1 C_3 C_4 R_1 R_2 R_3 R_4 R_5 s^3 - R_2 R_4 + R_2 R_5 + R_4 R_5 + s^2 \left(-C_1 C_3 R_1 R_2 R_3 R_4 + C_1 C_3 R_1 R_2 R_4 R_5 + C_1 C_3 R_1 R_2 R_4 R_5 + C_1 C_4 R_1 R_2 R_4 R_5 + C_1 C_4 R_1 R_2 R_4 + C_1 R_1 R_2 R_5 + C_1 R_1 R_4 R_5 + C_3 R_1 R_4 R_5 - C_3 R_2 R_3 R_4 + C_3 R_2 R_3 R_5 + C_4 R_4 R_5 + C_4 R_5 R_5 +$ 

**9.2484** X-INVALID-ORDER-2484  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4}{C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 s^3 - C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s^2 \left(-C_1 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_4 C_6 R_1 R_2 R_4 R_5 + C_1 C_4 C_6 R_1 R_2 R_4 R_5 + C_1 C_6 R_1 R_2 R_5 +$ 

**9.2485** X-INVALID-ORDER-2485  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4$  $H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{C_1C_3C_4C_6R_1R_2R_3R_4F_5s^3 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(-C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_5 + C_3C_4C_6R_2R_3R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_4R_4 + C_1C_6R_1R_4R_4$ 

**9.2486** X-INVALID-ORDER-2486  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\frac{1}{C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}s^{4}-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}+s^{3}\left(C_{1}C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{1}R_{2}R$ 

**9.2487** X-INVALID-ORDER-2487  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_1C_3C_4R_1R_2R_3R_4 - C_1C_3C_5R_1R_2R_3R_4\right) + s^2\left(C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_4 + C_1C_3R_1R_3R_4 + C_1C_4R_1R_2R_4 - C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_3R_1R_4 + C_3R_2R_3 + C_3R_2R_4 + C_3R_3R_4 + C_4R_2R_4\right)}$ 

**9.2488** X-INVALID-ORDER-2488  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_3C_4C_6R_1R_2R_3R_4 - C_1C_3C_5C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_3C_6C_6R_1R_2R_4 + C_3C_6C_$ 

**9.2489** X-INVALID-ORDER-2489  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s$  $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_3C_4C_6R_1R_2R_3R_4 - C_1C_3C_5C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_3C_4C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4 + s^2\left(C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_3C_6R_1R_2R_4 + C_3C_6R_1R_2R_4$ 

9.2490 X-INVALID-ORDER-2490  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{R_2 + R_4 + s^4 \left( C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_3 R_4 - C_1 C_3 C_5 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_3 C_6 R_1 R$ 

```
9.2491 X-INVALID-ORDER-2491 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)
```

 $H(s) = \frac{1}{C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 s^4 + R_2 + R_4 + s^3 \left( C_1 C_3 C_4 R_1 R_2 R_3 R_4 - C_1 C_3 C_5 R_1 R_2 R_3 R_4 + C_1 C_3 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_5 R_1 R_2 R_5 + C_1 C_3 C_5 R_1 R_2 R_5 + C_1 C_5 R_1 R_2 R_5 + C$ 

**9.2492** X-INVALID-ORDER-2492 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{1}{C_1C_3C_4C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_2 + C_6R_4 + s^3\left(C_1C_3C_4C_6R_1R_2R_3R_4 - C_1C_3C_5C_6R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_1C_4C_5C_6R_1R_2R_4R_5 + C_1C_4C_5C_6R_1R_4R_4R_5 + C_1C_4C_5C_6R_4R_4R_5 + C_1C_4C_5C_6R_4R_5R_5C_5C_6R_4R_5R_5C_5C_6R_5C_5C_6R_5C_5C_6R_5C_5C_6R_5C_5C_6R_5C_5C_5C_6R_5C_5C_5C_6R_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_$ 

**9.2493** X-INVALID-ORDER-2493 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$$

 $H(s) = \frac{1}{C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 s^4 + C_6 R_2 + C_6 R_4 + s^3 \left( C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 - C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_5 C_6 R_1 R$ 

9.2494 X-INVALID-ORDER-2494 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

**9.2495** X-INVALID-ORDER-2495 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$$

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_1C_3C_4R_1R_2R_3R_4R_5 - C_1C_3C_5R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_5 + C_1C_3R_1R_2R_4R_5 + C_1C_4R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5 + C_3C_4R_2R_3R_4R_5 - C_3C_5R_2R_3R_4R_5 \right) + s\left(-C_1R_1R_2R_4 + C_1C_3R_1R_2R_4R_5 + C_1C_3R_1R_2R_4$ 

9.2496 X-INVALID-ORDER-2496 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$$

 $=\frac{C_3C_5R_1R_2R_4R_5s+C_3R_1R_2R_4}{-C_6R_2R_5+C_6R_4R_5+S^3\left(C_1C_3C_4C_6R_1R_2R_3R_4R_5-C_1C_3C_6R_1R_2R_3R_4+C_1C_3C_6R_1R_2R_3R_5+C_1C_3C_6R_1R_2R_3R_4+C_1C_3C_6R_1R_2R_3C_5C_6R_1R_2R_3R_4+C_1C_3C_6R_1R_2R_3C_5C_5C_6R_1R_2R_3C_5C_5C_5R$ 

**9.2497** X-INVALID-ORDER-2497 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_5 + C_3C_6R_1R_2R$ 

**9.2498** X-INVALID-ORDER-2498 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$$

 $H(s) = \frac{-R_2R_4 + R_2R_5 + R_4R_5 + s^4 \left(C_1C_3C_4C_6R_1R_2R_3R_4R_5R_6 - C_1C_3C_5C_6R_1R_2R_3R_4R_5 - C_1C_3C_5R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4$ 

## **9.2499** X-INVALID-ORDER-2499 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3 R_1 R_2 R_3 R_4 s + R_1 R_2 R_4}{C_1 C_3 C_6 R_1 R_2 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_4 R_5 + C_1 C_6 R_1 R_3 R_4 R_5 + C_3 C_6 R_1 R_3 R_4 R_5 \right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5 \right)}$ 

**9.2500** X-INVALID-ORDER-2500 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_3C_6R_1R_2R_3R_4R_6s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_6R_1R_2R_4R_6\right)}{C_1C_3C_6R_1R_2R_3R_4R_5s^3 + s^2\left(-C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_3C_6R_1R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$ 

```
9.2501 X-INVALID-ORDER-2501 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6
H(s) = \frac{C_3R_1R_2R_3R_4R_6s + R_1R_2R_4R_6}{C_1C_3C_6R_1R_2R_3R_4R_5 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + R_3R
9.2502 X-INVALID-ORDER-2502 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^3\left(C_1C_3C_6R_1R_2R_3R_4R_6 - C_1C_5C_6R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_6 + C_1C_6R_1R_2R_3R_4R_6 + C_3C_6R_1R_3R_4R_6 + C_3C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_3C_6R_1R_3R_4R_6 + C_3C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_3C_6R_1R_3R_4R_6 + C_3C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_3C_6R_1R_3R_4R_6 + C_3C_6R_2R_3R_4R_6 - C_5C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_3C_6R_1R_3R_4R_6 + C_3C_6R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_3C_6R_1R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_3C_6R_1R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_3C_6R_1R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_1R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4 + C_1R_3R_4R_6\right) + s\left(C_1R_1R_2R_3R_4R_6\right) + s\left(C_1R_1
9.2503 X-INVALID-ORDER-2503 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s
H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{C_1C_3C_5R_1R_2R_3R_4R_5s^3 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^2\left(C_1C_3R_1R_2R_3R_4 + C_1C_5R_1R_2R_3R_5 + C_1C_5R_1R_2R_4R_5 + C_1C_5R_1R_3R_4R_5 + C_3C_5R_1R_3R_4R_5 + C_3C_5R_3R_4R_5 + C_3C_5R_3R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5R_5 + C_3C_5R_5R_5 + C_3C_5R_
```

**9.2504** X-INVALID-ORDER-2504  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4$  $H(s) = \frac{C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_4}{C_1C_3C_5C_6R_1R_2R_3R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_3C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_5 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_1R_3R_4 + C_3C_5C_6R_1R_$ 

**9.2505** X-INVALID-ORDER-2505  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)$  $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_1C_3C_5C_6R_1R_2R_3R_4 + C_6R_2R_3 + C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_3R_4R_5 + C_1C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_3R_3R_4 + C_3C_5C_6R_3R_3R_5 + C_3C_5C_6R_3R_3R_5 + C_3C_5C_6R_3R_3R_5 + C_3C_5C_6R_3R_3R_5 + C_3C_5C_6R_3R_3R_5 + C_3C_5C_6$ 

**9.2506** X-INVALID-ORDER-2506  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.2507** X-INVALID-ORDER-2507  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5\right)}{s^3\left(C_1C_3C_6R_1R_2R_3R_4R_5 - C_1C_5C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_3R_4 + C$ 

**9.2508** X-INVALID-ORDER-2508  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $\frac{C_3C_5C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_4 + s^2\left(C_3C_5R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_6 + C_5C_6R_1R_2R_4R_5R_6\right) + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^3\left(C_1C_3C_6R_1R_2R_3R_4R_5 - C_1C_5C_6R_1R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_4R_5 + C_3C_6R_1R_3R_4R_5 + C_3C_6R_1R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_3R_4R_5 + C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_2R_3R_4R_5 - C_5C_6R_1R_2R_3R_4R_5 + C_6R_2R_3R_4 + C_6R_3R_3R_4 + C$ 

**9.2509** X-INVALID-ORDER-2509  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + s^3\left(C_1C_3C_6R_1R_2R_3R_4R_5R_6 - C_1C_5C_6R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4R_5 - C_1C_6R_1R_2R_3R_4R_5 - C_1C_6R_1$ 

**9.2510** X-INVALID-ORDER-2510  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3R_1R_2R_3s + R_1R_2}{s^3\left(C_1C_3C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}$ 

```
9.2511 X-INVALID-ORDER-2511 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                H(s) = \frac{C_3C_6R_1R_2R_3R_6s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_6R_1R_2R_6\right)}{s^3\left(C_1C_3C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}
9.2512 X-INVALID-ORDER-2512 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C_3R_1R_2R_3R_6s + R_1R_2R_6
                                           \frac{C_3R_1R_2R_3R_6s + R_1R_2R_6}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(C_1C_3C_6R_1R_2R_3R_5R_6 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4R_1R_2R_3R_5 - C_1C_6R_1R_2R_3R_6 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_3R_5R_6 + C_3C_6R_1R_3R_5R_6 + C_3C_6R_2R_3R_5R_6 + C_4C_6R_2R_3R_5R_6\right) + s\left(-C_1R_1R_2R_3R_5 - C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_3R_5 + C_3C_6R_1R_3R_5R_6 + C_3C_6R_2R_3R_5R_6 + C_4C_6R_2R_3R_5R_6\right) + s\left(-C_1R_1R_2R_3R_5 - C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_3R_5 + C_3C_6R_2R_3R_5R_6 + C_4C_6R_2R_3R_5R_6\right) + s\left(-C_1R_1R_2R_3R_5 - C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_3R_5 + C_3C_6R_2R_3R_5R_6\right) + s\left(-C_1R_1R_2R_3R_5 - C_1C_6R_1R_2R_3R_5 - C_1C_6R_1R_2R_3R_5\right) + s\left(-C_1R_1R_2R_3R_5 - C_1C_6R_1R_2R_3R_5\right) + s\left(-C_1R_1R_2R_3R_5\right) + s\left(-
9.2513 X-INVALID-ORDER-2513 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^3\left(C_1C_3C_6R_1R_2R_3R_6 + C_1C_4C_6R_1R_2R_3R_6 - C_1C_5C_6R_1R_2R_3R_6\right) + s^2\left(C_1C_3R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_3R_6 + C_3C_6R_1R_3R_6 + C_3C_6R_2R_3R_6 + C_4C_6R_2R_3R_6 - C_5C_6R_2R_3R_6\right) + s\left(C_1R_1R_2 + C_1R_3R_3R_6 + C_3C_6R_1R_3R_6 + C_3C_6R_1R_3R_6 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_3R_6\right) + s\left(C_1R_1R_2 + C_1R_3R_3R_6 + C_3C_6R_1R_3R_6 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_3R_6\right) + s\left(C_1R_3R_3R_6 + C_3C_6R_1R_3R_6 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_3R_6\right) + s\left(C_1R_3R_3R_6 + C_3C_6R_1R_3R_6 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_3R_6\right) + s\left(C_1R_3R_3R_6 + C_3C_6R_2R_3R_6 + C_3C_6R_2R_3R_6\right) + s\left(C_1R_3R_3R_6 + C_3C_6R_3R_3R_6\right) + s\left(C_1R_3R_3R_6\right) + s\left(C_1R_3R_3R_6
9.2514 X-INVALID-ORDER-2514 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s}{R_1 + R_2 + R_3 + s^3\left(C_1C_3C_5R_1R_2R_3R_5 + C_1C_4C_5R_1R_2R_3 + C_1C_4R_1R_2R_3 - C_1C_5R_1R_2R_3 + C_1C_5R_1R_2R_3 + C_1C_5R_1R_3R_5 + C_3C_5R_2R_3R_5 + C_4C_5R_2R_3R_5 \right) + s\left(C_1R_1R_2 + C_1R_1R_3 + C_3R_1R_3 + C_4R_2R_3 + C_4R_3R_3 + C_
9.2515 X-INVALID-ORDER-2515 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_5R_1R_2R_3s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_1C_3C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_3R_5 + C_3C_5C_6R_1R_3R_5 + C_3C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_3R_5 \right) + s\left(C_1C_3C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_3R_5 + C_3C_5C_6R_1R_3R_5 + C_3C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_3R_5 \right) + s\left(C_1C_3C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_3R_5 + C_3C_5C_6R_1R_3R_5 + C_4C_5C_6R_2R_3R_5 + C_4C_5C_6R_1R_2R_3 +
9.2516 X-INVALID-ORDER-2516 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_5C_6R_1R_2R_3 + C_5C_6R_1R_2R
9.2517 X-INVALID-ORDER-2517 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{R_1 + R_2 + R_3 + s^4 \left( C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_4 C_5 R_1 R_2 R_3 R_6 + C_1 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_5 C_6
9.2518 X-INVALID-ORDER-2518 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                     H(s) = \frac{C_3C_5R_1R_2R_3R_5s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_5R_1R_2R_5\right)}{s^3\left(C_1C_3C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_5 - C_1C_5C_6R_1R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_3R_3 + C_6R_3
9.2519 X-INVALID-ORDER-2519 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                     H(s) = \frac{C_3C_5C_6R_1R_2R_3R_5R_6s^3 + R_1R_2 + s^2\left(C_3C_5R_1R_2R_3R_5 + C_3C_6R_1R_2R_3R_6 + C_5C_6R_1R_2R_3 + C_5R_1R_2R_3 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{s^3\left(C_1C_3C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_5C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_3C_6R_1R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_
9.2520 X-INVALID-ORDER-2520 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
```

 $C_3C_5R_1R_2R_3R_5R_6s^2 + R_1R_2R_6 + s(C_3R_1R_2R_3R_6 + C_5R_1R_2R_3R_6 + C_5R_1R_2R_3R_5 + C_5R_1R_2R_5 + C_5R_1R_5 + C_5R_5 + C_5R_$ 

**9.2523** X-INVALID-ORDER-2523  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_6R_1R_2R_3R_4R_6s^3 + R_1R_2 + s^2\left(C_3C_4R_1R_2R_3R_4 + C_3C_6R_1R_2R_3R_6 + C_4C_6R_1R_2R_4R_6\right) + s\left(C_3R_1R_2R_3 + C_4R_1R_2R_4R_6\right) + s\left(C_3R_1R_2R_3R_4 + C_3C_6R_1R_2R_3R_4 + C_3C_6R_1R_2R_3R_4$ 

**9.2524** X-INVALID-ORDER-2524  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{C_1C_3C_4C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_3R_4R_6 + C_1C_4C_6R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_3R_4R_5 + C_1C_$ 

**9.2525** X-INVALID-ORDER-2525  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_2R_6s + s^2\left(C_3C_5R_1R_2R_3R_6 + C_4C_5R_1R_2R_4R_6\right)}{R_1 + R_2 + R_3 + s^3\left(C_1C_3C_4R_1R_2R_3R_4 - C_1C_4C_5R_1R_2R_3R_4 + C_1C_4R_1R_2R_3 + C_1C_4R_1R_2R_4 + C_1C_4R_1R_3R_4 - C_1C_5R_1R_2R_3 + C_3C_4R_1R_3R_4 + C_3C_4R_2R_3R_4 - C_4C_5R_2R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_3 + C_3R_1R_3 + C_3R_2R_3 + C_4R_1R_4R_4\right)}$ 

**9.2526** X-INVALID-ORDER-2526  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_4C_5R_1R_2R_3 + C_4C_5R_1R_2R_4\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_1C_3C_4C_6R_1R_2R_3R_4 - C_1C_4C_5R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 + C_1C_4C_6R$ 

**9.2527** X-INVALID-ORDER-2527  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_3R_4 + C_3C_5C_6R_1R_2R_3R_6 + C_4C_5C_6R_1R_2R_4R_6\right) + s\left(C_3C_5R_1R_2R_3 + C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_4 +$ 

**9.2528** X-INVALID-ORDER-2528  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{R_1 + R_2 + R_3 + s^4 (C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_3 R_6 - C_1 C_4 C_5 R_1 R_2 R_3 R_6 + C_1 C_4 C_6 R_1 R$ 

**9.2529** X-INVALID-ORDER-2529  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{1}{C_1C_3C_4C_5R_1R_2R_3R_4R_5s^4 + R_1 + R_2 + R_3 + s^3\left(C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_5R_1R_2R_3R_4 + C_1C_4C_5R_1R_2R_3R_5 + C_1C_4C_5R_1R_2R_3R_4 + C_1C_4C_$ 

**9.2530** X-INVALID-ORDER-2530  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{1}{C_1C_3C_4C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_1 + C_6R_2 + C_6R_3 + s^3(C_1C_3C_4C_6R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_3R_4R_5 + C_3C_4C_5C_6R_1R_3R_4R_5 + C_3C_4C_5C_6R_1R_3R_5 + C_3C_4C_5C_6R_1R_3R_5 + C_3C_4C_5C_6R_1R_5 + C_3C_4C_5C_6R_1R_5 + C_3C_5C_6R_1R_5 + C_3C_5C_6R_1R_5 + C_3$ 

```
9.2531 X-INVALID-ORDER-2531 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{1}{C_1C_3C_4C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_1C_3C_4C_6R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_3R_4R_5 + C_1C_4C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_$ 

**9.2532** X-INVALID-ORDER-2532 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

**9.2533** X-INVALID-ORDER-2533 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$$

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_6 + s^2\left(C_3C_4R_1R_2R_3R_4R_6 + C_3C_5R_1R_2R_3R_5R_6 + C_4C_5R_1R_2R_4R_5R_6\right) + s\left(C_3R_1R_2R_3R_6 + C_4C_5R_1R_2R_3R_4R_5 + C_4C_5R_1R_2R_3R_4R_5 + C_4C_5R_1R_2R_3R_4R_5 + C_4C_5R_1R_2R_3R_4R_5 + C_4C_5R_1R_2R_3R_4R_5 + C_4C_5R_1R_2R_3R_4 + C_4C_5$ 

**9.2534** X-INVALID-ORDER-2534 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$$

 $\frac{C_{3}C_{4}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}s^{6} + R_{1}R_{2} + s^{2}\left(C_{3}C_{4}R_{1}R_{2}R_{3}R_{4} + C_{3}C_{5}R_{1}R_{2}R_{3}R_{5} + C_{4}C_{5}R_{1}R_{2}R_{3}R_{4} + C_{3}C_{5}R_{1}R_{2}R_{3}R_{5} + C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{3}C_{5}R_{1}R_{2}R_{3}R_{5} + C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} - C_{1}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{4}C_{$ 

**9.2535** X-INVALID-ORDER-2535  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_5 + C_3C_4C_6R_1R_2R_3R_4R_5 + C_3C_4C_6R_1R_2R_3R_4R_6 + C_3C_5C_6R_1R_2R_3R_5R_6 + C_4C_5C_6R_1R_2R_3R_4 + C_3C_5C_6R_1R_2R_3R_4 + C_3C_5C_6R_1R_2R_3R_4R_5 + C_3C_4C_6R_1R_2R_3R_4R_5 + C_3C_4C_6R_1R_3R_4R_5 + C_3C_4C_6R$ 

**9.2536** X-INVALID-ORDER-2536  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{R_{1}R_{5}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}+s^{4}\left(C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}-C_{1}C_{4}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{4}C_{$ 

**9.2537** X-INVALID-ORDER-2537  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3R_1R_2R_3R_4s + R_1R_2R_4}{s^3\left(C_1C_3C_6R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_6R_2R_3R_4 + C_6R_3R_3R_4 + C_6R_$ 

**9.2538** X-INVALID-ORDER-2538  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$ 

 $\frac{C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{6}s^{2}+R_{1}R_{2}R_{4}+s\left(C_{3}R_{1}R_{2}R_{3}R_{4}+C_{6}R_{1}R_{2}R_{4}R_{6}\right)}{s^{3}\left(C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}+C_{1}C_{6}R_$ 

**9.2539** X-INVALID-ORDER-2539  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{c_3r_1r_2r_3r_4}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s^3\left(C_1C_3C_6R_1R_2R_3R_4R_5R_6 + C_1C_4C_6R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4R_5 - C_1C_6R_1R_2R_3R_4R_6 + C_1C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_2R_5 + C_1$ 

**9.2540** X-INVALID-ORDER-2540  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s$ 

 $\frac{-3C_{3}R_{1}R_{2}R_{3}R_{4}}{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}+S^{3}\left(C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{4}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{1}$ 

```
9.2541 X-INVALID-ORDER-2541 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)
```

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4R_6s}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^3\left(C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4 + C_1C_5R_1R_2R_3R_4 + C_1C_5R_1R_3R_4 + C_$ 

**9.2542** X-INVALID-ORDER-2542  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $C_3C_5R_1R_2R_3R_4s + C_5R_1R_2R_3$  $H(s) = \frac{C_3C_5R_1R_2R_3R_4s + C_5R_1R_2}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^3\left(C_1C_3C_5C_6R_1R_2R_3R_4R_5 + C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_3R_4 + C_$ 

**9.2543** X-INVALID-ORDER-2543  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4$ 

**9.2544** X-INVALID-ORDER-2544  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^4\left(C_1C_3C_5C_6R_1R_2R_3R_4R_5R_6 + C_1C_4C_5C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_1C_4C_5R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_1R_2R_5C_6R_1R_5C_6R_1R_5C_6R_1R_5C_6R_1R_5C_6R_1R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_$ 

**9.2545** X-INVALID-ORDER-2545  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5\right)}{s^3\left(C_1C_3C_6R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_3R_4R_5 - C_1C_5C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C$ 

**9.2546** X-INVALID-ORDER-2546  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_4 + s^2\left(C_3C_5R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_6 + C_5C_6R_1R_2R_3R_4 + C_5R_1R_2R_3R_4 + C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_5 + C_6R_1R_2R_4R_5 + C_6R_1R_2R_3R_4R_5 + C_6R_1R_2R_3R_4 + C_6R_1R_2R_3R_4R_5 + C_6R_1R_2R_3R_4R_5 + C_6R_1R_2R_3R_4R_5 +$ 

**9.2547** X-INVALID-ORDER-2547  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + R_3 R_4 R_5 + R_3 R_4 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 R_5 R_6 - C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_4 R_1 R_2 R_3 R_4 R_5 - C_1 C_5 R_1 R_2 R_3 R_4 R_5 - C_1 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_6 R_1 R_2 R_3 R_4 R_5$ 

**9.2548** X-INVALID-ORDER-2548  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{R_1 R_4}{C_1 C_2 C_6 R_1 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_6 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_5 + C_1 C_6 R_1 R_4 R_5 + C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$ 

**9.2549** X-INVALID-ORDER-2549  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_6 R_1 R_4 R_6 s + R_1 R_4}{C_1 C_2 C_6 R_1 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_6 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_5 + C_1 C_6 R_1 R_4 R_5 + C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$ 

**9.2550** X-INVALID-ORDER-2550  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{R_1R_4R_6}{C_1C_2C_6R_1R_3R_4R_5R_6s^3 - R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_1C_2R_1R_3R_4R_5 - C_1C_6R_1R_3R_4R_6 + C_1C_6R_1R_3R_4R_5 + C_2C_6R_1R_4R_5R_6 + C_2C_6R_3R_4R_5R_6\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5 - C_6R_3R_4R_6\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5 - C_6R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5 - C_6R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5 - C_6R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5 - C_6R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_2R_1R_4R_5\right) + s\left(-C_1R_1R_3R_5 + C_2R_1R_4R_5 + C_2R_3R_4R_5\right) + s\left(-C_1R_1R_3R_5 + C_2R_3R_4R_5 + C_2R_3R_4R_5\right) + s\left(-C_1R_1R_3R_5 + C_2R_3R_4R_5\right) + s\left(-C_1R_1R_3R_5 + C_1R_3R_5\right) + s\left(-C_1R_1R_3R_5 + C_2R_3R_4R_5\right) + s\left(-C_1R_1R_3R_5 + C_1R_3R_5\right) + s\left(-C_1R_1R_3R_5\right) + s\left(-C_1R_1R_5\right) + s\left(-C_1R_1R_3R_5\right) + s\left(-C_1R_1R_3R_5\right) + s\left(-C_1R_1R_3R$ 

```
9.2551 X-INVALID-ORDER-2551 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^3 \left(C_1 C_2 C_6 R_1 R_3 R_4 R_6 - C_1 C_5 C_6 R_1 R_3 R_4 + C_1 C_5 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_6 + C_1 C_6 R_1 R_4 R_6 + C_2 C_6 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4 + C_6 R_3 R_6 + C_6 R_4 R_6 \right)}$ 

**9.2552** X-INVALID-ORDER-2552  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_5 R_1 R_4 R_6 s}{C_1 C_2 C_5 R_1 R_3 R_4 R_5 s^3 + R_3 + R_4 + s^2 \left(C_1 C_2 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4 + C_1 C_5 R_1 R_3 R_5 + C_1 C_5 R_1 R_4 R_5 + C_2 C_5 R_1 R_4 R_5 \right) + s \left(C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4 + C_5 R_3 R_5 + C_5 R_4 R_5 \right)}$ 

**9.2553** X-INVALID-ORDER-2553  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_1 R_4}{C_1 C_2 C_5 C_6 R_1 R_3 R_4 R_5 s^3 + C_6 R_3 + C_6 R_4 + s^2 \left(C_1 C_2 C_6 R_1 R_3 R_4 - C_1 C_5 C_6 R_1 R_3 R_4 + C_1 C_5 C_6 R_1 R_3 R_5 + C_1 C_5 C_6 R_1 R_4 R_5 + C_2 C_5 C_6 R_1 R_4 R_5 + C_2 C_5 C_6 R_1 R_4 + C_2 C_6 R_1 R_4 + C_2 C_6 R_3 R_4 - C_5 C_6 R_3 R_4 + C_5 C_6 R_3 R_5 + C_5 C_6 R_4 R_5 + C_5 C_6 R_5 R_5 + C_5 C_$ 

**9.2554** X-INVALID-ORDER-2554  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_4R_6s + C_5R_1R_4}{C_1C_2C_5C_6R_1R_3R_4R_5s^3 + C_6R_3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_3R_4 - C_1C_5C_6R_1R_3R_4 + C_1C_5C_6R_1R_3R_5 + C_1C_5C_6R_1R_4R_5 + C_2C_5C_6R_1R_4R_5 + C_2C_5C_6R_1R_4 + C_2C_6R_3R_4 + C_5C_6R_3R_4 +$ 

**9.2555** X-INVALID-ORDER-2555  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

**9.2556** X-INVALID-ORDER-2556  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_1 R_4 R_5 s + R_1 R_4}{s^3 \left(C_1 C_2 C_6 R_1 R_3 R_4 R_5 - C_1 C_5 C_6 R_1 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_5 + C_1 C_6 R_1 R_4 R_5 + C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}$ 

**9.2557** X-INVALID-ORDER-2557  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_4R_5R_6s^2 + R_1R_4 + s\left(C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 - C_1C_5C_6R_1R_3R_4R_5\right) + s^2\left(-C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_4R_5 + C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$ 

**9.2558** X-INVALID-ORDER-2558  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_4 R_5 R_6 s + R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_3 R_4 R_5 R_6 - C_1 C_5 C_6 R_1 R_3 R_4 R_5 R_6\right) + s^2 \left(C_1 C_2 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_3 R_4 R_5 - C_1 C_6 R_1 R_3 R_4 R_5 + C_1 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_3 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 R_5 - C_1 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_3 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_4 R_5 R_6\right) + s \left(-C_1 R_1 R_4 R_5 R_6\right) + s \left$ 

**9.2559** X-INVALID-ORDER-2559  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{R_1}{s^3 \left(C_1 C_2 C_6 R_1 R_3 R_5 + C_1 C_4 C_6 R_1 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_5 + C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 + C_4 C_6 R_3 R_5\right) + s \left(-C_6 R_3 + C_6 R_5\right)}$ 

**9.2560** X-INVALID-ORDER-2560  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_6 R_1 R_6 s + R_1}{s^3 \left(C_1 C_2 C_6 R_1 R_3 R_5 + C_1 C_4 C_6 R_1 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_5 + C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 + C_4 C_6 R_3 R_5\right) + s \left(-C_6 R_3 + C_6 R_5\right)}$ 

**9.2561** X-INVALID-ORDER-2561  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{R_1 R_6}{-R_3 + R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6\right) + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 R_1 R_3 R_5 - C_1 C_6 R_1 R_3 R_6 + C_1 C_6 R_1 R_5 R_6 + C_2 C_6 R_1 R_5 R_6 + C_2 C_6 R_3 R_5 R_6\right) + s \left(-C_1 R_1 R_3 + C_1 R_1 R_5 + C_2 R_1 R_5 + C_2 R_3 R_5 + C_4 R_3 R_5 - C_6 R_3 R_6 + C_6 R_5 R_5 R_6\right) + s \left(-C_1 R_1 R_3 R_5 R_6 + C_1 C_4 R_1 R_3 R_5 + C_1 C_4 R_1 R_3 R_5 - C_1 C_6 R_1 R_3 R_5 + C_1 C_4 R_1 R_5$ 

**9.2562** X-INVALID-ORDER-2562  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_6 s}{s^3 \left(C_1 C_2 C_6 R_1 R_3 R_6 + C_1 C_4 C_6 R_1 R_3 R_6 - C_1 C_5 C_6 R_1 R_3 R_6\right) + s^2 \left(C_1 C_2 R_1 R_3 + C_1 C_4 R_1 R_3 - C_1 C_5 R_1 R_3 + C_1 C_6 R_1 R_6 + C_2 C_6 R_1 R_6 + C_2 C_6 R_3 R_6 + C_4 C_6 R_3 R_6\right) + s \left(C_1 R_1 + C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3 + C_6 R_6\right) + 1}$ 

**9.2563** X-INVALID-ORDER-2563  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_5 R_1 R_6 s}{s^3 \left(C_1 C_2 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5\right) + s^2 \left(C_1 C_2 R_1 R_3 + C_1 C_4 R_1 R_3 - C_1 C_5 R_1 R_3 + C_1 C_5 R_1 R_5 + C_2 C_5 R_1 R_5 + C_2 C_5 R_3 R_5 + C_4 C_5 R_3 R_5\right) + s \left(C_1 R_1 + C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3 + C_5 R_5\right) + 1}$ 

**9.2564** X-INVALID-ORDER-2564  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_1}{C_6 + s^3 \left(C_1 C_2 C_5 C_6 R_1 R_3 R_5 + C_1 C_4 C_5 C_6 R_1 R_3 R_5\right) + s^2 \left(C_1 C_2 C_6 R_1 R_3 + C_1 C_4 C_6 R_1 R_3 + C_1 C_5 C_6 R_1 R_5 + C_2 C_5 C_6 R_1 R_5 + C_2 C_5 C_6 R_3 R_5\right) + s \left(C_1 C_6 R_1 + C_2 C_6 R_1 + C_2 C_6 R_3 + C_4 C_6 R_3 + C_5 C_6 R_3\right)}$ 

**9.2565** X-INVALID-ORDER-2565  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_6s + C_5R_1}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_3R_5 + C_1C_4C_5C_6R_1R_3R_5\right) + s^2\left(C_1C_2C_6R_1R_3 + C_1C_4C_6R_1R_3 - C_1C_5C_6R_1R_5 + C_2C_5C_6R_1R_5 + C_2C_5C_6R_3R_5\right) + s\left(C_1C_6R_1 + C_2C_6R_1 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3 + C_5C_6R_5\right)}$ 

**9.2566** X-INVALID-ORDER-2566  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_6 s}{s^4 \left(C_1 C_2 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_2 C_6 R_1 R_3 R_6 + C_1 C_4 C_5 R_1 R_3 R_6 + C_1 C_5 C_6 R_1 R_5 R_6 + C_2 C_5 C_6 R_1 R_5 R_6 + C_2 C_5 C_6 R_3 R_5 R_6 + C_4 C_5 C_6 R_3 R_5 R_6 \right) \\ + s^2 \left(C_1 C_2 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_6 R_1 R_3 R_6 + C_1 C_5 C_6 R_1 R_5 R_6 + C_2 C_5 C_6 R_3 R_5 R_6 + C_4 C_5 C_6 R_3 R_5 R_6 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_6 + C_1 C_5 C_6 R_1 R_5 R_6 + C_2 C_5 C_6 R_1 R_5 R_6 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_6 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 R_3 R_5 \right) \\ + s^2 \left(C_1 C_2 R_1 R_3 R_5 + C_1 C_4 R_3 R_5 \right) \\ + s^2 \left(C_1 C_$ 

**9.2567** X-INVALID-ORDER-2567  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_1 R_5 s + R_1}{s^3 \left(C_1 C_2 C_6 R_1 R_3 R_5 + C_1 C_4 C_6 R_1 R_3 R_5 - C_1 C_5 C_6 R_1 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_5 + C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 + C_4 C_6 R_3 R_5 - C_5 C_6 R_3 R_5\right) + s \left(-C_6 R_3 + C_6 R_5\right)}$ 

**9.2568** X-INVALID-ORDER-2568  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_5R_6s^2 + R_1 + s\left(C_5R_1R_5 + C_6R_1R_6\right)}{s^3\left(C_1C_2C_6R_1R_3R_5 + C_1C_4C_6R_1R_3R_5 - C_1C_5C_6R_1R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6R_1R_5 + C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_4C_6R_3R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$ 

**9.2569** X-INVALID-ORDER-2569  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_5 R_6 s + R_1 R_6}{-R_3 + R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6 - C_1 C_5 C_6 R_1 R_3 R_5 + C_1 C_4 R_1 R_3 R_5 - C_1 C_5 R_1 R_3 R_5 - C_1 C_6 R_1 R_3 R_6 + C_2 C_6 R_1 R_5 R_6 + C_2 C_6 R_3 R_5 R_6 + C_4 C_6 R_3 R_5 R_6 - C_5 C_6 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_3 + C_1 R_1 R_5 R_6 + C_2 C_6 R_1 R_5 R_6 + C_2 C_6 R_3 R_5 R_6 + C_4 C_6 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_3 R_5 - C_1 C_5 R_1 R_5 R_6 + C_4 C_6 R_3 R_5 R_6 + C_4 C_6 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_3 R_5 - C_1 C_5 R_1 R_3 R_5 - C_1 C_5 R_1 R_3 R_5 - C_1 C_5 R_1 R_5 R_6 \right) + s \left(-C_1 R_1 R_3 R_5 - C_1 C_5 R_1 R_3 R_5 - C_1 C_5 R_1 R_5 R_6 \right) + s \left(-C_1 R_1 R_3 R_5 - C_1 C_5 R_1 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_6 - C_1 C_5 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_6 - C_1 C_5 R_5 R_5 R_6 \right) + s \left(-C_1 R_1 R_5 R_6 - C_1 R_5 R_5 R_6 \right) + s \left(-C_1$ 

**9.2570** X-INVALID-ORDER-2570  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $\frac{C_4R_1R_4R_6s+R_1R_6}{C_1C_2C_4R_1R_3R_4R_5s^3-R_3+R_5+s^2\left(C_1C_2R_1R_3R_5-C_1C_4R_1R_3R_4+C_1C_4R_1R_3R_5+C_2C_4R_1R_4R_5+C_2C_4R_3R_4R_5\right)+s\left(-C_1R_1R_3+C_1R_1R_5+C_2R_1R_5+C_2R_3R_5-C_4R_3R_4+C_4R_3R_5+C_4R_4R_5\right)}$ 

```
9.2571 X-INVALID-ORDER-2571 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_4 R_1 R_4 s + R_1}{C_1 C_2 C_4 C_6 R_1 R_3 R_4 R_5 s^4 + s^3 \left(C_1 C_2 C_6 R_1 R_3 R_5 - C_1 C_4 C_6 R_1 R_3 R_4 + C_1 C_4 C_6 R_1 R_3 R_5 + C_1 C_4 C_6 R_1 R_4 R_5 + C_2 C_4 C_6 R_1 R_3 + C_1 C_6 R_1 R_5 + C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 - C_4 C_6 R_3 R_4 + C_4 C_6 R_3 R_5 + C_4 C_6 R_4 R_5 \right) + s \left(-C_6 R_3 R_4 R_5 + C_4 C_6 R_3 R_5 + C_4 C_6 R_5 R_5 + 
9.2572 X-INVALID-ORDER-2572 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_4C_6R_1R_4R_6s^2 + R_1 + s\left(C_4R_1R_4 + C_6R_1R_6\right)}{C_1C_2C_4C_6R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_3R_5 - C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_5 + C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_1R_3 + C_1C_6R_1R_5 + C_2C_6R_1R_5 + C_2C_6R_3R_5 - C_4C_6R_3R_4 + C_4C_6R_3R_5 + C_4C_6R_3R_4 + C_4C_6R_3R_5 
9.2573 X-INVALID-ORDER-2573 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
```

**9.2574** X-INVALID-ORDER-2574  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4R_6s^2 + C_5R_1R_6s}{s^3\left(C_1C_2C_4R_1R_3R_4 - C_1C_4C_5R_1R_3R_4\right) + s^2\left(C_1C_2R_1R_3 + C_1C_4R_1R_3 + C_1C_4R_1R_4 - C_1C_5R_1R_3 + C_2C_4R_1R_4 + C_2C_4R_3R_4 - C_4C_5R_3R_4\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 + C_4R_4 - C_5R_3\right) + 1}$ 

**9.2575** X-INVALID-ORDER-2575  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4s + C_5R_1}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_3R_4 - C_1C_4C_5C_6R_1R_3R_4\right) + s^2\left(C_1C_2C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_6R_1R_4 + C_2C_4C_6R_1R_4 + C_2C_4C_6R_3R_4 - C_4C_5C_6R_3R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_3 + C_4C_6R_3 + C_4C_6R_4 - C_5C_6R_3\right)}$ 

**9.2576** X-INVALID-ORDER-2576  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_4C_5C_6R_1R_4R_6s^2 + C_5R_1 + s\left(C_4C_5R_1R_4 + C_5C_6R_1R_6\right)}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_3R_4 - C_1C_4C_5C_6R_1R_3R_4\right) + s^2\left(C_1C_2C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_6R_1R_4 + C_2C_4C_6R_1R_4 + C_2C_4C_6R_3R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_3 + C_4C_6R_3 + C_4C_6R_3 + C_4C_6R_3 + C_4C_6R_3\right)}$ 

**9.2577** X-INVALID-ORDER-2577  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_4C_5R_1R_4R_6s^2 + C_5R_1R_6s$  $H(s) = \frac{C_4C_5R_1R_4R_6s^2 + C_5R_1R_6s}{s^4\left(C_1C_2C_4C_6R_1R_3R_4R_6 - C_1C_4C_5C_6R_1R_3R_4 + C_1C_2C_6R_1R_3R_6 + C_1C_4C_6R_1R_3R_6 + C_1C_4C_6R_1R_$ 

**9.2578** X-INVALID-ORDER-2578  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_4C_5R_1R_4R_6s^2 + C_5R_1R_6s}{C_1C_2C_4C_5R_1R_3R_4 + C_1C_2C_5R_1R_3R_5 - C_1C_4C_5R_1R_3R_5 + C_1C_4C_5R_1R_4R_5 + C_2C_4C_5R_1R_4R_5 + C_2C_4C_5R_1R_3 + C_1C_4R_1R_3 + C_1C_4R_1R_3 + C_1C_4R_1R_3 + C_1C_5R_1R_3 + C_1C_5R_1R_3 + C_1C_5R_1R_5 + C_2C_4R_1R_4 + C$ 

**9.2579** X-INVALID-ORDER-2579  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_4C_5R_1R_4s + C_5R_1$  $H(s) = \frac{C_4C_5R_1R_4s + C_5R_1}{C_1C_2C_4C_5C_6R_1R_3R_4R_5s^4 + C_6 + s^3\left(C_1C_2C_4C_6R_1R_3R_4 + C_1C_4C_5C_6R_1R_3R_4 + C_1C_4C_5C_6R_1R_3R_5 + C_1C_4C_5C_6R_1R_4R_5 + C_2C_4C_5C_6R_1R_4R_5 + C_2C_4C_5C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_$ 

**9.2580** X-INVALID-ORDER-2580  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_4C_5C_6R_1R_4R_6s^2 + C_5R_1 + s(C_4C_5R_1R_4 + C_5C_6R_1R_4 + C_5C_6R_1R_5 + C_5C_6R_5 + C_5C_$  $\frac{C_4C_5C_6R_1R_3R_4R_5s^4 + C_6 + s^3\left(C_1C_2C_4C_6R_1R_3R_4 + C_1C_2C_5C_6R_1R_3R_5 + C_1C_4C_5C_6R_1R_3R_5 + C_1C_4C_5C_6R_1R_4R_5 + C_2C_4C_5C_6R_1R_4R_5 + C_2C_4C_5C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_6$ 

```
9.2581 X-INVALID-ORDER-2581 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_2C_4C_5C_6R_1R_3R_4R_5R_6s^5 + s^4\left(C_1C_2C_4C_5R_1R_3R_4R_6 + C_1C_2C_5C_6R_1R_3R_4R_6 + C_1C_4C_5C_6R_1R_3R_5R_6 + C_1C_4C_5C_6R_1R_3R_5R_6 + C_1C_4C_5C_6R_1R_4R_5R_6 + C_2C_4C_5C_6R_1R_4R_5R_6 + C_2C_4C_5C_6R_1R_4R_5R_6 + C_2C_4C_5C_6R_1R_3R_4R_5 + C_1C_4C_5C_6R_1R_3R_4R_6 + C_1C_4C_5C_6R_1R_4R_5R_6 + C_1C_4C_5C_6R_1R_5R_5R_5 + C_1C_4C_5C_6R_1R_5R_5R_5 + C_1C_4C_5C_6R_1R_5R_
9.2582 X-INVALID-ORDER-2582 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_4C_5R_1R_4R_5R_6s^2 + R_1R_6 + s\left(C_4R_1R_4R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^3\left(C_1C_2C_4R_1R_3R_4R_5 - C_1C_4C_5R_1R_3R_4R_5 + c_1C_4R_1R_3R_4 + C_1C_4R_1R_3R_5 + C_1C_4R_1R_3R_5 + C_1C_4R_1R_3R_5 + C_2C_4R_1R_4R_5 + C_2C_4R_3R_4R_5 + c_2C_4R_3R_4
9.2583 X-INVALID-ORDER-2583 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_4C_5R_1R_4R_5s^2 + R_1 + s\left(C_4R_1R_4 + C_5R_1R_5\right)}{s^4\left(C_1C_2C_4C_6R_1R_3R_4R_5 - C_1C_4C_5C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_5 + C_1C_4C_6R_1R_3R_5 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_5 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_5 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_4R_5 + C_1C_4C_6R_1R_5 + C_1C
9.2584 X-INVALID-ORDER-2584 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_4C_5C_6R_1R_4R_5R_6s^3 + R_1 + s^2\left(C_4C_5R_1R_4R_5 + C_4C_6R_1R_4R_6 + C_5C_6R_1R_5R_6\right) + s\left(C_4R_1R_4 + C_5R_1R_5 + C_6R_1R_6\right)}{s^4\left(C_1C_2C_4C_6R_1R_3R_4R_5 - C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_5 + C_1C_4C_6R_1R_3R_5 + C_1C_4C_6R_1R_3R_5 + C_1C_4C_6R_1R_3R_5 + C_2C_4C_6R_1R_4R_5 + C_2C_4C_4C_4R_4R_5 + C_2C_4C_4C_4C_4R_4R_4 + C_2C_4C_4C_4R_4R_5 + C_2C_4C_4C_4C_4R_4R_5 + C_2C_4C_4C_4C_4R_4R_5 + C_2C_4C_4C_4
9.2585 X-INVALID-ORDER-2585 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{1}{-R_3 + R_5 + s^4 \left( C_1 C_2 C_4 C_6 R_1 R_3 R_4 R_5 R_6 - C_1 C_4 C_5 C_6 R_1 R_3 R_4 R_5 + C_1 C_2 C_6 R_1 R_3 R_4 R_5 - C_1 C_4 C_6 R_1 R_4 R_5 R_6 - C_1 C_5 C_6 R_1 R_3 R_5 R_6 + C_2 C_4 C_6 R_1 R_5 R_6 - C_1 C_5 C_6 
9.2586 X-INVALID-ORDER-2586 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                           H(s) = \frac{R_1 R_4}{s^3 \left(C_1 C_2 C_6 R_1 R_3 R_4 R_5 + C_1 C_4 C_6 R_1 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_5 + C_1 C_6 R_1 R_4 R_5 + C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 + C_4 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}
9.2587 X-INVALID-ORDER-2587 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                           H(s) = \frac{C_6R_1R_4R_6s + R_1R_4}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_4C_6R_1R_3R_4R_5\right) + s^2\left(-C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_4R_5 + C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}
9.2588 X-INVALID-ORDER-2588 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{R_1 R_4 R_6}{-R_3 R_4 + R_3 R_5 + R_4 R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_4 R_5 + C_1 C_4 R_1 R_3 R_4 R_5 - C_1 C_6 R_1 R_3 R_4 R_6 + C_1 C_6 R_1 R_3 R_4 R_5 + C_1 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_1 R_4 R_5 R_6 + C_2 C_6 R_3 R_4 R_5 R_6 + C_4 C_6 R_5 R_5 R_6 + C_5 C_6 R_5 R$ 

**9.2589** X-INVALID-ORDER-2589  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_4 R_6 s}{R_3 + R_4 + s^3 \left(C_1 C_2 C_6 R_1 R_3 R_4 R_6 + C_1 C_4 C_6 R_1 R_3 R_4 R_6 - C_1 C_5 C_6 R_1 R_3 R_4 + C_1 C_4 R_1 R_3 R_4 + C_1 C_5 R_1 R_3 R_4 + C_1 C_6 R_1 R_4 R_6 + C_2 C_6 R_1 R_4 R_6 + C_2 C_6 R_3 R_4 R_6 - C_5 C_6 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_5 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 + C_1 C_6 R_1 R_4 R_6 + C_2 C_6 R_3 R_4 R_6 + C_4 C_6 R_3 R_4 R_6 + C_5 C_6 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_5 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 + C_1 C_6 R_1 R_4 R_6 + C_2 C_6 R_3 R_4 R_6 + C_4 C_6 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_5 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 \right) + s \left(C_1 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_4 \right)$ 

**9.2590** X-INVALID-ORDER-2590  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

```
9.2591 X-INVALID-ORDER-2591 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)
H(s) = \frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4 + s^3 \left(C_1 C_2 C_5 C_6 R_1 R_3 R_4 R_5 + C_1 C_4 C_5 C_6 R_1 R_3 R_4 + C_1 C_4 C_6 R_1 R_3 R_4 + C_1 C_5 C_6 R_1 R_4 R_5 + C_2 C_5 C_6 R_1 R_4 R_5 + C_2 C_5 C_6 R_3 R_4 R_5 + C_4 C_5 C_6 R_3 R_4 R_5 \right) + s \left(C_1 C_6 R_1 R_3 R_4 + C_1 C_6 C_6 R_1 R_3 R_4 + C_1 C_5 C_6 R_1 R_3 R_4 + C_1 C_5 C_6 R_1 R_4 R_5 + C_2 C_5 C_6 R_1 R_4 R_5 + C_4 C_5 C_6 R_3 R_4 R_5 \right) + s \left(C_1 C_6 R_1 R_3 R_4 + C_1 C_5 C_6 R_1 R_3 R_4 + C_
9.2592 X-INVALID-ORDER-2592 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
                              \frac{C_5C_6R_1R_4R_6s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_3R_4R_5 + C_1C_4C_5C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 + C_1C_5C_6R_1R_3R_5 + C_1C_5C_6R_1R_3R_5 + C_2C_5C_6R_1R_4R_5 + C_2C_5C_6R_3R_4R_5 + C_4C_5C_6R_3R_4R_5 \right) + s\left(C_1C_6R_1R_3R_4 + C_1C_5C_6R_1R_3R_4 + C_1
9.2593 X-INVALID-ORDER-2593 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{R_3 + R_4 + s^4 \left( C_1 C_2 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_5 + C_1 C_2 C_6 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 R_1 R_3 R_4 R_6 + C_1 C_5 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_5 + C_1 C_4 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_5 + C_1 C_4 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_5 + C_1 C_4 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_5 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_5 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_5 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_5 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 + C_1 C_5 C_6 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_3 R_4 R_6
9.2594 X-INVALID-ORDER-2594 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                           H(s) = \frac{C_5 R_1 R_4 R_5 s + R_1 R_4}{s^3 \left(C_1 C_2 C_6 R_1 R_3 R_4 R_5 + C_1 C_4 C_6 R_1 R_3 R_4 R_5 - C_1 C_5 C_6 R_1 R_3 R_4 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_3 R_4 + C_1 C_6 R_1 R_3 R_5 + C_1 C_6 R_1 R_4 R_5 + C_2 C_6 R_1 R_4 R_5 + C_2 C_6 R_3 R_4 R_5 - C_5 C_6 R_3 R_4 R_5\right) + s \left(-C_6 R_3 R_4 + C_6 R_3 R_5 + C_6 R_4 R_5\right)}
9.2595 X-INVALID-ORDER-2595 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
                                           H(s) = \frac{C_5C_6R_1R_4R_5R_6s^2 + R_1R_4 + s\left(C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_4C_6R_1R_3R_4R_5 + C_1C_5C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_4R_5 + C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_3R_5 + C_4C_6R_5R_5 
9.2596 X-INVALID-ORDER-2596 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_5R_1R_4R_5R_6s + R_1R_4R_6
                                \frac{C_5\kappa_1\kappa_4\kappa_5\kappa_6s + \kappa_1\kappa_4\kappa_6}{-R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(C_1C_2C_6R_1R_3R_4R_5R_6 + C_1C_4C_6R_1R_3R_4R_5R_6 + C_1C_5C_6R_1R_3R_4R_5 + C_1C_4R_1R_3R_4R_5 - C_1C_5R_1R_3R_4R_5 - C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_4R_5 + C_1C_6R_1R_4R_5 + C_1C_6R_1R_4R_5 + C_1C_6R_1R_4R_5 + C_1C_6R_1R_4R_5 + C_1C_6R_1R_5 + C_
9.2597 X-INVALID-ORDER-2597 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
9.2598 X-INVALID-ORDER-2598 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
                                                \frac{C_{3}C_{5}R_{1}R_{4}R_{6}s^{2}}{s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{4}R_{6}+C_{1}C_{3}C_{6}R_{1}R_{4}R_{6}+C_{2}C_{3}C_{6}R_{1}R_{4}R_{6}\right)+s^{2}\left(C_{1}C_{2}R_{1}R_{4}+C_{1}C_{3}R_{1}R_{4}+C_{1}C_{6}R_{1}R_{6}+C_{2}C_{3}R_{1}R_{4}+C_{2}C_{6}R_{4}R_{6}+C_{3}C_{6}R_{4}R_{6}\right)+s\left(C_{1}R_{1}+C_{2}R_{4}+C_{3}R_{4}+C_{5}R_{4}+C_{6}R_{6}\right)+1}
9.2599 X-INVALID-ORDER-2599 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                 H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_1C_2C_5R_1R_4R_5 + C_1C_3C_5R_1R_4R_5 + C_2C_3C_5R_1R_4R_5\right) + s^2\left(C_1C_2R_1R_4 + C_1C_3R_1R_4 - C_1C_5R_1R_4 + C_1C_5R_1R_5 + C_2C_3R_1R_4 + C_2C_5R_4R_5 + C_3C_5R_4R_5\right) + s\left(C_1R_1 + C_2R_4 + C_3R_4 - C_5R_4 + C_5R_5\right) + 1}
9.2600 X-INVALID-ORDER-2600 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_5R_1R_4s}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_1R_4R_5\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_5C_6R_1R_4 + C_1C_5C_6R_1R_4 + C_1C_5C_6R_1R_4 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_4R_5\right) + s\left(C_1C_6R_1 + C_2C_6R_4 + C_3C_6R_4 + C_5C_6R_4\right)}$ 

```
 \begin{aligned} \textbf{9.2601} \quad & \textbf{X-INVALID-ORDER-2601} \ Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \ \frac{1}{C_2s}, \ \frac{1}{C_3s}, \ R_4, \ R_5 + \frac{1}{C_5s}, \ R_6 + \frac{1}{C_6s}\right) \\ & H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^3 \left(C_1C_2C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_1R_4R_5 + s^2 \left(C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_5C_6R_1R_4 + C_2C_5C_6R_4R_5 + s^2 \left(C_1C_2C_6R_1R_4 + C_2C_5C_6R_4R_4 + C_2C_5C_6R_4R_5 + s^2 \left(C_1C_2C_6R_4R_5 + c_2C_3C_5C_6R_4R_4 + c_2C_5C_6R_4R_5 + s^2 \left(C_1C_2C_6R_4R_5 + c_2C_3C_6R_4R_4 + c_2C_5C_6R_4R_5 + s^2 \left(C_1C_2C_5C_6R_4R_5 + c_2C_3C_6R_4R_4 + c_2C_5C_6R_4R_4 + c_2C_5C_6R_4R_5 + s^2 \left(C_1C_2C_5C_6R_4R_4 + c_2C_5C_6R_4R_4 + c_2C_5C_6R_4R_5 + s^2 \left(C_1C_2C_5C_6R_4R_4 + c_2C_5C_6R_4R_4 + c_2C_5C_6R_4R_5 + s^2 \left(C_1C_2C_5C_6R_4R_4 + c_2C_5C_6R_4R_4 + c_2C_5C_6R_4R_5 + c_2C_3C_6R_4R_4 + c_2C_5C_6R_4R_4 + c_2C_5
```

**9.2603** X-INVALID-ORDER-2603  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_1C_2C_6R_1R_4R_5R_6 + C_1C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_1R_4R_5R_6 + C_2C_3R_1R_4R_5 + C_1C_6R_1R_4R_5 + C_1C_6R_1R$ 

**9.2604** X-INVALID-ORDER-2604  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_6 s}{s^3 \left(C_1 C_2 C_6 R_1 R_5 R_6 + C_1 C_3 C_6 R_1 R_5 R_6 + C_1 C_4 C_6 R_1 R_5 R_6 + C_2 C_3 C_6 R_1 R_5 R_6 + C_2 C_3 C_6 R_1 R_5 R_6 + C_1 C_4 R_1 R_5 + C_2 C_6 R_5 R_6 + C_3 C_6 R_5 R_6 + C_3 C_6 R_5 R_6 + C_4 C_6 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 + C_3 R_5 + C_4 R_5 - C_6 R_6 \right) - 1 \left(-C_1 R_1 + C_2 R_5 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_4 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 + C_3 R_5 R_6 + C_4 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 + C_3 R_5 R_6 + C_4 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_4 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_4 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_4 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_4 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 + C_3 R_5 R_6 \right) + s \left(-C_1 R_1 + C_2 R_5 R_5 R_6 + C_3 R_5 R_$ 

**9.2605** X-INVALID-ORDER-2605  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_5R_1 + C_2C_3R_1\right)}$$

**9.2606** X-INVALID-ORDER-2606  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_4C_6R_1 - C_1C_5C_6R_1 + C_2C_3C_6R_1\right)}$$

**9.2607** X-INVALID-ORDER-2607  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_6s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_4C_6R_1 - C_1C_5C_6R_1 + C_2C_3C_6R_1\right)}$$

9.2608 X-INVALID-ORDER-2608  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_5C_6R_1R_5R_6 + C_1C_3C_5C_6R_1R_5R_6 + C_2C_3C_5C_6R_1R_5R_6\right) + s^2\left(C_1C_2C_5R_1R_5 + C_1C_3C_6R_1R_6 + C_1C_3C_6R_1R_6 + C_1C_4C_6R_1R_6 + C_1C$ 

**9.2609** X-INVALID-ORDER-2609  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

$$H(s) = \frac{C_3C_5R_1R_5R_6s^2 + C_3R_1R_6s}{s^3\left(C_1C_2C_6R_1R_5R_6 + C_1C_3C_6R_1R_5R_6 + C_1C_5C_6R_1R_5R_6 + C_2C_3C_6R_1R_5R_6\right) + s^2\left(C_1C_2R_1R_5 + C_1C_3R_1R_5 + C_1C_4R_1R_5 - C_1C_5R_1R_5 + C_2C_3R_1R_5 + C_2C_6R_5R_6 + C_3C_6R_5R_6 + C_3C_6R_5R_6 + C_3C_6R_5R_6\right) + s\left(-C_1R_1 + C_2R_1R_5 + C_1C_3R_1R_5 + C_2C_3R_1R_5 + C_2C$$

**9.2610** X-INVALID-ORDER-2610  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

$$H(s) = \frac{C_3C_4R_1R_4R_6s^2 + C_3R_1R_6s}{s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_3C_4R_1R_4R_5 + C_2C_3C_4R_1R_4R_5\right) + s^2\left(C_1C_2R_1R_5 + C_1C_3R_1R_5 - C_1C_4R_1R_4 + C_1C_4R_1R_5 + C_2C_4R_4R_5 + C_3C_4R_4R_5\right) + s\left(-C_1R_1 + C_2R_5 + C_3R_5 - C_4R_4 + C_4R_5\right) - 1}$$

**9.2614** X-INVALID-ORDER-2614  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_4C_6R_1R_4R_6 + C_1C_3C_4C_6R_1R_4R_6 + C_2C_3C_4C_6R_1R_4R_6 + C_2C_3C_4C_6R_1R_4 + C_1C_2C_6R_1R_6 + C_1C_3C_4R_1R_4 + C_1C_3C_6R_1R_6 + C_1C_4C_5R_1R_4 + C_1C_4C_6R_1R_6 + C_1C_4C_5R_1R_4 + C_1C_4C_6R_1R_4 + C_$ 

**9.2615** X-INVALID-ORDER-2615  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_4C_5R_1R_4R_5 + C_1C_3C_4C_5R_1R_4R_5 + c_2C_3C_4C_5R_1R_4R_5 + c_2C_3C_4C_5R_1R_4 + C_1C_2C_5R_1R_5 + C_1C_3C_4R_1R_4 + C_1C_3C_5R_1R_5 + C_2C_3C_4R_1R_4 + C_2C_3C_5R_1R_5 + C_2C_3C_4C_5R_1R_5 + C_2C_3C_4C_5R_1R_5 + C_2C_3C_4C_5R_1R_5 + C_2C_3C_4C_5R_1R_5 + C_2C_3C_4C_5R_1R_5 + C_2C_3C_4C_5R_1R_5 + C_2C_3C_5R_1R_5 + C_$ 

**9.2616** X-INVALID-ORDER-2616  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3\left(C_1C_2C_4C_5C_6R_1R_4R_5 + C_1C_3C_4C_5C_6R_1R_4R_5\right) + s^2\left(C_1C_2C_4C_6R_1R_4 + C_1C_2C_5C_6R_1R_5 + C_1C_3C_4C_6R_1R_4 + C_1C_3C_5C_6R_1R_5 + C_1C_4C_5C_6R_1R_4 + C_1C_4C_5C_6R$ 

9.2617 X-INVALID-ORDER-2617  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_4R_6s^2 + C_3C_5R_1 + s\left(C_3C_4C_5R_1R_4 + C_3C_5C_6R_1R_4 + C_3C_5C_6R_1R$ 

9.2618 X-INVALID-ORDER-2618  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_2 + C_3 + C_4 - C_5 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_4 R_5 R_6 + C_2 C_3 C_4 C_5 C_6 R_1 R_4 R_5 R_6 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 C_5 R_1 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 R_5 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 R_5 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 R_5 R_4 R_5 + C_1 C_3 C_4 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 R_5 R_4 R_5 + C_1 C_3 C_4 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 R_5 R_4 R_5 + C_1 C_3 C_4 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 R_5 R_5 R_5 + C_1 C_3 C_5 R_5 R_5 \right) \\ + s^3 \left( C_1 C_2 C_4 R_5 R_5 R_5 + C_1 C_5 R_5 R_5 \right) \\$ 

**9.2619** X-INVALID-ORDER-2619  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_3C_4R_1R_4R_6 + C_3C_5R_1R_5R_6\right)}{s^3\left(C_1C_2C_4R_1R_4R_5 + C_1C_3C_4R_1R_4R_5 + C_2C_3C_4R_1R_4R_5 + C_2C_3C_4R_1R_4R_5 + C_1C_4R_1R_5 - C_1C_5R_1R_5 + C_2C_4R_4R_5 + C_2C_4R_4R_5 + C_3C_4R_4R_5 + C_3C$ 

**9.2620** X-INVALID-ORDER-2620  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4R_5s^2 + C_3R_1 + s\left(C_3C_4R_1R_4 + C_3C_5R_1R_5\right)}{-C_6 + s^3\left(C_1C_2C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6$ 

```
9.2621 X-INVALID-ORDER-2621 Z(s) = \left(\frac{R_1}{C_2R_1s+1}, \frac{1}{C_2s}, \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{1}{C_3s}, \frac{R_4}{C_4s}, \frac{1}{C_6s}, \frac{R_5}{C_6R_5s+1}, \frac{R_6}{C_6s}\right)

U(s) = \frac{C_3C_3C_5C_6R_1R_4R_6 + C_3C_5C_6R_1R_4R_6 + C_3C_5C_6R_1R_6R_6 + C_3C_5C_6R_1R_6 + C_3C_5C_6R_4R_6 + C_
```

 $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_1C_2C_6R_1R_4R_6 + C_1C_3C_6R_1R_4R_6 + C_1C_4C_6R_1R_4R_6 - C_1C_5C_6R_1R_4R_6 + C_2C_3C_6R_1R_4R_6 + C_1C_4R_1R_4 + C_1C_4R_1R_4 + C_1C_4R_1R_4 + C_1C_5R_1R_4 + C_1C_6R_1R_6 + C_2C_3R_1R_4 + C_2C_6R_4R_6 + C_3C_6R_4R_6 + C_4C_6R_4R_6 - C_5C_6R_4R_6 \right) + s\left(C_1R_1 + C_2R_4R_6 + C_3C_6R_4R_6 + C_3C_6R_4R_6 + C_4C_6R_4R_6 + C_4$ 

9.2625 X-INVALID-ORDER-2625  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_1C_2C_5R_1R_4R_5 + C_1C_3C_5R_1R_4R_5 + C_2C_3C_5R_1R_4R_5 + C_2C_3C_5R_1R_4R_5 + C_2C_3R_1R_4 + C_1C_5R_1R_5 + C_2C_3R_1R_4 + C_1C_3R_1R_5 + C_2C_3R_1R_4 + C_1C_3R_1R_5 + C_2C_3R_1R_4 + C_1C_3R_1R_5 + C_2C_3R_1R_4 + C_1C_3R_1R_5 + C_2C_3R_1R_5 + C_2C_3$ 

9.2626 X-INVALID-ORDER-2626  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4s}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_5C_6R_1R_4 + C_1C_5C_6R_1R_4 + C_2C_5C_6R_4R_5 + C_3C_5C_6R_4R_5 + C_3C_5C_$ 

**9.2627** X-INVALID-ORDER-2627  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_5C_6R_1R_4 + C_$ 

**9.2628** X-INVALID-ORDER-2628  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{s^4 (C_1 C_2 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_4 R_5 R_6 + C_2 C_3 C_5 C_6 R_1 R_4 R_5 R_6 + C_3 C_5 C_6 R_1 R_4 R_5 + C_1 C_2 C_6 R_1 R_4 R_5 + C_1 C_3 C_5 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_1 C_5 C_6 R_1 R_4 R_5 + C_1 C_5 C_6 R_1 R_4 R_5 + C_1 C_5 C_6 R_1 R_4$ 

**9.2629** X-INVALID-ORDER-2629  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_5s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_1C_2C_6R_1R_4R_5R_6 + C_1C_3C_6R_1R_4R_5R_6 + C_1C_5C_6R_1R_4R_5R_6 + C_2C_3C_6R_1R_4R_5 + C_1C_3R_1R_4R_5 + C_1C_4R_1R_4R_5 - C_1C_5R_1R_4R_5 - C_1C_6R_1R_4R_5 + C_2C_3R_1R_4R_5 + C_2C_3R_1R_4R$ 

**9.2630** X-INVALID-ORDER-2630  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_4 R_6 s}{C_1 C_2 C_3 R_1 R_3 R_4 R_5 s^3 - R_4 + R_5 + s^2 \left(C_1 C_2 R_1 R_4 R_5 - C_1 C_3 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_5 + C_1 C_3 R_1 R_4 R_5 + C_2 C_3 R_1 R_4 R_5 \right) + s \left(-C_1 R_1 R_4 + C_1 R_1 R_5 + C_2 R_4 R_5 - C_3 R_3 R_4 + C_3 R_3 R_5 + C_3 R_4 R_5 \right)}$ 

**9.2631** X-INVALID-ORDER-2631  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_4}{C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_5 s^3 - C_6 R_4 + C_6 R_5 + s^2 \left(C_1 C_2 C_6 R_1 R_4 R_5 - C_1 C_3 C_6 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 + C_1 C_6 R_1 R_5 + C_2 C_6 R_4 R_5 - C_3 C_6 R_3 R_4 + C_3 C_6 R_3 R_5 + C_3 C_6 R_3 R_4 R_5 \right)}$ 

**9.2632** X-INVALID-ORDER-2632  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_4R_6s + C_3R_1R_4}{C_1C_2C_3C_6R_1R_3R_4R_5s^3 - C_6R_4 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_5 + C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_3R_4\right)}$ 

**9.2633** X-INVALID-ORDER-2633  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_4 R_6 s}{C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_5 R_6 s^4 - R_4 + R_5 + s^3 \left(C_1 C_2 C_3 R_1 R_3 R_4 R_5 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 + C_1 C_3 C_6 R_1 R_4 R_5 R_6 + C_2 C_3 C_6 R_1 R_4 R_5 R_6 + C_2 C_3 C_6 R_3 R_4 R_5 R_6 \right) + s^2 \left(C_1 C_2 R_1 R_4 R_5 - C_1 C_3 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_5 + C_1 C_3 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_5 R_6 \right)}$ 

**9.2634** X-INVALID-ORDER-2634  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_1C_2C_3R_1R_3R_4 - C_1C_3C_5R_1R_3R_4\right) + s^2\left(C_1C_2R_1R_4 + C_1C_3R_1R_3 + C_1C_3R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_1R_4 + C_2C_3R_3R_4 - C_3C_5R_3R_4\right) + s\left(C_1R_1 + C_2R_4 + C_3R_3 + C_3R_4 - C_5R_4\right) + 1}$ 

**9.2635** X-INVALID-ORDER-2635  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4s}{C_6 + s^3\left(C_1C_2C_3C_6R_1R_3R_4 - C_1C_3C_5C_6R_1R_3R_4\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_2C_3C_6R_1R_4 + C_2C_3C_6R_3R_4 - C_3C_5C_6R_3R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 - C_5C_6R_4\right)}$ 

**9.2636** X-INVALID-ORDER-2636  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_1C_2C_3C_6R_1R_3R_4 - C_1C_3C_5C_6R_1R_3R_4\right) + s^2\left(C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_3 + C_1C_3C_6R_1R_4 + C_2C_3C_6R_1R_4 + C_2C_3C_6R_3R_4 - C_3C_5C_6R_3R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_4 + C_3C_6R_3 + C_3C_6R_4 - C_5C_6R_4\right)}$ 

9.2637 X-INVALID-ORDER-2637  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^4\left(C_1C_2C_3C_6R_1R_3R_4R_6 - C_1C_3C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_3R_4 + C_1C_2C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_6 + C_1C_3C_6R_1R_4R_6 + C_2C_3C_6R_1R_4R_6 + C_2C_3C_6R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_6 + C_2C_3C_6R_1R_4R_6 + C_2C_3C_6R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_6 + C_2C_3C_6R_1R_4R_6 + C_2C_3C_6R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_6\right) + s^2\left(C_1C_2R_1R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_6\right) + s^2\left(C_1C_2R_1R_4 + C_1C_3C_6R_1R_4R_6\right) + s^2\left(C_1C_2R_1R_4R_6 + C_1C_3C_6R_1R_4R_6\right) + s^2\left(C_1C_2R_1R_4R_6\right) + s^2\left(C_1C_2R_1R_4$ 

**9.2638** X-INVALID-ORDER-2638  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{C_1C_2C_3C_5R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_3R_1R_3R_4 + C_1C_2C_5R_1R_4R_5 - C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_4R_5 + C_2C_3C_5R_1R_4R_5 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_1R_5$ 

**9.2639** X-INVALID-ORDER-2639  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4s}{C_1C_2C_3C_5C_6R_1R_3R_4R_5s^4 + C_6 + s^3\left(C_1C_2C_3C_6R_1R_3R_4 + C_1C_2C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_1R_4R_5 + C_2C_3C_$ 

**9.2640** X-INVALID-ORDER-2640  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_1C_2C_3C_5C_6R_1R_3R_4 + C_1C_2C_5C_6R_1R_4R_5 + C_2C_3C_5C_6R_1R_4R_5 + C$ 

```
 \textbf{9.2641} \quad \textbf{X-INVALID-ORDER-2641} \ Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \ \frac{1}{C_2s}, \ R_3 + \frac{1}{C_3s}, \ R_4, \ R_5 + \frac{1}{C_5s}, \ \frac{R_6}{C_6R_6s+1}\right) 
 H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_3R_4R_5R_6s^5 + s^4\left(C_1C_2C_3C_5R_1R_3R_4R_5 + C_1C_2C_3C_6R_1R_3R_4R_6 + C_1C_3C_5C_6R_1R_3R_4R_6 + C_1C_3C_5C_6R_1R_3R_4R_6 + C_1C_3C_5C_6R_1R_4R_5R_6 + C_2C_3C_5C_6R_1R_4R_5R_6 + C
```

**9.2642** X-INVALID-ORDER-2642  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_1C_2C_3R_1R_3R_4R_5 - C_1C_3C_5R_1R_3R_4R_5 + C_1C_3R_1R_3R_4 + C_1C_3R_1R_3R_4 + C_1C_3R_1R_3R_5 + C_1C_3R_1R_4R_5 + C_2C_3R_1R_4R_5 + C_2C_3R_3R_4R_5 + C_3C_5R_3R_4R_5 \right) + s\left(-C_1R_1R_4 + C_1R_1R_5 + C_2R_4R_5 - C_3R_3R_4 + C_3R_3R_5 + C_3R_3R_4R_5 - C_3R_3R_4 - C_3R_3R_5 - C_3R_3R_5 - C_3R_3R_5 - C_3R_3R_5 - C_3R_3R_5 -$ 

**9.2643** X-INVALID-ORDER-2643  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_3R_4R_5 - C_1C_3C_5C_6R_1R_3R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5 \right) + s\left(-C_1C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5 \right) + s\left(-C_1C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5 \right) + s\left(-C_1C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5 \right) + s\left(-C_1C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5 \right) + s\left(-C_1C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5 \right) + s\left(-C_1C_6R_1R_4R_5 - C_1C_3C_6R_1R_4R_5 - C_1C_3C_6R_1R_4R_5 - C_3C_5C_6R_3R_4R_5 - C_3C_5C_6R_3R$ 

**9.2644** X-INVALID-ORDER-2644  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_4R_5R_6s^2 + C_3R_1R_4 + s\left(C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_3R_4R_5 - C_1C_3C_6R_1R_3R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 - C_1C_5C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_4 + C_1$ 

**9.2645** X-INVALID-ORDER-2645  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{-R_4 + R_5 + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_5 R_6 - C_1 C_3 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_6 R_1 R_3 R_4 R_5 + C_1 C_2 C_6 R_1 R_3 R_4 R_5 - C_1 C_3 C_6 R_1 R_4 R_5 R_6 + C_1 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_5 C_6 R_1$ 

**9.2646** X-INVALID-ORDER-2646  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_3 R_1 R_6 s}{s^3 \left(C_1 C_2 C_3 R_1 R_3 R_5 + C_1 C_3 C_4 R_1 R_3 R_5\right) + s^2 \left(C_1 C_2 R_1 R_5 - C_1 C_3 R_1 R_3 + C_1 C_3 R_1 R_5 + C_2 C_3 R_1 R_5 + C_2 C_3 R_3 R_5 + C_3 C_4 R_3 R_5\right) + s \left(-C_1 R_1 + C_2 R_5 - C_3 R_3 + C_3 R_5 + C_4 R_5\right) - 1}$ 

9.2647 X-INVALID-ORDER-2647  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1}{-C_6 + s^3 \left(C_1 C_2 C_3 C_6 R_1 R_3 R_5 + C_1 C_3 C_4 C_6 R_1 R_3 R_5\right) + s^2 \left(C_1 C_2 C_6 R_1 R_5 - C_1 C_3 C_6 R_1 R_5 + C_1 C_4 C_6 R_1 R_5 + C_2 C_3 C_6 R_1 R_5 + C_2 C_3 C_6 R_3 R_5 + C_3 C_4 C_6 R_3 R_5\right) + s \left(-C_1 C_6 R_1 + C_2 C_6 R_5 - C_3 C_6 R_3 + C_3 C_6 R_5 + C_4 C_6 R_5\right)}$ 

**9.2648** X-INVALID-ORDER-2648  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_6s + C_3R_1}{-C_6 + s^3\left(C_1C_2C_3C_6R_1R_3R_5 + C_1C_3C_4C_6R_1R_3R_5\right) + s^2\left(C_1C_2C_6R_1R_5 - C_1C_3C_6R_1R_3 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_3C_4C_6R_3R_5\right) + s\left(-C_1C_6R_1 + C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 + C_4C_6R_5\right)}$ 

**9.2649** X-INVALID-ORDER-2649  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_6 s}{s^4 \left(C_1 C_2 C_3 C_6 R_1 R_3 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_5 R_6 + C_1 C_2 C_3 R_1 R_3 R_5 + C_1 C_2 C_6 R_1 R_5 R_6 + C_1 C_3 C_4 R_1 R_3 R_5 - C_1 C_3 C_6 R_1 R_5 R_6 + C_1 C_3 C_6 R_1 R_5 R_6 + C_2 C_3 C_6 R_1 R_5 R_6 + C_2 C_3 C_6 R_3 R_5 R_6 + C_3 C_4 C_6 R_3 R_5 R_6 + C_3 C_4 C_6 R_3 R_5 R_6 + C_4 C_5 C_6 R_1 R_5 R_6 + C_5 C_5 C_6 R_1 R_5 R_$ 

**9.2650** X-INVALID-ORDER-2650  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_3C_6R_1R_3R_6 + C_1C_3C_4C_6R_1R_3R_6 - C_1C_3C_5C_6R_1R_3R_6\right) + s^2\left(C_1C_2C_3R_1R_3 + C_1C_2C_6R_1R_6 + C_1C_3C_4R_1R_3 + C_1C_3C_6R_1R_6 + C_1C_3C_6R_1R_6 + C_2C_3C_6R_1R_6 + C_2C$ 

```
9.2651 X-INVALID-ORDER-2651 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
```

 $H(s) = \frac{C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_3C_5R_1R_3R_5 + C_1C_3C_4C_5R_1R_3R_5\right) + s^2\left(C_1C_2C_3R_1R_3 + C_1C_3C_5R_1R_5 + C_1C_3C_5R_1R_3 + C_1C_3C_5R_1R_5 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_3R_5 + C_3C_4C_5R_3R_5\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_3C_5R_1R_3 + C_1C_3C_5R_1R_5 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_3R_5 + C_3C_4C_5R_3R_5\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_3C_5R_1R_3 + C_1C_3C_5R_1R_3 + C_1C_3C_5R_1R_5 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_3R_5 + C_3C_4C_5R_3R_5\right) + s\left(C_1C_2R_1 + C_1C_3R_1R_3 + C_1C_3C_5R_1R_3 + C$ 

**9.2652** X-INVALID-ORDER-2652  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $\frac{C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_3R_5 + C_1C_3C_4C_5C_6R_1R_3 + C_1C_2C_5C_6R_1R_3 + C_1C_3C_5C_6R_1R_3 + C_1C_3C_5C_6R_1R_5 + C_1C_5C_5C_6R_1R_5 + C_1C_5C_5C_6R_1R_5 + C_1C_5C_5C_6R_1R_5 + C_1C_5C_5C_6R_1R_5 + C_1C_5C_5C_6R_1R_5 + C_1C_5C_5C_6R_1R_5 + C_1C_5C$ 

**9.2653** X-INVALID-ORDER-2653  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_6s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_3R_5 + C_1C_3C_4C_5R_1R_3 + C_1C_2C_5C_6R_1R_5 + C_1C_3C_5C_6R_1R_5 + C_1C_3C_5C_6R_1R_5 + C_2C_3C_5C_6R_1R_5 + C_2C_3C_5C_5C_6R_1R_5 + C_$ 

**9.2654** X-INVALID-ORDER-2654  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{C_2 + C_3 + C_4 - C_5 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_3 C_4 C_5 R_1 R_3 R_5 + C_1 C_2 C_3 C_5 R_1 R_3 R_6 + C_1 C_2 C_3 C_6 R_1 R_3 R_6 + C_1 C_2 C_3 C_6 R_1 R_3 R_6 + C_1 C_2 C_3 C_6 R_1 R_3 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_5 R_6 + C_1 C_5 C_5 C$ 

**9.2655** X-INVALID-ORDER-2655  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_5R_6s^2 + C_3R_1R_6s}{s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_3C_4R_1R_3R_5 - C_1C_3C_5R_1R_3R_5\right) + s^2\left(C_1C_2R_1R_5 - C_1C_3R_1R_3 + C_1C_3R_1R_5 + C_2C_3R_1R_5 + C_2C_3R_3R_5 + C_3C_4R_3R_5 - C_3C_5R_3R_5\right) + s\left(-C_1R_1 + C_2R_5 - C_3R_3 + C_3R_5 + C_4R_5 - C_5R_5\right) - 1}$ 

**9.2656** X-INVALID-ORDER-2656  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_5s + C_3R_1}{-C_6 + s^3\left(C_1C_2C_3C_6R_1R_3R_5 + C_1C_3C_4C_6R_1R_3R_5 - C_1C_3C_5C_6R_1R_3R_5 + C_1C_3C_6R_1R_3 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_3C_4C_6R_3R_5 - C_3C_5C_6R_3R_5 \right) + s\left(-C_1C_6R_1 + C_2C_6R_5 - C_3C_5C_6R_3R_5 + C_3C_5C_5C_6R_3R_5 + C_3C_5C_5C_6R_3R_5 + C_3C_5C_5C_6R_5 +$ 

**9.2657** X-INVALID-ORDER-2657  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_5R_6s^2 + C_3R_1 + s\left(C_3C_5R_1R_5 + C_3C_6R_1R_6\right)}{-C_6 + s^3\left(C_1C_2C_3C_6R_1R_3R_5 + C_1C_3C_4C_6R_1R_3R_5 - C_1C_3C_5C_6R_1R_3R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_3C_4C_6R_3R_5 - C_3C_5C_6R_3R_5\right) + s\left(-C_1C_6R_1 + C_2C_6R_5 - C_3C_5C_6R_3R_5 + C_3C_5C_5C_6R_3R_5 + C_3C_5C_5C_6R_3R_5 + C_3C_5C_5C_6R_3R_5 + C_3C_5C_5C_6R_3R_5 + C_3C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5$ 

**9.2658** X-INVALID-ORDER-2658  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{s^4 \left( C_1 C_2 C_3 C_6 R_1 R_3 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_5 R_6 - C_1 C_3 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_2 C_6 R_1 R_3 R_5 + C_1 C_2 C_6 R_1 R_3 R_5 - C_1 C_3 C_6 R_1 R_3 R_6 + C_1 C_3 C_6 R_1 R_5 R_6 + C_1 C_5 C$ 

**9.2659** X-INVALID-ORDER-2659  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $C_3C_4R_1R_4R_6s^2 + C_3R_1R_6s$  $H(s) = \frac{C_3C_4R_1R_4R_6s^2 + C_3R_1R_6s}{C_1C_2C_3C_4R_1R_3R_4R_5s^4 + s^3\left(C_1C_2C_3R_1R_3R_5 + C_1C_2C_4R_1R_4R_5 - C_1C_3C_4R_1R_3R_4 + C_1C_3C_4R_1R_4R_5 + C_2C_3C_4R_1R_4R_5 + C_2C_3C_4R_1R_$ 

**9.2660** X-INVALID-ORDER-2660  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{\frac{C_3C_4R_1R_4R_5 + C_2C_3C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_$ 

```
9.2661 X-INVALID-ORDER-2661 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
```

 $C_3C_4C_6R_1R_4R_6s^2 + C_3R_1 + s\left(C_3C_4R_1R_4 + C_3C_6R_1R_6\right)$ 

 $H(s) = \frac{C_3C_4C_6R_1R_4R_6s^2 + C_3R_1 + s\left(C_3C_4R_1R_4 + C_3C_6R_1R_6\right)}{C_1C_2C_3C_4C_6R_1R_3R_4 + C_5C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6$ 

**9.2662** X-INVALID-ORDER-2662  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_3R_4R_5R_6s^5 + s^4\left(C_1C_2C_3C_4R_1R_3R_4R_5 + C_1C_2C_3C_6R_1R_3R_5R_6 + C_1C_3C_4C_6R_1R_3R_5R_6 + C_1C_3C_4C_6R_1R_3R_5R_6 + C_1C_3C_4C_6R_1R_4R_5R_6 + C_2C_3C_4C_6R_1R_4R_5R_6 + C_2C_3C_4C_6R_1R_4R_$ 

**9.2663** X-INVALID-ORDER-2663  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_3C_4R_1R_3R_4 - C_1C_3C_4R_1R_3 + C_1C_2C_4R_1R_4 + C_1C_3C_4R_1R_4 + C_1C_3C_4R_1R_4 + C_2C_3C_4R_1R_4 + C_2C_3C_4R_1R_4 + C_2C_3C_4R_3R_4 - C_3C_4C_5R_3R_4\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_3C_4R_1R_4 + C_2C_3C_4R_1R_4 + C_2C_3C_4R_1$ 

**9.2664** X-INVALID-ORDER-2664  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3\left(C_1C_2C_3C_4C_6R_1R_3R_4 - C_1C_3C_4C_6R_1R_3 + C_1C_2C_4C_6R_1R_4 + C_1C_3C_4C_6R_1R_4 + C_1C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_1R_4 + C_2C_$ 

**9.2665** X-INVALID-ORDER-2665  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_4R_6s^2 + C_3C_5R_1 + s\left(C_3C_4C_5R_1R_4 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3\left(C_1C_2C_3C_4C_6R_1R_3R_4 - C_1C_3C_4C_6R_1R_3 + C_1C_3C_4C_6R_1R_4 + C_1C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_1R_4$ 

**9.2666** X-INVALID-ORDER-2666  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{C_2 + C_3 + C_4 - C_5 + s^4 \cdot (C_1 C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_6 - C_1 C_3 C_4 C_5 R_1 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_3 R_6 + C_1 C_3 C_4 C$ 

**9.2667** X-INVALID-ORDER-2667  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

**9.2668** X-INVALID-ORDER-2668  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.2669** X-INVALID-ORDER-2669  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

**9.2670** X-INVALID-ORDER-2670  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_3R_4R_5R_6s^5 + C_2 + C_3 + C_4 - C_5 + s^4(C_1C_2C_3C_4C_5R_1R_3R_4R_5 + C_1C_2C_3C_4C_6R_1R_3R_4R_6 + C_1C_2C_4C_5C_6R_1R_3R_4R_6 + C_1C_3C_4C_5C_6R_1R_3R_4R_6 + C_1C_3C_4C_5C_6R_1R_3R_4C_5C_6R_1R_3R_5C_5C_6R_1R_3C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_5C_6R_1R_5C_5C_5C_5C_5C_5C_5C_5$ 

**9.2671** X-INVALID-ORDER-2671  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_4R_5R_6s^\circ + C_3R_1R_6s + s^2}{s^4\left(C_1C_2C_3C_4R_1R_3R_4R_5 - C_1C_3C_4R_1R_3R_4 + C_1C_3C_4R_1R_3R_4 + C_1C_3C_4R_1R_3R_5 + C_1C_$ 

**9.2672** X-INVALID-ORDER-2672  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{-C_6 + s^4 \left(C_1 C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_5 - C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 \right) + s^3 \left(C_1 C_2 C_3 C_6 R_1 R_3 R_5 + C_1 C_2 C_4 C_6 R_1 R_4 R_5 - C_1 C_3 C_4 C_6 R_1 R_3 R_5 + C_1 C_3 C_4 C_6 R_1 R_4 R_5 - C_1 C_3 C_5 C_6 R_1 R_3 R_5 - C_1 C_4 C_5 C_6 R_1 R_4 R_5 + C_2 C_3 C_4 C_6 R_1 R_4 R_5 + C_2 C_3 C_4 C_6 R_1 R_4 R_5 + C_2 C_3 C_4 C_6 R_1 R_4 R_5 - C_1 C_3 C_4 C_6 R_1 R_4 R_5 - C_1 C_3 C_4 C_6 R_1 R_4 R_5 - C_1 C_3 C_4 C_6 R_1 R_4 R_5 + C_2 C_3 C_4 C_6 R$ 

**9.2673** X-INVALID-ORDER-2673  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_4R_5R_6s^3 + C_3C_4C_5C_6R_1R_3R_4R_5 - C_1C_3C_4C_6R_1R_3R_4R_5 - C_1C_3C_4C_6R_1R_3R_4 + C_1C_3C_4C_6R_1R_3R_5 + C_1C_3C_4C_6R_1R_3R_5 - C_1C_4C_5C_6R_1R_4R_5 - C_1C_3C_4C_6R_1R_4R_5 - C_1C_3C$ 

**9.2674** X-INVALID-ORDER-2674  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 - C_1 C_3 C_4 C_5 R_1 R_3 R_4 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_1 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_3 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_4 R_5 R_6 - C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_5 - C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_5 - C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_6 + C_1 C_3 C_4 C_6 R_1 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_5 R_6 + C_1 C_3 C_6 R_1 R_5 R_6 + C_1 C_3 C_6 R_1 R_5 R_6 + C_1 C$ 

**9.2675** X-INVALID-ORDER-2675  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

**9.2676** X-INVALID-ORDER-2676  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_4}{-C_6 R_4 + C_6 R_5 + s^3 \left(C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_6 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5 + C_3 C_4 C_6 R_3 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5 + C_3 C_4 C_6 R_3 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5 + C_3 C_4 C_6 R_3 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5 + C_3 C_4 C_6 R_3 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_3 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 + C_2 C_3 C_6 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_3 C_6 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left(-C_1 C_6 R_1 R_4 R_5 + C_1 C_5 R_1 R_4 R_5 \right) + s \left($ 

**9.2677** X-INVALID-ORDER-2677  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_4R_6s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 + C_3C_4C_6R_3R_4R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 + C_3C_4C_6R_3R_4R_5 + C$ 

**9.2678** X-INVALID-ORDER-2678  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $-R_4 + R_5 + s^4 \left(C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_6 R_1 R_4 R_5 R$ 

**9.2679** X-INVALID-ORDER-2679  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_6s^2}{s^3\left(C_1C_2C_3R_1R_3R_4 + C_1C_3C_4R_1R_3R_4 - C_1C_3C_5R_1R_3R_4\right) + s^2\left(C_1C_2R_1R_4 + C_1C_3R_1R_3 + C_1C_3R_1R_4 + C_1C_4R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_3R_4 + C_3C_4R_3R_4 - C_3C_5R_3R_4\right) + s\left(C_1R_1 + C_2R_4 + C_3R_3 + C_4R_4 - C_5R_4\right) + 1}$ 

**9.2680** X-INVALID-ORDER-2680  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

```
9.2681 X-INVALID-ORDER-2681 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
```

 $H(s) = \frac{C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_1C_2C_3C_6R_1R_3R_4 + C_1C_3C_4C_6R_1R_3R_4 - C_1C_3C_5C_6R_1R_3R_4 + C_1C_3C_6R_1R_3 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_2C_3C_6R_1R_4 + C_2C_3C_6R_3R_4 + C_3C_4C_6R_3R_4 - C_3C_5C_6R_3R_4 + S_4C_4C_6R_3R_4 + C_3C_4C_6R_3R_4 + C_3C_4C_4R_4 + C_3C_4C_4R_4R_4 + C_3C_4C_4R_4 +$ 

**9.2682** X-INVALID-ORDER-2682  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 - C_1 C_3 C_5 C_6 R_1 R_3 R_4 R_6 + C_1 C_2 C_3 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_4 R_6 +$ 

**9.2683** X-INVALID-ORDER-2683  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5}{s^4\left(C_1C_2C_3C_5R_1R_3R_4R_5 + C_1C_3C_4R_1R_3R_4 + C_1C_2C_5R_1R_4R_5 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_3R_4 + C_1C_3C_5R_1R_4R_5 + C_1C_3C_5R_1R_4R_5 + C_2C_3C_5R_1R_4R_5 + C_2C_3C_5R_1$ 

9.2684 X-INVALID-ORDER-2684  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 + C_1 C_2 C_5 C_6 R_1 R_3 R_4 + C_1 C_3 C_5 C_6 R_1 R_4 R_5 + C_1 C_5 C_6 R_1 R_5 R_5 + C_1 C_5 C_6 R_1 R_5 R_5 + C_1 C$ 

**9.2685** X-INVALID-ORDER-2685  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_3 R_4 + C_1 C_2 C_5 C_6 R_1 R_4 R_5 + C_1 C_3 C_5 C_6 R_1 R_3 R_4 + C_1 C_3 C_5 C_6 R_1 R_3 R_4 + C_1 C_3 C_5 C_6 R_1 R_4 R_5 + C_1 C_3 C_5 C_6 R_1 R_5 R_5 + C_1 C_5 C_6 R_1 R_5 R_5 +$ 

**9.2686** X-INVALID-ORDER-2686  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 R_1 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_5 + C_1 C_2 C_5 C_6 R_1 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 R_1 R_3 R_4 R_6 + C_1 C_3 C_5 C_6 R_1 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 R_5 R_5 + C_1 C_5 C_5 R_5 R_5 R_5 R_5 R_5 R_5 R_5 R_5 R$ 

**9.2687** X-INVALID-ORDER-2687  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_1C_2C_3R_1R_3R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 - C_1C_3C_5R_1R_3R_4R_5 - C_1C_3R_1R_3R_4 + C_1C_3R_1R_3R_4 + C_1C_3R_1R_3R_5 + C_1C_3R_1R_4R_5 + C_2C_3R_1R_4R_5 + C_2C_3R_3R_4R_5 + C_3C_4R_3R_4R_5 - C_3C_5R_3R_4R_5 \right) + s\left(-C_3C_3R_1R_4R_5 + C_3C_3R_1R_4R_5 + C_3C_3R_3R_4R_5 + C_3C_3R_3$ 

**9.2688** X-INVALID-ORDER-2688  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_4R_5s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 - C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R$ 

**9.2689** X-INVALID-ORDER-2689  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_4R_5R_6s^2 + C_3R_1R_4 + s\left(C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_1R_4$ 

**9.2690** X-INVALID-ORDER-2690  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-R_4 + R_5 + s^4 \left(C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 - C_1 C_3 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 + C_1 C_3 C_4 R_1 R_3 R_4 R_5 - C_1 C_3 C_5 R_1 R_3 R_4 R_5 - C_1 C_3 C_6 R_1 R_3 R_4 R_5 - C_1 C_3 C_6$ 

**9.2691** X-INVALID-ORDER-2691  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3R_1R_3R_4s + R_1R_4}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5\right) + s^2\left(-C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_4R_5 + C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$ **9.2692** X-INVALID-ORDER-2692  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_6R_1R_3R_4R_6s^2 + R_1R_4 + s\left(C_3R_1R_3R_4 + C_6R_1R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5\right) + s^2\left(-C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4 + C_6R_3R_5 + C_6R_4R_5\right)}$ **9.2693** X-INVALID-ORDER-2693  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)$  $C_3R_1R_3R_4R_6s + R_1R_4R_6$  $H(s) = \frac{C_3R_1R_3R_4R_6s + R_1R_4R_6}{-R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(C_1C_2C_6R_1R_3R_4R_5R_6 + C_2C_3C_6R_1R_3R_4R_5R_6 + C_2C_3C_6R_1R_3R_4R_5 + C_1C_3R_1R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_2C_6R_1R_3R_4R_5 + C_2C$ **9.2694** X-INVALID-ORDER-2694  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$  $\frac{C_{3}C_{5}R_{1}R_{3}R_{4}R_{6}s^{2}+C_{5}R_{1}R_{4}R_{6}s}{R_{3}+R_{4}+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{4}R_{6}+C_{2}C_{3}C_{6}R_{1}R_{3}R_{4}+C_{1}C_{3}R_{1}R_{3}R_{4}+C_{1}C_{5}R_{1}R_{3}R_{4}+C_{1}C_{6}R_{1}$ **9.2695** X-INVALID-ORDER-2695  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ **9.2696** X-INVALID-ORDER-2696  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$  $C_3C_5R_1R_3R_4s + C_5R_1R_4$  $\frac{C_{3}C_{5}R_{1}R_{3}R_{4}s+C_{5}R_{1}R_{4}}{C_{6}R_{3}+C_{6}R_{4}+s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{5}C_{6}R_{1}R_$ **9.2697** X-INVALID-ORDER-2697  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$  $H(s) = \frac{C_3C_5C_6R_1R_3R_4R_6s^2 + C_5R_1R_4 + s\left(C_3C_5R_1R_3R_4 + C_5C_6R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_3R_4R_5 + C_2C_3C_5C_6R_1R_3R_4 + C_1C_5C_6R_1R_3R_4 + C_2C_5C_6R_1R_3R_4 + C_2C_5C_6R_1R_3R_4 + C_3C_5C_6R_1R_3R_4 + C_3C_5C_6R_1R_3R$ **9.2698** X-INVALID-ORDER-2698  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$  $\overline{R_{3} + R_{4} + s^{4} \left( C_{1} C_{2} C_{5} C_{6} R_{1} R_{3} R_{4} R_{5} R_{6} + C_{1} C_{3} C_{5} C_{6} R_{1} R_{3} R_{4} R_{5} R_{6} + C_{2} C_{3} C_{5} C_{6} R_{1} R_{3} R_{4} R_{5} + C_{1} C_{2} C_{6} R_{1} R_{3} R_{4} R_{5} + C_{1} C_{3} C_{6} R_{1} R_{3} R_{4} R_{5} + C_{1} C_{3} C_{6} R_{1} R_{3} R_{4} R_{5} + C_{1} C_{5} C_{6} R_{1} R_{3} R_{4} R_{5} + C_{1} C$ **9.2699** X-INVALID-ORDER-2699  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$  $H(s) = \frac{C_3C_5R_1R_3R_4R_5s^2 + R_1R_4 + s\left(C_3R_1R_3R_4 + C_5R_1R_4R_5\right)}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_2C_6R_3R_4R_5$ **9.2700** X-INVALID-ORDER-2700  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$  $\frac{C_3C_5C_6R_1R_3R_4R_5R_6s^3 + R_1R_4 + s^2\left(C_3C_5R_1R_3R_4R_5 + C_3C_6R_1R_3R_4R_6 + C_5C_6R_1R_4R_5R_6\right) + s\left(C_3R_1R_3R_4 + C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5 + C_2C_6R_1R_4R_5 + C_2C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_3C_6R_3R_4R_5 + C$ 

```
9.2701 X-INVALID-ORDER-2701 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{C_3C_5R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_5R_6 + C_1C_5R_1R_3R_4R_5 + C_1C_5R_1R_3R_4R_5 + C_1C_5R_1R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C$ 

**9.2702** X-INVALID-ORDER-2702  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_3 s + R_1}{s^3 \left(C_1 C_2 C_6 R_1 R_3 R_5 + C_1 C_3 C_6 R_1 R_3 R_5 + C_1 C_4 C_6 R_1 R_3 R_5 + C_2 C_3 C_6 R_1 R_3 R_5 \right) + s^2 \left(-C_1 C_6 R_1 R_3 + C_1 C_6 R_1 R_5 + C_2 C_6 R_1 R_5 + C_2 C_6 R_3 R_5 + C_3 C_6 R_3 R_5 + C_4 C_6 R_3 R_5 \right) + s \left(-C_6 R_3 + C_6 R_5 \right)}$ 

**9.2703** X-INVALID-ORDER-2703  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_3R_6s^2 + R_1 + s\left(C_3R_1R_3 + C_6R_1R_6\right)}{s^3\left(C_1C_2C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6R_1R_5 + C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$ 

9.2704 X-INVALID-ORDER-2704  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $\frac{C_{3}R_{1}R_{3}R_{6}s + R_{1}R_{6}}{-R_{3} + R_{5} + s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{3}R_{5}R_{6} + C_{1}C_{3}C_{6}R_{1}R_{3}R_{5}R_{6} + C_{2}C_{3}C_{6}R_{1}R_{3}R_{5}R_{6} + C_{2}C_{3}C_{6}R_{1}R_{3}R_{5} + C_{1}C_{4}R_{1}R_{3}R_{5} + C_{1}C_{4}R_{1}R_{3}R_{5} + C_{1}C_{4}R_{1}R_{3}R_{5} + C_{1}C_{6}R_{1}R_{3}R_{5} + C_{2}C_{6}R_{1}R_{3}R_{5} + C_{2}C_{6}R_{1}$ 

**9.2705** X-INVALID-ORDER-2705  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_3R_6s^2 + C_5R_1R_6s}{s^3\left(C_1C_2C_6R_1R_3R_6 + C_1C_3C_6R_1R_3R_6 + C_1C_5C_6R_1R_3R_6 + C_2C_3C_6R_1R_3R_6 + C_2C_3C_6R_1R_3R_6 + C_2C_3R_1R_3 + C_1C_4R_1R_3 + C_1C_4R_1R_3 + C_1C_4R_1R_3 + C_2C_6R_1R_6 + C_2C_6R_3R_6 + C_3C_6R_3R_6 + C_4C_6R_3R_6 + C_3C_6R_3R_6 + C_4C_6R_3R_6 + C_$ 

**9.2706** X-INVALID-ORDER-2706  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $\frac{C_{3}C_{5}R_{1}R_{3}R_{6}s^{2}+C_{5}R_{1}R_{6}s}{s^{3}\left(C_{1}C_{2}C_{5}R_{1}R_{3}R_{5}+C_{1}C_{3}C_{5}R_{1}R_{3}R_{5}+C_{2}C_{3}C_{5}R_{1}R_{3}R_{5}+C_{2}C_{3}C_{5}R_{1}R_{3}R_{5}+C_{2}C_{3}C_{5}R_{1}R_{3}+C_{1}C_{4}R_{1}R_{3}+C_{1}C_{4}R_{1}R_{3}+C_{1}C_{5}R_{1}R_{5}+C_{2}C_{5}R_{1}R_{5}+C_{2}C_{5}R_{3}R_{5}+C_{3}C_{5}R_{3}R_{5}+C_{4}C_{5}R_{3}R_{5}+s\left(C_{1}R_{1}+C_{2}R_{1}+C_{2}R_{3}+C_{3}R_{3}+C_{4}C_{5}R_{1}R_{3}+C_{4$ 

**9.2707** X-INVALID-ORDER-2707  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_3s + C_5R_1}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_3R_5 + C_1C_3C_5C_6R_1R_3R_5 + C_2C_3C_5C_6R_1R_3R_5 + C_2C_3C_5C_6R_1R_3 + C_1C_3C_6R_1R_3 + C_1C_5C_6R_1R_3 + C_1C_5C_6R_1R_3 + C_1C_5C_6R_1R_3 + C_2C_5C_6R_1R_3 +$ 

**9.2708** X-INVALID-ORDER-2708  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_3R_6s^2 + C_5R_1 + s\left(C_3C_5R_1R_3 + C_5C_6R_1R_6\right)}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_3R_5 + C_1C_3C_5C_6R_1R_3R_5 + C_2C_3C_5C_6R_1R_3R_5 + C_2C_3C_5C_6R_1R_3 + C_1C_3C_6R_1R_3 + C_1C_3C_6R_1R_3 + C_1C_3C_6R_1R_3 + C_1C_3C_6R_1R_3 + C_2C_5C_6R_1R_3 + C_2C_5C_6R$ 

**9.2709** X-INVALID-ORDER-2709  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_3 R_5 R_6 + C_2 C_3 C_5 C_6 R_1 R_3 R_5 R_6 + C_2 C_3 C_5 C_6 R_1 R_3 R_5 + C_1 C_2 C_6 R_1 R_3 R_5 + C_1 C_3 C_6 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_5 R_5 + C_1 C_4 C_5 R_1 R_5 R_5 + C_1 C_4 C_5 R_1 R_5 R_5 + C_1 C_5 R_1 R_5 R_5$ 

**9.2710** X-INVALID-ORDER-2710  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_3R_5s^2 + R_1 + s\left(C_3R_1R_3 + C_5R_1R_5\right)}{s^3\left(C_1C_2C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_5C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6R_1R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_4C_6R_3R_5 - C_5C_6R_3R_5\right) + s\left(-C_6R_3 + C_6R_5\right)}$ 

```
H(s) = \frac{C_3C_5C_6R_1R_3R_5R_6s^3 + R_1 + s^2\left(C_3C_5R_1R_3R_5 + C_3C_6R_1R_3R_6 + C_5C_6R_1R_5R_6\right) + s\left(C_3R_1R_3 + C_5R_1R_5 + C_6R_1R_6\right)}{s^3\left(C_1C_2C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_5C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6R_1R_5 + C_2C_6R_1R_5 + C_2C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5\right) + s\left(-C_6R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5\right) + s\left(-C_6R_3R_5 + C_3C_6R_1R_3R_5 + C_3C_6R_3R_5 + C_3C_6R_3R_5\right) + s\left(-C_6R_3R_5 + C_3C_6R_3R_5 + C_3C
9.2712 X-INVALID-ORDER-2712 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_3C_5R_1R_3R_5R_6s^2 + R_1R_6 + s\left(C_3R_1R_3R_5R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^3\left(C_1C_2C_6R_1R_3R_5R_6 + C_1C_3C_6R_1R_3R_5R_6 + C_1C_5C_6R_1R_3R_5R_6 + C_2C_3C_6R_1R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_4R_1R_3R_5 - C_1C_5R_1R_3R_5 - C_1C_6R_1R_3R_6 + C_1C_6R_1R_3R_5 + C_2C_6R_1R_3R_5 + 
9.2713 X-INVALID-ORDER-2713 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
H(s) = \frac{C_3C_4R_1R_3R_4R_6s^2 + R_1R_6 + s\left(C_3R_1R_3R_6 + C_4R_1R_4R_6\right)}{-R_3 + R_5 + s^3\left(C_1C_2C_4R_1R_3R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 + C_2C_3C_4R_1R_3R_4R_5 + C_1C_4R_1R_3R_5 + C_1C_4R_1R_3R_5 + C_1C_4R_1R_3R_5 + C_1C_4R_1R_3R_5 + C_2C_4R_1R_4R_5 + C_2C_4R_3R_4R_5 + C_3C_4R_3R_4R_5 + C_3C_4
9.2714 X-INVALID-ORDER-2714 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)
                                               \frac{C_{3}C_{4}R_{1}R_{3}R_{4}s^{2} + R_{1} + s\left(C_{3}R_{1}R_{3} + C_{4}R_{1}R_{4}\right)}{s^{4}\left(C_{1}C_{2}C_{4}C_{6}R_{1}R_{3}R_{4}F_{5} + C_{1}C_{3}C_{4}C_{6}R_{1}R_{3}R_{4}F_{5} + C_{1}C_{3}C_{4}C_{6}R_{1}R_{3}R_{5} + C_{1}C_{4}C_{6}R_{1}R_{3}R_{5} + C_{1}C_{
9.2715 X-INVALID-ORDER-2715 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_6R_1R_3R_4R_6s^3 + R_1 + s^2\left(C_3C_4R_1R_3R_4 + C_3C_6R_1R_3R_6 + C_4C_6R_1R_4R_6\right) + s\left(C_3R_1R_3 + C_4R_1R_4 + C_6R_1R_6\right)}{s^4\left(C_1C_2C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_4R_5 + C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_1R_4R_5
9.2716 X-INVALID-ORDER-2716 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-R_3 + R_5 + s^4 \left(C_1 C_2 C_4 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_3 R_4 R_5 + C_1 C_2 C_6 R_1 R_3 R_5 R_6 + C_1 C_3 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_4 R_5 + C_1
9.2717 X-INVALID-ORDER-2717 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_3C_4C_5R_1R_3R_4R_6s^3 + C_5R_1R_3R_6 + C_4C_5R_1R_3R_6 + C_4C_5R_1R_4R_6)}{s^3\left(C_1C_2C_4R_1R_3R_4 + C_1C_3C_4R_1R_3R_4 + C_2C_3C_4R_1R_3R_4 + C_2C_3C_4R_1R_3R_4 + C_2C_4R_1R_3 + C_1C_4R_1R_3 + C_1C_4R_1R_3 + C_1C_4R_1R_4 + C_2C_4R_3R_4 + C_3C_4R_3R_4 + C_4C_5R_3R_4 + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_3R_3 + C_4R_3R_4 + C_4C_5R_3R_4 + C_
9.2718 X-INVALID-ORDER-2718 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5R_1R_3R_4s^2 + C_5R_1 + s\left(C_3C_5R_1R_3 + C_4C_5R_1R_4\right)}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_3R_4 + C_1C_3C_4C_6R_1R_3R_4 + C_2C_3C_4C_6R_1R_3R_4 + C_2C_3C_4C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_2C_4C_6R_1R_3 + C_2C_4C_6R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C_3C_4C_5R_1R_3R_4s^2 + C_5R_1 + s\left(C_3C_5R_1R_3 + C_4C_5R_1R_4\right)
9.2719 X-INVALID-ORDER-2719 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_3C_4C_5C_6R_1R_3R_4R_6s^3 + C_5R_1 + s^2\left(C_3C_4C_5R_1R_3R_4 + C_3C_5C_6R_1R_3R_6 + C_4C_5C_6R_1R_3R_6 + C_4C_5C_6R_1R_3 + C_4C_5R_1R_3 + C_4C_5R_1R_4 + C_5C_6R_1R_6\right)}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_2C_4C_6R_1R_3 + C_2C_4C_
9.2720 X-INVALID-ORDER-2720 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
```

**9.2711** X-INVALID-ORDER-2711  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $\overline{s^4 \left( C_1 C_2 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_6 + C_1 C_4 C_5 C_6 R_1 R_3 R_4 R_6 + C_2 C_3 C_4 C_6 R_1 R_3 R_4 + C_1 C_2 C_6 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_3 R_4 + C_1 C_3 C_6 R_1 R_3 R_4 + C_1 C_4 C_6 R_1 R_3 R_4 + C_1 C$ 

```
9.2721 X-INVALID-ORDER-2721 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
```

 $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_4 C_5 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_3 R_4 R_5 + C_2 C_3 C_4 C_5 R_1 R_3 R_4 R_5 + C_1 C_2 C_5 R_1 R_3 R_4 + C_1 C_2 C_5 R_1 R_3 R_4 + C_1 C_3 C_5 R_1 R_3 R_4 + C_1 C_4 C_5 R_1 R_4 R_5 + C_1 C_4 C_5 R_1 R_5 R_5 + C_1 C_4 C_5 R_1 R_5 + C_1 C_4 C_5 R_1 R_5 + C_1 C_4 C_5 R_1 R_5 + C_1 C_4 C_5$ 

**9.2722** X-INVALID-ORDER-2722 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 + C_2 C_3 C_4 C_5 C_6 R_1 R_3 R_4 + C_1 C_2 C_5 C_6 R_1 R_3 R_5 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 + C_1 C_3 C_5 C_6 R_1 R_3 R_4 + C_1 C_5 C_6 R_1 R_5 + C_1 C_5 C_6 R_1$ 

**9.2723** X-INVALID-ORDER-2723 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 + C_2 C_3 C_4 C_5 C_6 R_1 R_3 R_4 + C_1 C_2 C_5 C_6 R_1 R_3 R_4 + C_1 C_3 C_5 C_6 R_1 R_3 R_4 + C_1 C_3 C_5 C_6 R_1 R_3 R_4 + C_1 C_4 C_5 C_6 R_1$ 

9.2724 X-INVALID-ORDER-2724 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

 $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1$ 

**9.2725** X-INVALID-ORDER-2725 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $H(s) = \frac{C_3C_4C_5R_1R_3R_4R_5R_6s^3 + R_1R_6 + s^2\left(C_3C_4R_1R_3R_4R_6 + C_3C_5R_1R_3R_5R_6 + C_4C_5R_1R_4R_5R_6\right) + s\left(C_3R_1R_3R_6 + C_4R_1R_4R_6 + C_5R_1R_4R_5R_6\right) + s\left(C_3R_1R_3R_4R_5 + C_5R_1R_3R_4R_5 + C_5R_1R_3R_5 + C_5R_1R_3R_5 + C_5R$ 

9.2726 X-INVALID-ORDER-2726 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_3C_4C_5R_1R_3R_4R_5s^3 + R_1 + s^2\left(C_3C_4R_1R_3R_4 + C_3C_5R_1R_3R_5 + C_4C_5R_1R_4R_5\right) + s^2\left(C_1C_2C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R$ 

**9.2727** X-INVALID-ORDER-2727 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_3C_4C_5C_6R_1R_3R_4R_5F_6s^4 + R_1 + s^3\left(C_3C_4C_5R_1R_3R_4R_5 + C_3C_4C_6R_1R_3R_4R_6 + C_3C_5C_6R_1R_3R_5R_6 + C_4C_5C_6R_1R_4R_5R_6\right) + s^2\left(C_3C_4R_1R_3R_4 + C_3C_5R_1R_3R_5 + C_3C_4C_6R_1R_3R_4R_5 + C_3C_4C_6R_1R_3R_4 + C_3C_4C_6R_1R_4R_5 + C_3C$ 

**9.2728** X-INVALID-ORDER-2728 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{-R_3 + R_5 + s^4 \left(C_1 C_2 C_4 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_3 R_4 R_5 + C_1 C_2 C_6 R_1 R_3 R_4 R_5 + C_1 C_3 C_4 R_1 R_3 R_4 R_5 + C_1 C_4 C_5 R_1 R_3 R_4 R_5 + C_1 C_4 C_5$ 

#### **9.2729** X-INVALID-ORDER-2729 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3R_1R_3R_4s + R_1R_4}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_1C_4C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4 + C_$ 

**9.2730** X-INVALID-ORDER-2730 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_3C_6R_1R_3R_4R_6s^2 + R_1R_4 + s\left(C_3R_1R_3R_4 + C_6R_1R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5 + C_2C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_2C_6R_3R_4R_5 + C_4C_6R_3R_4R_5 + C$ 

```
9.2731 X-INVALID-ORDER-2731 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $C_3R_1R_3R_4R_6s + R_1R_4R_6$ 

 $H(s) = \frac{C_3R_1R_3R_4R_6s + R_1R_4R_6}{-R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(C_1C_2C_6R_1R_3R_4R_5R_6 + C_1C_3C_6R_1R_3R_4R_5R_6 + C_2C_3C_6R_1R_3R_4R_5 + C_1C_4R_1R_3R_4R_5 + C_1C_4R_1R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C_1C_6R_1R_5 + C$ 

**9.2732** X-INVALID-ORDER-2732  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\frac{C_{3}C_{5}R_{1}R_{3}R_{4}R_{6}s^{2}+C_{5}R_{1}R_{4}R_{6}s}{R_{3}+R_{4}+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{3}R_{4}R_{6}+C_{1}C_{3}C_{6}R_{1}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{4}+C_{1}C_{3}R_{1}R_{3}R_{4}+C_{1}C_{4}R_{1}R_{3}R_{4}+C_{1}C_{5}R_{1}R_{3}R_{4}+C_{1}C_{6}R_{1}R_{3}R_{4}+C_{1}$ 

**9.2733** X-INVALID-ORDER-2733  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s$ 

 $H(s) = \frac{C_3C_5R_1R_3R_4R_6s^2 + C_5R_1R_4R_6s}{R_3 + R_4 + s^3\left(C_1C_2C_5R_1R_3R_4R_5 + C_1C_3C_5R_1R_3R_4R_5 + C_2C_3C_5R_1R_3R_4R_5 + C_2C_3R_1R_3R_4 + C_1C_4R_1R_3R_4 + C_1C_5R_1R_3R_4 +$ 

**9.2734** X-INVALID-ORDER-2734  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $C_3C_5R_1R_3R_4s + C_5R_1R_4$ 

 $\frac{C_{3}C_{5}R_{1}R_{3}R_{4}s+C_{5}R_{1}R_{4}}{C_{6}R_{3}+C_{6}R_{4}+s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{1}R_{3}R_{4}+C_{1}C_{5}C_{6}R_{1}R_$ 

**9.2735** X-INVALID-ORDER-2735  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_3R_4R_6s^2 + C_5R_1R_4 + s\left(C_3C_5R_1R_3R_4 + C_5C_6R_1R_3R_4 + C_5C_6R_1R_3R$ 

**9.2736** X-INVALID-ORDER-2736  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{R_{3} + R_{4} + s^{4} \left(C_{1} C_{2} C_{5} C_{6} R_{1} R_{3} R_{4} R_{5} R_{6} + C_{1} C_{3} C_{5} C_{6} R_{1} R_{3} R_{4} R_{5} R_{6} + C_{1} C_{4} C_{5} C_{6} R_{1} R_{3} R_{4} R_{5} R_{6} + C_{2} C_{3} C_{5} C_{6} R_{1} R_{3} R_{4} R_{5} R_{6} + C_{1} C_{3} C_{5} R_{1} R_{3} R_{4} R_{5} + C_{1} C_{3} C_{5} R_{1} R_{3} R_{4$ 

**9.2737** X-INVALID-ORDER-2737  $Z(s) = \begin{pmatrix} \frac{R_1}{C_1 R_1 s + 1}, & \frac{1}{C_2 s}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{R_4}{C_4 R_4 s + 1}, & \frac{R_5}{C_5 R_5 s + 1}, & \frac{1}{C_6 s} \end{pmatrix}$ 

 $H(s) = \frac{C_3C_5R_1R_3R_4R_5s^2 + R_1R_4 + s\left(C_3R_1R_3R_4 + C_5R_1R_4R_5\right)}{s^3\left(C_1C_2C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_1C_5C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_4R_5 + C_2C_6R_3R_4R_5 + C_2C_6R_3R_4R$ 

9.2738 X-INVALID-ORDER-2738  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $\frac{C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}R_{6}s^{3}+R_{1}R_{4}+s^{2}\left(C_{3}C_{5}R_{1}R_{3}R_{4}R_{5}+C_{5}C_{6}R_{1}R_{4}R_{5}R_{6}\right)+s\left(C_{3}R_{1}R_{3}R_{4}+C_{5}R_{1}R_{4}R_{5}+C_{6}R_{1}R_{4}R_{6}\right)}{s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{1}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{3}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{3}R_{4}$ 

**9.2739** X-INVALID-ORDER-2739  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_3}{-R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(C_1C_2C_6R_1R_3R_4R_5R_6 + C_1C_3C_6R_1R_3R_4R_5R_6 + C_1C_5C_6R_1R_3R_4R_5R_6 + C_2C_3C_6R_1R_3R_4R_5R_6 + C_2C_3C_6R_1R_3R_4R_5 + C_1C_3R_1R_3R_4R_5 + C_1C_4R_1R_3R_4R_5 + C_1C_5R_1R_3R_4R_5 + C_1C_5R_1R_5R_5 + C_1C_5R_1R_5R_5 + C_1C_5R_1R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 + C_1C_5R_5R_5 +$ 

**9.2740** X-INVALID-ORDER-2740  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $C_2R_1R_2R_4s + R_1R_4$ 

```
9.2741 X-INVALID-ORDER-2741 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_6R_1R_2R_4R_6s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_6R_1R_4R_6\right)}{s^3\left(-C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_5 + C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_1R_3R_4 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_5 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_2R_3R_4 + C_2C_6R_2R_3R_5 + C_2C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4R_5 + C_4C_6R_1R_3R_4 + C_4C_6R_1R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_6R_3R_4R_5 + C_4C_6R_1R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_4R_3R_4R_5 + C_4C_6R_1R_3R_4 + C_4C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 + C_4C_6R_3R_4R_5\right) + s\left(-C_4R_3R_4R_5 + C_4C_6R_4R_3R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5\right) + s\left(-C_4R_3R_4R_5 + C_4C_6R_4R_3R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5\right) + s\left(-C_4R_3R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5\right) + s\left(-C_4R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5 + C_4R_4R_5 + C_4R_4R_5 + C_4R_4R_5\right) + s\left(-C_4R_4R_4R_5 + C_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_4R_5\right) + s\left(-C_4R_4R_5\right) + s\left(-C_4
9.2742 X-INVALID-ORDER-2742 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{-R_3R_4 + R_3R_5 + R_4R_5 + s^3(-C_1C_2C_6R_1R_2R_3R_4R_6 + C_1C_2C_6R_1R_2R_3R_5R_6 + C_1C_2C_6R_1R_2R_4R_5R_6 + C_1C_2C_6R_1R_3R_4R_5R_6) + s^2(-C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_5 + C_1C_2R_1R_2R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_5 + C_1C_2R_1R_3R_5 + C_1C_2R_1R_3R_5 + C_1C_2R_1R_3R_5 + C_1C_2R
9.2743 X-INVALID-ORDER-2743 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                       H(s) = \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{-C_1C_2C_5R_1R_2R_3R_4s^3 + R_3 + R_4 + s^2\left(C_1C_2R_1R_2R_3 + C_1C_2R_1R_2R_4 + C_1C_5R_1R_3R_4 - C_1C_5R_1R_3R_4 - C_2C_5R_2R_3R_4\right) + s\left(C_1R_1R_3 + C_1R_1R_4 + C_2R_1R_4 + C_2R_2R_3 + C_2R_2R_4 + C_2R_3R_4 - C_5R_3R_4\right)}
9.2744 X-INVALID-ORDER-2744 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                             \frac{C_{2}C_{5}R_{1}R_{2}R_{4}s+C_{5}R_{1}R_{4}}{-C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}+C_{6}R_{4}+s^{2}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{2}C_{6}R_{1}R_{2}R_{4}+C_{1}C_{2}C_{6}R_{1}R_{3}R_{4}-C_{1}C_{5}C_{6}R_{1}R_{3}R_{4}-C_{2}C_{5}C_{6}R_{2}R_{3}R_{4}\right)+s\left(C_{1}C_{6}R_{1}R_{3}+C_{1}C_{6}R_{1}R_{4}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{4}+C_{2}C_{6}R_{3}R_{4}-C_{5}C_{6}R_{3}R_{4}\right)+s\left(C_{1}C_{6}R_{1}R_{3}+C_{1}C_{6}R_{1}R_{4}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2}R_{3}+C_{2}C_{6}R_{2
9.2745 X-INVALID-ORDER-2745 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                   H(s) = \frac{C_2C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_5C_6R_1R_4R_6\right)}{-C_1C_2C_5C_6R_1R_2R_3 + C_6R_3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_3 + C_1C_2C_6R_1R_2R_4 + C_1C_5C_6R_1R_3R_4 - C_1C_5C_6R_1R_3R_4 - C_2C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_3 + C_2C_6R_3R_4 - C_5C_6R_3R_4\right)}{-C_1C_2C_5C_6R_1R_2R_3 + C_2C_6R_3R_4 + C_2C_6R_1R_3R_4 - C_2C_5C_6R_1R_3R_4 - C_2C_5C_6R_1R_3R_4 + C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_3R_4 - C_2C_6R_3R_4\right)}
9.2746 X-INVALID-ORDER-2746 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                        \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6}{-C_1C_2C_5C_6R_1R_2R_3R_4R_6s^4 + R_3 + R_4 + s^3\left(-C_1C_2C_5R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_6 + C_1C_2C_6R_1R_3R_4R_6 - C_1C_5C_6R_1R_3R_4R_6 - C_2C_5C_6R_2R_3R_4R_6\right) + s^2\left(C_1C_2R_1R_2R_3 + C_1C_2R_1R_2R_4 + C_1C_2R_1R_3R_4 + C_1C_5R_1R_3R_4 + C_1C_5R
9.2747 X-INVALID-ORDER-2747 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s
H(s) = \frac{C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s}{R_3 + R_4 + s^3\left(-C_1C_2C_5R_1R_2R_3R_4 + C_1C_2C_5R_1R_2R_3R_5 + C_1C_2C_5R_1R_2R_3R_5 + C_1C_2C_5R_1R_2R_4R_5 + C_1C_2R_1R_2R_4 + C_1C_2R_1R_3R_4 + C_1C_5R_1R_3R_4 + C_1C_5R_1R
9.2748 X-INVALID-ORDER-2748 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_2C_5R_1R_2R_4s + C_5R_1R_4
H(s) = \frac{C_2C_5R_1R_2R_4s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^3\left(-C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_5 + C_1C_2C_5C_6R_1R_3R_4 + C_1C_2C_6R_1R_3R_4 + C_1C_5C_6R_1R_3R_4 + C_1C_5C_6R_1R_3R_5 + C_1C_5C_6R_1R_3R_5 + C_1C_5C_6R_1R_3R_5 + C_1C_5C_6R_1R_3R_5 + C_1C_5C_6R_1R_3R_5 + C_1C_5C_6R_1R_5 + C_1C_5C_6R_1R_5 + C_1C_5C_6R_1R_5 + C_1C_5C_6R_1R_5 + C_1C
```

 $H(s) = \frac{C_2C_5R_1R_2R_4s + C_5R_1R_4}{C_6R_3 + C_6R_4 + s^3\left(-C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_4R_5 + C_1C_2C_5C_6R_1R_3R_4 + C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_3R_4 + C_1C_5C_6R_1R_3R_4 + C_1C_5C_6R_1R$ 

 $H(s) = \frac{C_2C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + c_5C_6R_1R_2R_4 + c_5C_6R_1R_2R$ 

**9.2750** X-INVALID-ORDER-2750  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{H(s)}{R_3 + R_4 + s^4 \left( -C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_5 C_6 R_1 R_3 R_4 R_5 R_6 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_3 R_4 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left( -C_1 C_2 C_5$ 

```
9.2751 X-INVALID-ORDER-2751 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_2C_5R_1R_2R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_5R_1R_4R_5R_6\right)}{-C_1C_2C_5R_1R_2R_3R_4 + R_5s^3 - R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(-C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_5 + C_1C_2R_1R_3R_4R_5 - C_1C_5R_1R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_4\right)}
9.2752 X-INVALID-ORDER-2752 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_2C_5R_1R_2R_4R_5s^2 + R_1R_4 + s(C_2R_1R_2R_4 + C_5R_1R_4R_5)
H(s) = \frac{C_2C_5R_1R_2R_4R_5s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_5R_1R_4R_5\right)}{-C_1C_2C_5C_6R_1R_2R_3R_4 + S^2\left(-C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_3R_4R_5 - C_2C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1
9.2753 X-INVALID-ORDER-2753 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_5C_6R_1R_2R_4R_5R_6s^3 + R_1R_4 + s^2\left(C_2C_5R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_6 + C_5C_6R_1R_4R_5R_6\right) + s\left(C_2R_1R_2R_4 + C_5R_1R_4R_5 + C_6R_1R_4R_6\right)}{-C_1C_2C_5C_6R_1R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R_1R_3R_4R_5 - C_1C_5C_6R_1R_3R_4R_5 - C_1C_5C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4 + C_1C_6R
```

**9.2754** X-INVALID-ORDER-2754  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-C_1C_2C_5C_6R_1R_2R_3R_4R_5R_6s^4 - R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(-C_1C_2C_5R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_5R_6 + C_1C_2C_6R_1R_2R_4R_5R_6 + C_1C_2C_6R_1R_3R_4R_5R_6 - C_1C_5C_6R_1R_3R_4R_5R_6 - C_2C_5C_6R_2R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_5R_6 + C_1C_2C_6R_1R_3R_4R_5R_6 - C_1C_5C_6R_1R_3R_4R_5R_6 - C_2C_5C_6R_2R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5R_6 + C_1C_2C_6R_1R_2R_3R_4R_5R_6 + C_1C_2C_6R_1R_3R_4R_5R_6 - C_2C_5C_6R_2R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5R_6 - C_1C_2C_6R_1R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5R_6 - C_1C_2C_6R_1R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5R_6\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_3R_4$ 

**9.2755** X-INVALID-ORDER-2755  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_2R_1R_2R_6s + R_1R_6}{C_1C_2C_4R_1R_2R_3R_5s^3 - R_3 + R_5 + s^2\left(-C_1C_2R_1R_2R_3 + C_1C_2R_1R_2R_5 + C_1C_2R_1R_3R_5 + C_1C_4R_1R_3R_5 + C_2C_4R_2R_3R_5\right) + s\left(-C_1R_1R_3 + C_1R_1R_5 + C_2R_1R_5 - C_2R_2R_3 + C_2R_2R_5 + C_2R_3R_5 + C_4R_3R_5\right)}$ 

**9.2756** X-INVALID-ORDER-2756  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2 R_1 R_2 s + R_1}{C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_5 s^4 + s^3 \left(-C_1 C_2 C_6 R_1 R_2 R_3 + C_1 C_2 C_6 R_1 R_2 R_5 + C_1 C_2 C_6 R_1 R_3 R_5 + C_1 C_4 C_6 R_1 R_3 R_5 + C_2 C_4 C_6 R_2 R_3 + C_2 C_6 R_1 R_5 + C_2 C_6 R_2 R_3 + C_2 C_6 R_2 R_3 + C_2 C_6 R_2 R_5 + C_2 C_6 R_3 R_5 + C_4 C_6 R_3 R_5 \right) + s \left(-C_6 R_3 R_5 + C_4 C_6 R_5 + C_5 C_6 R_5 + C_5 C_6 R_5$ 

**9.2757** X-INVALID-ORDER-2757  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_6R_1R_2R_6s^2 + R_1 + s\left(C_2R_1R_2 + C_6R_1R_6\right)}{C_1C_2C_4C_6R_1R_2R_3 + s^3\left(-C_1C_2C_6R_1R_2R_3 + C_1C_2C_6R_1R_2R_5 + C_1C_4C_6R_1R_3R_5 + C_2C_4C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6R_1R_5 + C_2C_6R_2R_3 + C_2C_6R_2R_3 + C_2C_6R_3R_5 + C_4C_6R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6R_1R_5 + C_2C_6R_2R_3 + C_2C_6R_3R_5 + C_4C_6R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6R_1R_3 + C_2C_6R_3R_5 + C_2C_6R_3R_5 + C_2C_6R_3R_5 + C_2C_6R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6R_1R_5 + C_2C_6R_3R_5 + C_2C_6R_3R_5 + C_2C_6R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_2C_6R_3R_5 + C_2C_6R_3R_5 + C_2C_6R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_2C_6R_3R_5 + C_2C_6R_3R_5 + C_2C_6R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_2C_6R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_2C_6R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_2C_6R_3R_5\right) + s^2\left(-C_1C_6R_3R_5\right) + s^2\left($ 

**9.2758** X-INVALID-ORDER-2758  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $C_2R_1R_2R_6s + R_1R_6$  $H(s) = \frac{C_2 R_1 R_2 R_3 R_5 R_6 s^4 - R_3 + R_5 + s^3 (C_1 C_2 C_4 R_1 R_2 R_3 R_5 - C_1 C_2 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_5 R_6 + C_1$ 

**9.2759** X-INVALID-ORDER-2759  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s}{s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_1R_3 + C_1C_4R_1R_3 - C_1C_5R_1R_3 + C_2C_4R_2R_3 - C_2C_5R_2R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_2 + C_2R_3 + C_4R_3 - C_5R_3\right) + 1}{s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_1R_3 + C_1C_4R_1R_3 - C_1C_5R_1R_3 + C_2C_4R_2R_3 - C_2C_5R_2R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_2 + C_2R_3 + C_4R_3 - C_5R_3\right) + 1}{s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_1R_3 + C_1C_4R_1R_3 - C_1C_5R_1R_3 + C_2C_4R_2R_3 - C_2C_5R_2R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + 1}{s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_5R_1R_2 + C_1C_2R_1R_3 + C_1C_4R_1R_3 - C_1C_5R_1R_3 + C_2C_4R_2R_3 - C_2C_5R_2R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_4R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_3 + C_3R_3\right) + s\left(C_1R_1 + C_2R_1 + C_3R_3\right) + s\left(C_1R_1 + C_2R_1 + C_3R_3\right) + s\left(C_1R_1 + C_2R_3\right) + s\left(C_1R_1 + C_2R_1 + C_3R_3\right) + s\left(C_1R_1 + C_2R_3\right) + s\left(C_1R_1 + C_2$ 

**9.2760** X-INVALID-ORDER-2760  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_5R_1R_2s + C_5R_1}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_2R_3 - C_1C_2C_5C_6R_1R_2R_3\right) + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_3 + C_1C_4C_6R_1R_3 - C_1C_5C_6R_1R_3 + C_2C_4C_6R_2R_3 - C_2C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_2C_6R_1 + C_2C_6R_1 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$ 

```
H(s) = \frac{C_2C_5C_6R_1R_2R_6s^2 + C_5R_1 + s\left(C_2C_5R_1R_2 + C_5C_6R_1R_6\right)}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_2R_3 - C_1C_2C_5C_6R_1R_2R_3\right) + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_2C_4C_6R_2R_3 - C_2C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_2C_6R_1 + C_2C_6R_2 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}
9.2762 X-INVALID-ORDER-2762 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s
H(s) = \frac{C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s}{s^4\left(C_1C_2C_4C_6R_1R_2R_3R_6 - C_1C_2C_5C_6R_1R_2R_3R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3 + C_1C_2C_6R_1R_3R_6 + C_1C_4C_6R_1R_3R_6 + C_1C_4C_6R_1R_3R_6 + C_2C_4C_6R_2R_3R_6\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_1R_2 + C_1C_2R_1R_3 + C_1C_4R_1R_3R_6\right)}
9.2763 X-INVALID-ORDER-2763 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_2C_5R_1R_2R_6s^2 + C_5R_1R_6s}{C_1C_2C_4C_5R_1R_2R_3 + S^4 + s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_5 + C_1C_2C_5R_1R_3R_5 + C_1C_4C_5R_1R_3R_5 + C_1C_4C_5R_1R_3 + C_1C_4R_1R_3 - C_1C_5R_1R_3 + C_1C_5R_1R_3 + C_1C_5R_1R_5 + C_2C_5R_1R_3 + C_1C_5R_1R_5 + C_2C_5R_1R_3 + C_1C_5R_1R_3 + C_1C_
9.2764 X-INVALID-ORDER-2764 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_5R_1R_2s + C_5R_1}{C_1C_2C_4C_5C_6R_1R_2R_3R_5s^4 + C_6 + s^3\left(C_1C_2C_4C_6R_1R_2R_3 - C_1C_2C_5C_6R_1R_2R_3 + C_1C_2C_5C_6R_1R_3R_5 + C_1C_4C_5C_6R_1R_3R_5 + C_1C_4C_5C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1C_5C_6R_1R_3 + C_1C_5C_6R_1R_
9.2765 X-INVALID-ORDER-2765 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_5C_6R_1R_2R_6s^2 + C_5R_1 + s\left(C_2C_5R_1R_2 + C_5C_6R_1R_2\right)}{C_1C_2C_4C_5C_6R_1R_2R_3 + C_4C_5C_6R_1R_2R_3 + C_4C_5C_6R_1R_3R_5 + C_4C_5C_6R_1R_3R_5 + C_4C_5C_6R_1R_3 + C_4C_5
9.2766 X-INVALID-ORDER-2766 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_1C_2C_4C_5C_6R_1R_2R_3R_5R_6s^5 + s^4\left(C_1C_2C_4C_5R_1R_2R_3R_5 + C_1C_2C_4C_6R_1R_2R_3R_6 + C_1C_2C_5C_6R_1R_2R_3R_6 + C_1C_2C_5C_6R_1R_3R_5R_6 + C_1C_4C_5C_6R_1R_3R_5R_6 + C_1C_4C_5C_6R_2R_3R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3 + C_1C_2C_5C_6R_1R_2R_3R_6 + C_1C_4C_5C_6R_1R_3R_5R_6 + C_2C_4C_5C_6R_2R_3R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3R_6 + C_1C_2C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_3R_5R_6 + C_1C_4C_5C_6R_1R_3R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3R_6 + C_1C_2C_5C_6R_1R_3R_5R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3 - C_1C_2C_5R_1R_2R_3R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_6 - C_1C_2C_5C_6R_1R_2R_3R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_6\right) + s^3\left(C_1C_4C_4R_1R_2R_3R_6\right) + s^3\left(C_1C_
9.2767 X-INVALID-ORDER-2767 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_2C_5R_1R_2R_5R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^3\left(C_1C_2C_4R_1R_2R_3R_5 - C_1C_2C_5R_1R_2R_3R_5\right) + s^2\left(-C_1C_2R_1R_2R_3 + C_1C_2R_1R_2R_5 + C_1C_4R_1R_3R_5 - C_1C_5R_1R_3R_5 + C_2C_4R_2R_3R_5\right) + s\left(-C_1R_1R_3 + C_1R_1R_5 + C_2R_1R_5 + C_2R_2R_3 + C_2R_2R_5 + C_2R_3R_5\right) + s\left(-C_1R_1R_3 + C_1R_1R_5 + C_2R_1R_5 + C_2R_3R_5 + C_2R_3R_5\right) + s\left(-C_1R_1R_3 + C_1R_1R_5 + C_2R_1R_5 + C_2R_3R_5 + C_2R_3R_5\right) + s\left(-C_1R_1R_3 + C_1R_3R_5 + C_2R_3R_5\right) + s\left(-C_1R_1R_3R_5 + C_1R_3R_5\right) + s\left(-C_1R_1R_3R_5 + C_2R_3R_5\right) + s\left(-C_1R_1R_3R
9.2768 X-INVALID-ORDER-2768 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)
                                          \frac{C_{2}C_{5}R_{1}R_{2}R_{5}s^{2}+R_{1}+s\left(C_{2}R_{1}R_{2}+C_{5}R_{1}R_{5}\right)}{s^{4}\left(C_{1}C_{2}C_{4}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{2}C_{6}R_{1}R_{2}R_{5}+C_{1}C_{2}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{2}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{2}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{2}C_{6}R_{1}R_{3}R_{5}+C_{1}C_{2}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{4}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{5}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_{2}C_{6}C_{6}R_{1}R_{3}R_{5}+C_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_2C_5R_1R_2R_5s^2 + R_1 + s\left(C_2R_1R_2 + C_5R_1R_5\right)
9.2769 X-INVALID-ORDER-2769 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_2C_5C_6R_1R_2R_5R_6s^3 + R_1 + s^2\left(C_2C_5R_1R_2R_5 + C_2C_6R_1R_2R_6 + C_5C_6R_1R_5R_6\right) + s\left(C_2R_1R_2 + C_5R_1R_5 + C_6R_1R_6\right)}{s^4\left(C_1C_2C_4C_6R_1R_2R_3 + C_5C_6R_1R_2R_3 + C_5C_6R_1R_2R_5 + C_5C_6R_1R_3R_5 + 
9.2770 X-INVALID-ORDER-2770 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
                                           -R_3 + R_5 + s^4 \left(C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_5 R_6 - C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_3 R_5 - C_1 C_2 C_5 R_1 R_2 R_3 R_5 - C_1 C_2 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6 - C_1 C_5 C_6 R_1 R_3 R_5 R_6 + C_2 C_4 C_6 R_2 R_3 R_5 R_6 - C_3 C_5 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_3 R_5 - C_1 C_2 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6 - C_1 C_5 C_6 R_1 R_3 R_5 R_6 + C_2 C_4 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_3 R_5 - C_1 C_2 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_3 R_5 - C_1 C_2 C_5 R_1 R_2 R_3 R_5 - C_1 C_2 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6 - C_1 C_5 C_6 R_1 R_3 R_5 R_6 + C_2 C_4 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_3 R_5 - C_1 C_2 C_5 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_3 R_5 R_6 + C_1 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_5 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_3 R_5 - C_1 C_2 C_5 R_1 R_3 R_5 R_6 + C_1 C_5 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_3 R_5 R_6 + C_1 C_5 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_3 R_5 R_6 + C_1 C_5 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_3 R_5 R_6 + C_1 C_5 C_6 R_1 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_3 R_5 R_6 + C_1 C_5 C_6 R_1 R_3 R_5 R_6 + C_1 C_5 C_6 R_1 R_5 R_5 R_5 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_4 R_1 R_5 R_5 R_5 R_5 R_5 R_
```

**9.2761** X-INVALID-ORDER-2761  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

```
9.2771 X-INVALID-ORDER-2771 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3, R_4 + \frac{1}{C_4s}, R_5, R_6\right)
 \frac{C_2C_4R_1R_2R_4R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_4R_1R_4R_6\right)}{-R_3 + R_5 + s^3\left(-C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4R_1R_2R_3R_5 + C_1C_2C_4R_1R_3R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_3 + C_1C_2R_1R_2R_5 + C_1C_2R_1R_3R_4 + C_1C_4R_1R_3R_5 + C_1C_4R_1R_4R_5 + C_2C_4R_1R_4R_5 - C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5\right)} 
9.2772 X-INVALID-ORDER-2772 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3, R_4 + \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)
 \frac{C_2C_4R_1R_2R_4s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_4R_1R_4R_6\right)}{s^4\left(-C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4R_1R_2R_4R_5 + C_1C_2C_4R_1R_3R_4 + C_1C_4R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_3R_4 + C_1C_4C_6R_1R_4R_5 + C_2C_4C_6R_1R_4R_5 + C_2C_4C_6R_1R_4R_
```

**9.2773** X-INVALID-ORDER-2773 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_2C_4C_6R_1R_2R_4R_6s^3 + R_1 + s^2\left(C_2C_4R_1R_2R_4 + C_2C_6R_1R_2R_6 + C_4C_6R_1R_4R_6\right) + C_3C_4C_6R_1R_2R_3R_4 + C_3C_4C_6R_1R_3R_4 + C_3C_4C_6R_1$ 

9.2774 X-INVALID-ORDER-2774  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-R_3 + R_5 + s^4 \left(-C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_3 R_4 R_5 R_6 \right) + s^3 \left(-C_1 C_2 C_4 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 R_1 R_2$ 

**9.2775** X-INVALID-ORDER-2775  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_4C_5R_1R_2R_4R_6s^3 + C_5R_1R_6s + s^2\left(C_2C_5R_1R_2R_6 + C_4C_5R_1R_4R_6\right)}{-C_1C_2C_4C_5R_1R_2R_3R_4s^4 + s^3\left(C_1C_2C_4R_1R_2R_3 + C_1C_2C_4R_1R_2R_4 + C_1C_2C_4R_1R_3R_4 - C_1C_5R_1R_3R_4 - C_2C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_1R_3 + C_1C_4R_1R_3 + C_1C_4R_1R_4 + C_2C_4R_1R_4 + C_2C_4R_2R_3 + C_2C_4R_3R_3 + C_2C_4R_$ 

9.2776 X-INVALID-ORDER-2776  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_4C_5R_1R_2R_4s^2 + C_5R_1 + s\left(C_2C_5R_1R_2 + C_4C_5R_1R_4\right)}{-C_1C_2C_4C_5C_6R_1R_2R_3R_4s^4 + C_6 + s^3\left(C_1C_2C_4C_6R_1R_2R_3 + C_1C_2C_4C_6R_1R_2R_3 + C_1C_2C_5C_6R_1R_3R_4 - C_1C_2C_5C_6R_1R_3R_4 - C_1C_2C_5C_6R_1R_3R_4 - C_1C_2C_6R_1R_3 + C_1C_4C_6R_1R_3 + C_1$ 

**9.2777** X-INVALID-ORDER-2777  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_4C_5C_6R_1R_2R_4R_6s^3 + C_5R_1 + s^2\left(C_2C_4C_5R_1R_2R_4 + C_2C_5C_6R_1R_2R_6 + C_4C_5C_6R_1R_4R_6\right) + s\left(C_2C_5R_1R_2R_4 + C_4C_5C_6R_1R_2R_4 + C_4C_5C_6R_1R_3R_4 + C_4C_6R_1R_3R_4 + C_4C_5C_6R_1R_3R_4 + C_4C_5C_6R_1R_3R_4$ 

**9.2778** X-INVALID-ORDER-2778  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-C_1C_2C_4C_5C_6R_1R_2R_3R_4R_6s^5 + s^4\left(-C_1C_2C_4C_5R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_2R_3R_6 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_1C_2C_5C_6R_1R_3R_4R_6 - C_1C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_2R_4R_6 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_1C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_2R_4R_6 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_1C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_2R_4R_6 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_1C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_2R_4R_6 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_1C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_2R_4R_6 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_1C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_1C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_3R_4R_6 - C_2C_4C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_4R_6 - C_2C_4C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_4R_6 - C_2C_4C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_4R_6\right) + s^3\left(C_1C_2C_4R_1R_2R_4\right) + s^3\left(C_1C_2C_4R_1R_2R_4\right) + s^3\left(C_1C_2C_4R_1R_2R_4\right) + s^3\left(C_1C_2C_4R_1R_2R_4\right) + s^3\left(C_1C_2C_4R_1R_2R_4$ 

9.2779 X-INVALID-ORDER-2779  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{1}{s^4 \left(-C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_1 R_3 R_4 R_5\right) + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_3 + C_1 C_2 C_4 R_1 R_2 R_4 + C_1 C_2 C_5 R_1 R_2 R_3 + C_1 C_2 C_5 R_1 R_2 R_5 + C_1 C_2 C_5 R_1 R_3 R_5 + C_1 C_4 C_5 R_1 R_3 R_4 + C_1 C_4 C_5 R_1 R_4 R_5 + C_1 C_4 C_5 R_1 R_5 + C_1 C_4 C_5 R_1 R_5 + C_1 C_4 C_5 R_1 R$ 

**9.2780** X-INVALID-ORDER-2780  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{1}{C_6 + s^4 \left(-C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 C_6 R_1 R_3 R_4 R_5\right) + s^3 \left(C_1 C_2 C_4 C_6 R_1 R_2 R_3 + C_1 C_2 C_4 C_6 R_1 R_3 R_4 - C_1 C_2 C_5 C_6 R_1 R_2 R_3 + C_1 C_2 C_5 C_6 R_1 R_2 R_3 +$ 

```
9.2781 X-INVALID-ORDER-2781 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{1}{C_6 + s^4 \left(-C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 C_6 R_1 R_3 R_4 R_5\right) \\ + s^3 \left(C_1 C_2 C_4 C_6 R_1 R_2 R_3 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 + C_1 C_2 C_5 C_6 R_1 R_2 R_3$ 

**9.2782** X-INVALID-ORDER-2782 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{s^5 \left(-C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_1 R_3 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_1 R$ 

**9.2783** X-INVALID-ORDER-2783 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $H(s) = \frac{C_2C_4C_5R_1R_2R_4R_5R_6s^3 + R_1R_6 + s^2\left(C_2C_4R_1R_2R_3R_4 + C_1C_2C_4R_1R_2R_3R_5 + C_$ 

9.2784 X-INVALID-ORDER-2784 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{-C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5s^5 + s^4\left(-C_1C_2C_4C_6R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_2R_3R_5 + C_1C_2C_4C_6R_1R_3R_4R_5 - C_1C_2C_5C_6R_1R_3R_4R_5 - C_1C_4C_5C_6R_1R_3R_4R_5 - C_1C_4C_5C_6R_1R_3R_5 - C_1C_4C_5C_6R_1R_3R_5 - C_1C_4C_5C_6R_1R_3R_5 - C_1C_5C_6R_1R_5C_5C_6R_1R_5C_5C_5C_6R_1R_5C_5C_5C_6R_1R_5C_5C_5C_5C_6R_1R_5C_5C_5C_5$ 

### **9.2785** X-INVALID-ORDER-2785 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_2C_4C_5C_6R_1R_2R_4R_5R_6s^4 + R_1 + s^3\left(C_2C_4C_5R_1R_2R_4R_5 + C_2C_4C_6R_1R_2R_4R_5 + C_2C_4C_6R_1R_2R_3R_4 + C_1C_2C_4C_6R_1R_2R_3R_4 + C_$ 

9.2786 X-INVALID-ORDER-2786 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{-C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6s^5 - R_3 + R_5 + s^4\left(-C_1C_2C_4C_5R_1R_2R_3R_4R_5 - C_1C_2C_4C_6R_1R_2R_3R_5R_6 + C_1C_2C_4C_6R_1R_2R_4R_5R_6 + C_1C_2C_4C_6R_1R_3R_4R_5R_6 - C_1C_2C_5C_6R_1R_2R_3R_5R_6 - C_1C_4C_5C_6R_1R_3R_4R_5R_6 - C_1C_4C_5C_6R_1R_3R_4R_5 - C_1C_4C_5C_6R_1R_3R_4R_5 - C_1C_4C_5C_6R_1R_5R_5R_5 - C_1C_4C_5C_6R_1R_5R_5R_5 - C_1C_5C_6R_1R_5R_5R_5 - C_1C_5C_5C_6R_1R_5R_5R_5 - C_1C_5C_5C_6R_1R_5$ 

#### **9.2787** X-INVALID-ORDER-2787 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$

 $H(s) = \frac{C_2R_1R_2R_4R_6s + R_1R_4R_6}{C_1C_2C_4R_1R_2R_3R_4R_5s^3 - R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(-C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_5 + C_1C_2R_1R_2R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_4R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_1R_4R_5 + C_2R_4R_3R_4R_5 + C_2R_4R_4R_5 + C_2R_4R_5 + C$ 

# 9.2788 X-INVALID-ORDER-2788 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_2 R_1 R_2 R_4 s + R_1 R_4}{C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_5 s^4 + s^3 \left(-C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 + C_1 C_4 C_6 R_1 R_3 R_4 R_5 + C_2 C_4 C_6 R_1 R_3 R_4 R_5 + C_1 C_6 R_1 R_3 R_4 + C_1$ 

## **9.2789** X-INVALID-ORDER-2789 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_2C_6R_1R_2R_4R_6s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_6R_1R_4R_6\right)}{C_1C_2C_4C_6R_1R_2R_3R_4 + S^4 + s^3\left(-C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_3R_4R_5 + C_1C_4C_6R_1R_3R_4R_5 + C_1C_4C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6$ 

9.2790 X-INVALID-ORDER-2790 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$$

```
9.2791 X-INVALID-ORDER-2791 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3, \frac{R_4}{C_1R_2s+1}, \frac{1}{C_5s}, R_6\right)
C_2C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s
C_3C_5R_1R_2R_4R_6s^2 + C_5R_1R_4R_6s
9.2792 X-INVALID-ORDER-2792 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3, \frac{R_4}{C_1R_2s+1}, \frac{1}{C_5s}, \frac{1}{C_5s}\right)
C_3C_5R_1R_2R_4 + C_1C_3R_1R_3R_4 - C_2C_5R_2R_3R_4 + s(C_1R_3R_3 + C_2R_3R_3 + C_2R_3R_4 + C_2R_3R_3R_4 +
```

 $H(s) = \frac{1}{R_3 + R_4 + s^4 \left( C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_4 R_1 R_2 R_3 R_4 - C_1 C_2 C_5 R_1 R_2 R_3 R_4 + C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_6 R_1 R_3 R_4 R_6 + C_1 C_4 C_6 R_1 R_5 R_6 + C_1 C_4 C_6 R_1 R_5 R_6 + C_1 C_4 C_6 R_1$ 

**9.2795** X-INVALID-ORDER-2795  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_{5}}{C_{1}C_{2}C_{4}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}s^{4} + R_{3} + R_{4} + s^{3}\left(C_{1}C_{2}C_{4}R_{1}R_{2}R_{3}R_{4} - C_{1}C_{2}C_{5}R_{1}R_{2}R_{3}R_{5} + C_{1}C_{2}C_{5}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{5}R_{1}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{5$ 

**9.2796** X-INVALID-ORDER-2796  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_3 + C_6R_4 + s^3\left(C_1C_2C_4C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_5 + C_1C_2C_5C_6R_1R_2R_3R_4 + C_$ 

**9.2797** X-INVALID-ORDER-2797  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_3 + C_6R_4 + s^3\left(C_1C_2C_4C_6R_1R_2R_3R_4 - C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_5 + C_1C_2C_5C_6R_1R_3R_4R_5 + C_1C_4C_5C_6R_1R_3R_4R_5 + C_1C_4C_5C_6R_1R_3R_5 + C_1C_4C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_$ 

**9.2798** X-INVALID-ORDER-2798  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_3 + R_4 + s^4\left(C_1C_2C_4C_5R_1R_2R_3R_4R_5 + C_1C_2C_5C_6R_1R_2R_3R_4R_6 + C_1C_2C_5C_6R_1R_2R_3R_4R_5 + C_1C_2C_5C_6R_1R_2R_3R_4R_6 + C_1C_2C_5C_6R_1R_2R_3R_4R_5R_6 + C_1C_2C_5C_6R_1R_3R_4R_5R_6 + C_1C_2C_5C_6R_1R_3R_4R_5R_5R_5 + C_1C_2C_5C_6R_1R_3R_4R_5 + C_1C_2C_5C_6R_1R_3R_5R_5 + C_1C_2C_5C_6R_1R_5R_5R_5 +$ 

**9.2799** X-INVALID-ORDER-2799  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_5R_1R_2R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_5R_1R_4R_5R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(C_1C_2C_4R_1R_2R_3R_4R_5 - C_1C_2S_1R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_5 + C_1C_2R_1R_2R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_4 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_4R_5$ 

**9.2800** X-INVALID-ORDER-2800  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $C_2C_5R_1R_2R_4R_5s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_5R_1R_4R_5\right)$ 

 $H(s) = \frac{c_2c_5R_1R_2R_4R_5 - c_1c_2c_6R_1R_2R_3R_4R_5 - c_1c_2c_6R_1R_2R_3R_4 - c_1c_2c_6R_1R_2R_3R_4 - c_1c_2c_6R_1R_2R_3R_4 - c_1c_2c_6R_1R_2R_3R_4 - c$ 

```
9.2801 X-INVALID-ORDER-2801 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_{2}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5}R_{6}s^{3} + R_{1}R_{4} + s^{2}\left(C_{2}C_{5}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{2}R_{4}R_{6} + C_{5}C_{6}R_{1}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{2}R_{4}R_{6} + C_{5}C_{6}R_{1}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{2}R_{4}R_{6} + C_{5}C_{6}R_{1}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{2}R_{4}R_{5} + C_{5}C_{6}R_{1}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{2}R_{4}R_{5}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{2}R_{4}R_{5}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}R_{1}R_{2}R_{4}R_{5}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{5} + C_{2}R_{2}R_{5}\right) + s\left(C_{2}R_{1}R_{2}R_{5} + C_{2}R_{2}R_{5}\right) +
H(s) = \frac{C_2C_5C_6R_1R_2R_4R_5R_6s^3 + R_1R_4 + s^2\left(C_2C_5R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_6 + C_5C_6R_1R_4R_5R_6\right) + s\left(C_2R_3R_4R_5 + C_3R_4R_5 + 
9.2802 X-INVALID-ORDER-2802 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{-R_3R_4 + R_3R_5 + R_4R_5 + s^4(C_1C_2C_4C_6R_1R_2R_3R_4R_5R_6 - C_1C_2C_5C_6R_1R_2R_3R_4R_5 - C_1C_2C_5R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_6 + C_1C_2C_6R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_
9.2803 X-INVALID-ORDER-2803 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)
                                                                                            H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{C_1C_2C_3R_1R_2R_4R_5s^3 - R_4 + R_5 + s^2\left(-C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_5 + C_1C_2R_1R_4R_5 + C_1C_3R_1R_4R_5 + C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5\right) + s\left(-C_1R_1R_4 + C_1R_1R_5 - C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5 + C_3R_4R_5\right)}
9.2804 X-INVALID-ORDER-2804 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
 H(s) = \frac{C_2C_3R_1R_2R_4s + C_3R_1R_4}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 - C_6R_4 + C_6R_5 + s^2\left(-C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_2R_5 + C_1C_2C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_5 - C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_2C_6R_4R
9.2805 X-INVALID-ORDER-2805 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
 H(s) = \frac{C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_4R_5s^3 - C_6R_4 + C_6R_5 + s^2\left(-C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_2R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_4R_5 + C_2C_3
9.2806 X-INVALID-ORDER-2806 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3R_1R_2R_4R_5s^4 - R_4 + R_5 + s^3(C_1C_2C_3R_1R_2R_4R_5 - C_1C_2C_6R_1R_2R_4R_6 + C_1C_2C_6R_1R_4R_5R_6 + C_1C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_2R_4R_5R_6 + S^2(-C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_4 + C_1C_2R_1R_4R_5R_6 + C_1C_2C_6R_1R_4R_5R_6 + C_1C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_1R_4R_5R_6 + C_2C_3C_6R_1R_4R_5R_5 + C_2C_3C_6R_1R_5R_5 + C_2C_3C_6R_1R_5R_5 + C_2C_3C_6R_1R_5R_5 + C_2C_3C_6R_1R_5R_5 + C_2C_3C_6R_1R_5R_5 + C_2C
9.2807 X-INVALID-ORDER-2807 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                        H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^3\left(C_1C_2C_3R_1R_2R_4 - C_1C_2C_5R_1R_2R_4\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_1R_4 + C_1C_3R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_1R_4 + C_2C_3R_2R_4 - C_2C_5R_2R_4\right) + s\left(C_1R_1 + C_2R_2 + C_2R_4 + C_3R_4 - C_5R_4\right) + 1}
9.2808 X-INVALID-ORDER-2808 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                 H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s + C_3C_5R_1R_4s}{C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_4 - C_1C_2C_5C_6R_1R_2R_4\right) + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + S(C_1C_6R_1 + C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_4 + C_3C_6R_4 + C_3C_6R_4\right)}
9.2809 X-INVALID-ORDER-2809 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                 H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_4 - C_1C_2C_5C_6R_1R_2R_4\right) + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_2C_5C_6R_2R_4\right) + s\left(C_1C_6R_1 + C_2C_6R_2 + C_2C_6R_4 + C_3C_6R_4 - C_5C_6R_4\right)}
9.2810 X-INVALID-ORDER-2810 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

491

 $C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2$ 

**9.2814** X-INVALID-ORDER-2814  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

**9.2815** X-INVALID-ORDER-2815  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_4R_6s + s^2\left(C_2C_3R_1R_2R_4R_6 + C_3C_5R_1R_4R_5R_6\right)}{-R_4 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_4R_5 - C_1C_2S_1R_2R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_5 + C_1C_2R_1R_4R_5 + C_1C_3R_1R_4R_5 + C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5\right) + s\left(-C_1R_1R_4 + C_1R_1R_5 - C_2R_2R_4 + C_2R_2R_5 + C_2R_4R_5\right)}$ 

**9.2816** X-INVALID-ORDER-2816  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5\right)}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 - C_1C_2C_5C_6R_1R_2R_4 + C_1C_2C_6R_1R_2R_5 + C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 - C_2C_5C_6R_2R_4R_5\right) + s\left(-C_1C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5\right) + s\left(-C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5\right) + s\left(-C_1C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5\right) + s\left(-C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5\right) + s\left(-C_1C_3C_6R_1R_4R_5\right) + s\left(-C_1C_3C_6R_1R_4R_5$ 

**9.2817** X-INVALID-ORDER-2817  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_6R_1R_4R_5R_6\right) + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 - C_1C_2C_5C_6R_1R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3$ 

**9.2818** X-INVALID-ORDER-2818  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{-R_4 + R_5 + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_5 R_6 - C_1 C_2 C_5 C_6 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_5 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_5 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_5 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_5 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_$ 

**9.2819** X-INVALID-ORDER-2819  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_6s^2 + C_3R_1R_6s}{s^3\left(C_1C_2C_3R_1R_2R_5 + C_1C_2C_4R_1R_2R_5\right) + s^2\left(-C_1C_2R_1R_2 + C_1C_2R_1R_5 + C_1C_4R_1R_5 + C_2C_3R_1R_5 + C_2C_3R_2R_5 + C_2C_4R_2R_5\right) + s\left(-C_1R_1 - C_2R_2 + C_2R_5 + C_3R_5 + C_4R_5\right) - 1}$ 

**9.2820** X-INVALID-ORDER-2820  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

```
9.2821 X-INVALID-ORDER-2821 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                        H(s) = \frac{C_2C_3C_6R_1R_2R_6s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_6R_1R_6\right)}{-C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_2R_5\right) + s^2\left(-C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_6R_1 - C_2C_6R_2 + C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5\right)}
9.2822 X-INVALID-ORDER-2822 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_2C_3R_1R_2R_6s^2 + C_3R_1R_6s
H(s) = \frac{C_2C_3R_1R_2R_6s^2 + C_3R_1R_6s}{s^4\left(C_1C_2C_3C_6R_1R_2R_5R_6 + C_1C_2C_4C_6R_1R_2R_5 + C_1C_2C_4R_1R_2R_5 - C_1C_2C_6R_1R_2R_6 + C_1C_2C_6R_1R_5R_6 + C_1C_3C_6R_1R_5R_6 + C_1C_3C_6R_1R_5R_6 + C_2C_3C_6R_1R_5R_6 + C_2C_3C_6R_1R_5R_5 + C_2C_3C_5R_5R_5R_5 + C_2C_3C_5R_5R_5R_5 + C_2C_3C_5R_5R_5R_5 + C_2C_3C_5R_5R_5R_5 + C_2C_3C_5R_5R_5R_5 + C_2C_3C_5R_5R_
9.2823 X-INVALID-ORDER-2823 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_6 + C_1C_2C_5C_6R_1R_2R_6 + s^2\left(C_1C_2C_3R_1R_2 + C_1C_2C_5R_1R_2 + C_1C_2C_6R_1R_6 + C_1C_3C_6R_1R_6 + C_1C_3C_6R_1R_6 + C_2C_3C_6R_1R_6 + C_2
9.2824 X-INVALID-ORDER-2824 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 + C_5 + s^3\left(C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_4C_5R_1R_2 + C_1C_2C_4R_1R_2 - C_1C_2C_5R_1R_5 + C_1C_3C_5R_1R_5 + C_1C_3C_5R_1R_5 + C_2C_3C_5R_2R_5 + C_2C_4C_5R_2R_5\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_4R_1R_5 + C_1C_3C_5R_1R_5 + C_1C_3C_5R_1R_5 + C_2C_3C_5R_1R_5 + C_2C_3C_5R_2R_5 + C_2C_4C_5R_2R_5\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_4R_1 + C_1C_4R
9.2825 X-INVALID-ORDER-2825 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C_2C_3C_5R_1R_2s + C_3C_5R_1
H(s) = \frac{C_2C_3C_5R_1R_2s + C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_2 + C_1C_2C_4C_5R_1R_2 + C_1C_2C_5C_6R_1R_2 + C_1C_2C_5C_6R_1R_5 + C_1C_4C_5C_6R_1R_5 + C_2C_3C_5C_6R_1R_5 + C_2C_3C_
9.2826 X-INVALID-ORDER-2826 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_2C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^3\left(C_1C_2C_3C_5C_6R_1R_2 + C_1C_2C_4C_6R_1R_2 + C_1C_2C_5C_6R_1R_2 + C_1C_2C_5C_6R_1R_5 + C_1C_4C_5C_6R_1R_5 + C_2C_3C_5C_6R_1R_5 + C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C_2C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1 + s(C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6)
9.2827 X-INVALID-ORDER-2827 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{1}{C_2 + C_3 + C_4 - C_5 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_3 C_5 R_1 R_2 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_4 C_5 R_1 R_2 R_6 + C_1 C_2 C_4 C_5 R_1 R_2 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_6 + C_1 C
9.2828 X-INVALID-ORDER-2828 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
     H(s) = \frac{C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_5R_1R_5R_6\right)}{s^3\left(C_1C_2C_3R_1R_2R_5 + C_1C_2C_4R_1R_2R_5 - C_1C_2C_5R_1R_2R_5\right) + s^2\left(-C_1C_2R_1R_2 + C_1C_2R_1R_5 + C_1C_4R_1R_5 + C_1C_4R_1R_5 + C_2C_3R_1R_5 + C_2C_4R_2R_5 - C_2C_5R_2R_5\right) + s\left(-C_1R_1 - C_2R_2 + C_2R_5 + C_3R_5 + C_4R_5 - C_5R_5\right) - 1}
9.2829 X-INVALID-ORDER-2829 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
H(s) = \frac{C_2C_3C_5R_1R_2R_5s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_5R_1R_5\right)}{-C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_2R_5\right) + s^2\left(-C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_1 - C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_1 - C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_1 - C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_2C_3C_6R_2R_5\right) + s\left(-C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5\right) + s\left(-C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5\right) + s\left(-C_1C_3C_6R_1R_5\right) + s\left(-C_1C
```

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_5R_6s^3 + C_3R_1 + s^2\left(C_2C_3C_5R_1R_2R_5 + C_2C_3C_6R_1R_2R_6 + C_3C_5C_6R_1R_5R_6\right) + s\left(C_2C_3R_1R_2 + C_3C_5R_1R_5 + C_3C_6R_1R_6\right)}{-C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_2R_5 + C_1C_2C_5C_6R_1R_2R_5\right) + s^2\left(-C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_6R_1R_2 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_1C_4C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_2C_4C_6R_1R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_2C_4C_6R_1R_5 + C_2C_4C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_2C_4C_6R_1R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_1C_4C_6R_1R_5 + C_2C_4C_6R_1R_5\right) + s\left(-C_1C_4C_4C_4R_5\right) + s\left(-C_1C_4C_4C_4R_5\right) + s\left(-C_1C_4C_4C_4R_5\right) + s\left(-C_1C_4C_4C_4R_5\right) + s\left(-$ 

**9.2830** X-INVALID-ORDER-2830  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

```
9.2831 X-INVALID-ORDER-2831 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_5 R_6 - C_1 C_2 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_4 R_1 R_2 R_5 - C_1 C_2 C_5 R_1 R_2 R_5 - C_1 C_2 C_6 R_1 R_2 R_5 + C_1 C_2 C_6 R_1 R_2 R_5 +$ 

**9.2832** X-INVALID-ORDER-2832  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_4R_1R_2R_4R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_6 + C_3C_4R_1R_4R_6\right)}{C_1C_2C_3C_4R_1R_2R_4R_5s^4 + s^3\left(C_1C_2C_3R_1R_2R_5 - C_1C_2C_4R_1R_2R_5 + C_1C_2C_4R_1R_4R_5 + C_2C_3C_4R_1R_4R_5 + C_2C_3C$ 

**9.2833** X-INVALID-ORDER-2833  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $C_2C_3C_4R_1R_2R_4s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_4R_1R_4\right)$  $H(s) = \frac{C_2C_3C_4R_1R_2R_4s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_4R_1R_4\right)}{C_1C_2C_3C_4C_6R_1R_2R_4S^4 - C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_5 - C_1C_2C_4C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_2 + C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R$ 

**9.2834** X-INVALID-ORDER-2834  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_6R_1R_2R_4R_6s^3 + C_3R_1 + s^2\left(C_2C_3C_4R_1R_2R_4 + C_2C_3C_6R_1R_2R_6 + C_3C_4C_6R_1R_4R_6\right) + s\left(C_2C_3C_4C_6R_1R_2R_4R_5s^4 - C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_5 - C_1C_2C_4C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_2R_5 + C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_4C_4R_4R_5 + C_2C_3C_4C_4R_4R_5 + C_2C_3C_4C_4R_4R_5 + C_2C_3C_4C_4R_4R_5 + C_2C_3C_4C_4R_4R_5 + C$ 

**9.2835** X-INVALID-ORDER-2835  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_4R_5R_6s^5 + s^4\left(C_1C_2C_3C_4R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_5R_6 - C_1C_2C_4C_6R_1R_2R_5R_6 + C_1C_2C_4C_6R_1R_4R_5R_6 + C_1C_3C_4C_6R_1R_4R_5R_6 + C_2C_3C_4C_6R_1R_4R_5R_6 + C_2C_3C_4C_6R_1R_5R_5R_6 + C_2C_3C_4C_6R_1R_5R_5R_5 + C_2C_3C_4C_6R_1R_5R_$ 

**9.2836** X-INVALID-ORDER-2836  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_6s + s^2(C_2C_3C_5R_1R_2R_6 + C_3C_4C_5R_1R_4R_6)$  $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6 + S_2\left(C_2C_3C_5R_1R_2R_6 + C_3C_4C_5R_1R_4R_6\right)}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_3C_4R_1R_2R_4 - C_1C_2C_4C_5R_1R_2 + C_1C_2C_4R_1R_4 + C_1C_2C_5R_1R_2 + C_1C_3C_4R_1R_4 + C_2C_3C_4R_1R_4 + C_2C_3C_4R_1R_4 + C_2C_3C_4R_2R_4 - C_2C_4C_5R_2R_4\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1R_4 - C_1C_4C_5R_1R_4 + C_2C_3C_4R_1R_4 + C_2C_3C_4C_5R_1R_4 + C_2C_3C_4C_5R_1R_4 + C_2C_3C_4C_5R_1R_4 + C_2C_3C_4C_5R_1R_4 + C_2C_3C_4$ 

**9.2837** X-INVALID-ORDER-2837  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $C_2C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4\right)$  $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4\right) + c\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4\right) + c\left(C_2C_3C_4C_5R_1R_2 + C_3C_4C_5R_1R_4 +$ 

**9.2838** X-INVALID-ORDER-2838  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1 + s^2\left(C_2C_3C_4C_5R_1R_2R_4 + C_2C_3C_5C_6R_1R_2R_6 + C_3C_4C_5C_6R_1R_4R_6\right) + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5C_6R_1R_4 +$ 

**9.2839** X-INVALID-ORDER-2839  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_2 + C_3 + C_4 - C_5 + s^4 + C_1 + C_2 + C_3 + C_4 + C_1 + C_2 + C_4 + C_4$ 

**9.2840** X-INVALID-ORDER-2840  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

```
9.2841 X-INVALID-ORDER-2841 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
```

**9.2842** X-INVALID-ORDER-2842 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

9.2843 X-INVALID-ORDER-2843 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5R_6s^5 + C_2 + C_3 + C_4 - C_5 + s^4\left(C_1C_2C_3C_4C_5R_1R_2R_4R_6 + C_1C_2C_3C_5C_6R_1R_2R_4R_6 + C_1C_2C_4C_5C_6R_1R_2R_4R_6 + C_1C_2C_4C_5C_6R_1R_4R_5R_6 + C_1C_4C_4C_5C_6R_1R_4R_5R_6 + C_1C_4C_4C_5C_6R_1R_4R_5R_6 + C_1C_4C_5C_6R_1R_4R_5R_6 + C_1C_4C_5C_6R_1R_4R_5R_5C_6R_1R_5C_6R_5R_5C_6R_1R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_6R_5C_$ 

**9.2844** X-INVALID-ORDER-2844 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_5R_6s^4 + C_3R_1R_6s + s^3\left(C_2C_3C_4R_1R_2R_4R_6 + C_2C_3C_5R_1R_2R_5\right)}{s^4\left(C_1C_2C_3C_4R_1R_2R_4R_5 - C_1C_2C_4R_1R_2R_5 + C_1C_2C_4R_1R_2R$ 

**9.2845** X-INVALID-ORDER-2845 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4R_5s^3 + C_2C_3C_4C_6R_1R_2R_4R_5 - C_1C_2C_4C_6R_1R_2R_4R_5 - C_1C_2C_4C_6R_1R_2R_4 + C_1C_2C_4C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_4R_5 - C_1C_4C_5C_6R_1R_4R_5 - C_1C_4C_5C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 - C_1C_4C_5C_6R_1R_4R_5 - C_1C_4C_5C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 - C_1C_4C_5C_6R_1R_4R_5 - C_1C_4C$ 

**9.2846** X-INVALID-ORDER-2846 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_4R_5R_6s^4 + C_3R_1 + s^3\left(C_2C_3C_4C_5R_1R_2R_4R_5 + C_2C_3C_4C_6R_1R_2R_4R_6 + C_2C_3C_5C_6R_1R_2R_5R_6s^4 + C_3R_1 + s^3\left(C_2C_3C_4C_6R_1R_2R_4R_5 + C_2C_3C_4C_6R_1R_2R_4R_6 + C_2C_3C_5C_6R_1R_2R_5R_6s^4 + C_3R_1 + s^3\left(C_2C_3C_4C_5R_1R_2R_4R_5 + C_2C_3C_4C_6R_1R_2R_4R_5 + C_2C_3C_4C_6R_1R_4R_5 + C$ 

**9.2847** X-INVALID-ORDER-2847 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 - C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_5 R_6 - C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_4 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_5$ 

**9.2848** X-INVALID-ORDER-2848 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6\right)$$

 $H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_2C_4R_1R_2R_4 + C_1C_2R_1R_2R_5 + C_1C_2R_1R_4R_5 + C_1C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_3R_2R_4 + C_2C_3R_2R$ 

### **9.2849** X-INVALID-ORDER-2849 $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$

 $H(s) = \frac{C_2C_3R_1R_2R_4s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_4C_6R_1R_2R_4 + C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5$ 

**9.2850** X-INVALID-ORDER-2850 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_4C_6R_1R_2R_4 + C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_1$ 

```
9.2851 X-INVALID-ORDER-2851 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)
```

 $H(s) = \frac{-R_4 + R_5 + s^4 \left(C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_4 R_5 R_$ 

**9.2852** X-INVALID-ORDER-2852 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2}{s^3\left(C_1C_2C_3R_1R_2R_4 + C_1C_2C_4R_1R_2R_4 - C_1C_2C_5R_1R_2R_4\right) + s^2\left(C_1C_2R_1R_2 + C_1C_2R_1R_4 + C_1C_4R_1R_4 - C_1C_5R_1R_4 + C_2C_3R_2R_4 + C_2C_4R_2R_4 - C_2C_5R_2R_4\right) + s\left(C_1R_1 + C_2R_2 + C_2R_4 + C_3R_4 + C_4R_4 - C_5R_4\right) + 1}$ 

**9.2853** X-INVALID-ORDER-2853 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s}{C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_2C_4C_6R_1R_2R_4 - C_1C_2C_5C_6R_1R_2R_4 + C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_$$

**9.2854** X-INVALID-ORDER-2854 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)$$

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2\left(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6\right)}{C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_2C_4C_6R_1R_2R_4 + c_1C_2C_5C_6R_1R_2R_4 + C_1C_2C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_1R_4 + C_2C_3C_6R_1R_4 + C_2C_3C_6R_2R_4 + C_2C$ 

**9.2855** X-INVALID-ORDER-2855 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

**9.2856** X-INVALID-ORDER-2856 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

$$\frac{C_2C_3C_5R_1R_2R_4R_6s^3-C_2C_3C_5R_1R_2R_4R_5+C_1C_2C_4C_5R_1R_2R_4R_5)+s^3(C_1C_2C_3R_1R_2R_4+C_1C_2C_5R_1R_2R_4+C_1C_2C_5R_1R_2R_5+C_1C_2C_5R_1R_4R_5+C_1C_4C_5R_1R_4R_5+C_2C_3C_5R_1R_4R_5+C_2C_3C_5R_2R_4R_5+C_2C_3C_5R_2R_4R_5)+s^3(C_1C_2C_3R_1R_2R_4+C_1C_2C_5R_1R_2R_4+C_1C_2C_5R_1R_2R_5+C_1C_2C_5R_1R_4R_5+C_1C_3C_5R_1R_4R_5+C_2C_3C_5R_1R_5+C_2C_3C_5R_1R_5+C_2C_3C_5R_1R_5+C_2C_3C_5R_1R_5+C_2C_3C_5R_1R_5$$

9.2857 X-INVALID-ORDER-2857 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_4 R_5 + C_1 C_3 C_5 C_6 R_1 R_4 R_5 + C_1 C_3 C_5 C_6 R_1 R_4 R_5 + C_1 C_2 C_5 C_6 R_1 R_4 R_5$$

**9.2858** X-INVALID-ORDER-2858 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$$

$$H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 + C_1 C_2 C_4 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_2 R_5 + C_1 C_2 C_5 C_6 R_1 R_4 R_5 + C_1 C_3 C_5 C_6 R_1 R_5 R_5 + C_1 C_5 C_6 R_1 R_5 R_5 + C_1 C_5 C_6 R_1 R$$

**9.2859** X-INVALID-ORDER-2859 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

$$H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_4 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_4$$

**9.2860** X-INVALID-ORDER-2860 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_4R_6s + s^2\left(C_2C_3R_1R_2R_4R_6 + C_3C_5R_1R_4R_5R_6\right)}{-R_4 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_2C_4R_1R_2R_4R_5 - C_1C_2S_1R_2R_4R_5 + C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_5 + C_1C_2R_1R_4R_5 + C_1C_3R_1R_4R_5 + C_1C_3R_1R_4R_5 + C_2C_3R_1R_4R_5 + C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 +$$

```
9.2861 X-INVALID-ORDER-2861 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C_2C_3C_5R_1R_2R_4R_5s^2 + C_3R_1R_4 + s(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5)
H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5\right)}{-C_6R_4 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_4C_6R_1R_2R_4R_5\right) + s^2\left(-C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C
9.2862 X-INVALID-ORDER-2862 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_4R_5R_6\right) + s\left(C_2C_3R_1R_2R_4 + C_3C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_2R_4R_5 + C_3C_5C_6R_1R_4R_5 + C_3
9.2863 X-INVALID-ORDER-2863 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{1}{-R_4 + R_5 + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_6 R_1 R_4 R_
9.2864 X-INVALID-ORDER-2864 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)
H(s) = \frac{C_2C_3R_1R_2R_4R_6s^2 + C_3R_1R_4R_6s}{-R_4 + R_5 + s^3\left(-C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3R_1R_2R_3R_5 + C_1C_2C_3R_1R_2R_3R_4 + C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_5 + C_1C_3R_1R_3R_4 + C_1C_3R_1R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_3R_1R_3R_4 + C_1C_3R_1R_3R_5 + C_1C_3R_1R_3R_5
9.2865 X-INVALID-ORDER-2865 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C_2C_3R_1R_2R_4s + C_3R_1R_4
H(s) = \frac{C_2C_3R_1R_2R_4s + C_3R_1R_4}{-C_6R_4 + C_6R_5 + s^3\left(-C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_4 + C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1
9.2866 X-INVALID-ORDER-2866 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_4 + s(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_6s^2)
                                            \frac{C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_2R_4 + s(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_5)}{-C_6R_4 + C_6R_5 + s^3(-C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_3R_4 + C_1C_2C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6
9.2867 X-INVALID-ORDER-2867 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{-R_4 + R_5 + s^4 \left(-C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_6 R_1 R_3 R_4 R_5 R_6\right) + s^3 \left(-C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 R_1 R_2 R_4 
9.2868 X-INVALID-ORDER-2868 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_4R_6s^2
                                             \frac{C_2C_3C_5R_1R_2R_4R_6s^5 + C_3C_5R_1R_4R_6s^5}{-C_1C_2C_3R_1R_2R_3 + c_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_1R_3R_4 - C_1C_2C_5R_1R_3R_4 - C_1C_3C_5R_1R_3R_4 - C_1C_3C_5R_1R_3R_4 - C_1C_3R_1R_3 + C_1C_3R_1R_4 + C_1C_3R_1R_4 + C_1C_3R_1R_4 + C_2C_3R_1R_4 + C_2C_3R_1R_4 + C_2C_3R_2R_3 + C_2C_3R_2R_4 + C_2C_3R_
9.2869 X-INVALID-ORDER-2869 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_1R_4s
H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4s^4 + C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_3 + C_1C_2C_3C_6R_1R_2R_4 + C_1C_2C_5C_6R_1R_2R_4 + C_1C_3C_5C_6R_1R_3R_4 - C_1C_3C_5C_6R_1R_3R_4 - C_1C_3C_5C_6R_1R_3R_4 - C_1C_3C_5C_6R_1R_3R_4 - C_1C_3C_6R_1R_3R_4 - C_1C_3C_6R_1R_4 - C_
9.2870 X-INVALID-ORDER-2870 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_2C_3C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_4s + s^2(C_2C_3C_5R_1R_2R_4 + C_3C_5C_6R_1R_4R_6)
                                              \frac{C_2C_3C_5C_6R_1R_2R_3R_4s^4 + C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_3 + C_1C_2C_3C_6R_1R_2R_4 + C_1C_2C_3C_6R_1R_2R_4 + C_1C_2C_3C_6R_1R_2R_4 + C_1C_2C_3C_6R_1R_2R_4 + C_1C_2C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_3R_4 - C_1C_3C_6R_1R_3R_4 - C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_1R_4
```

- **9.2871** X-INVALID-ORDER-2871  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{-C_1C_2C_3C_5C_6R_1R_2R_3R_4R_6s^5 + s^4\left(-C_1C_2C_3C_5R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_3R_6 + C_1C_2C_3C_6R_1R_2R_4R_6 C_1C_2C_5C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6 C_2C_3C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_4R_6 + C_1C_2C_3C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6 C_2C_3C_5C_6R_2R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_4R_6 + C_1C_2C_3C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_4R_6 + C_1C_2C_3C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_4R_6 + C_1C_2C_3C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_3R_4R_6 C_1C_3C_5C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_4R_6 + C_1C_2C_3C_6R_1R_3R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_4R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_4\right) + s^3\left(C_1C_2C_3R_$
- **9.2872** X-INVALID-ORDER-2872  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{1}{s^4 \left(-C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_5 R_1 R_3 R_4 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_4 + C_1 C_2 C_3 R_1 R_2 R_4 + C_1 C_2 C_5 R_1 R_2 R_4 + C_1 C_2$
- **9.2873** X-INVALID-ORDER-2873  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( -C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_$
- **9.2874** X-INVALID-ORDER-2874  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left(-C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 + C_1$
- 9.2875 X-INVALID-ORDER-2875  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{s^5 \left(-C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_5 R_1 R_2 R_5 R_6 + C_1 C_2 C_3 C_5 R_1 R_2 R_5 R$
- **9.2876** X-INVALID-ORDER-2876  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$
- $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5R_6s^3 + C_3C_3C_5R_1R_2R_3R_4R_5s^4 R_4 + R_5 + s^3\left(-C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3R_1R_2R_3R_5 + C_1C_2C_3R_1R_2R_4R_5 C_1C_2C_5R_1R_2R_4R_5 C_1C_3C_5R_1R_3R_4R_5 C_2C_3C_5R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_4 + C_1C_2R_1R_4R_5 + C_1C_$
- 9.2877 X-INVALID-ORDER-2877  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{-C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5s^4 C_6R_4 + C_6R_5 + s^3\left(-C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_3R_4R_5 C_1C_2C_5C_6R_1R_3R_4R_5 C_1C_3C_5C_6R_1R_3R_4R_5 C_1C_3C_5C_6R_1R_3R_4 C_1C_3C_5C_6R_1R_3R_4 C_1C_3C_5C_6R_1R_3R_5 C_1C_3C_5C_6R_1R_3R_5 C_1C_3C_5C_6R_1R_5C_5C_5C_6R_1R_5C_5C_5C_6R_1R_5C_5C_5C_5C_6R_1R_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5$
- **9.2878** X-INVALID-ORDER-2878  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_4R_5R_5}{-C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5s^4 C_6R_4 + C_6R_5 + s^3\left(-C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_5C_6R_1R_3R_4R_5 C_1C_3C_5C_6R_1R_3R_4R_5 C_2C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_3C_6R_1R_3R_4R_5 C_2C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_3C_6R_1R_3R_4R_5 C_2C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_3C_6R_1R_3R_4R_5 C_2C_3C_5C_6R_2R_3R_4R_5\right) + s^2\left(-C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_3C_6R_1R_2R_4R_5\right) + s^2\left(-C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_3C_6R_1R_2R_4R_5\right) + s^2\left(-C_1C_2C_3C_6R_1R_2R_4R_5 C_1C_2C_3C_6R_1R_2R_4R_5\right) + s^2\left(-C_1C_2C_3C_6R_1R_2R_4R_5\right) + s^2\left(-C_1C_2C_3C_6R_1$
- 9.2879 X-INVALID-ORDER-2879  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- **9.2880** X-INVALID-ORDER-2880  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$
- $H(s) = \frac{C_2C_3R_1R_2R_6s^2 + C_3R_1R_6s}{C_1C_2C_3C_4R_1R_2R_3R_5s^4 + s^3\left(-C_1C_2C_3R_1R_2R_3 + C_1C_2C_3R_1R_2R_5 + C_1C_2C_4R_1R_2R_5 + C_1C_3C_4R_1R_3R_5 + C_2C_3C_4R_2R_3R_5\right) + s^2\left(-C_1C_2R_1R_2 + C_1C_2R_1R_3 + C_1C_3R_1R_3 + C_1C_3R_1R_5 + C_2C_3R_1R_5 + C_2C_3R_2R_3 + C_2C_3R_$

```
9.2881 X-INVALID-ORDER-2881 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_2C_3R_1R_2s + C_3R_1}{C_1C_2C_3C_4C_6R_1R_2R_3R_5s^4 - C_6 + s^3\left(-C_1C_2C_3C_6R_1R_2R_3 + C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_2R_5 + C_1C_3C_4C_6R_1R_3R_5 + C_2C_3C_4C_6R_2R_3R_5\right) + s^2\left(-C_1C_2C_6R_1R_2 + C_1C_2C_6R_1R_3 + C_1C_3C_6R_1R_3 + C_$ 

**9.2882** X-INVALID-ORDER-2882  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_6R_1R_2R_6s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_6R_1R_6\right)}{C_1C_2C_3C_4C_6R_1R_2R_3 + C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_4C_6R_1R_2R_5 + C_1C_4C_4C_4R_1R_5 + C_1C_4C_4$ 

**9.2883** X-INVALID-ORDER-2883  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_5R_6s^5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_5 - C_1C_2C_3C_6R_1R_2R_3R_6 + C_1C_2C_3C_6R_1R_2R_5R_6 + C_1C_2C_4C_6R_1R_3R_5R_6 + C_1C_3C_4C_6R_1R_3R_5R_6 + C_1C_3C_4C_6R_1R_3R_5R_6 + C_1C_2C_3C_4R_1R_2R_3R_5 + C_1C_2C_3R_1R_2R_3 + C_1C_2C_3R_1R_2R_3 + C_1C_2C_3R_1R_2R_3 + C_1C_2C_3R_1R_2R_3 + C_1C_2C_3R_1R_2R_3 + C_1C_2C_3C_4R_1R_2R_3R_5 + C_1C_2C_3C_4R_1R_2R_3R_$ 

**9.2884** X-INVALID-ORDER-2884  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_1R_6s}{C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_3C_4R_1R_2R_3 - C_1C_2C_3C_5R_1R_2 + C_1C_2C_3R_1R_2 + C_1C_2C_3R_1R_3 + C_1C_2C_4R_1R_2 - C_1C_2C_5R_1R_2 + C_1C_3C_4R_1R_3 - C_1C_3C_5R_1R_3 + C_2C_3C_5R_2R_3\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C_1C_4R_1 - C_1C_5R_1 + C_2C_3R_1R_3 + C_1C_3C_4R_1R_3 - C_1C_3C_5R_1R_3 + C_2C_3C_5R_2R_3\right) + s\left(C_1C_2R_1 + C_1C_3R_1 + C$ 

**9.2885** X-INVALID-ORDER-2885  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.2886** X-INVALID-ORDER-2886  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

**9.2887** X-INVALID-ORDER-2887  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_2 + C_3 + C_4 - C_5 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_6 - C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 - C_1 C_2 C_3 C_5 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 - C_1 C_2 C_3 C_5 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 - C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 - C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 - C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 - C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 - C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_6 \right) + s^3 \left( C_1 C$ 

**9.2888** X-INVALID-ORDER-2888  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{1}{C_1C_2C_3C_4C_5R_1R_2R_3R_5s^4 + C_2 + C_3 + C_4 - C_5 + s^3\left(C_1C_2C_3C_4R_1R_2R_3 - C_1C_2C_3C_5R_1R_2R_3 + C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_4C_5R_1R_2R_5 + C_1C_3C_4C_5R_1R_3R_5 + C_2C_3C_4C_5R_1R_3R_5 + C_2C_3C_4R_1R_3R_5 + C_2C_3C_4R_$ 

**9.2889** X-INVALID-ORDER-2889  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.2890** X-INVALID-ORDER-2890  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

- **9.2891** X-INVALID-ORDER-2891  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- **9.2892** X-INVALID-ORDER-2892  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$
- $H(s) = \frac{C_2C_3C_5R_1R_2R_5R_6s^3 + C_3R_1R_6s + s^2\left(C_2C_3R_1R_2R_5R_6s^3 + C_3R_1R_2R_5 + s^2\left(C_2C_3R_1R_2R_3R_5 C_1C_2C_3R_1R_2R_3R_5 C_1C_2C_3R_1R_2R_3R_5 + C_1C_2C_3R_1R_2R_3 + C_1C_2C_$
- **9.2893** X-INVALID-ORDER-2893  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{-}{-C_6 + s^4 \left(C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_5 C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5\right) + s^3 \left(-C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_5 + C_1 C_2 C_3 C_$
- **9.2894** X-INVALID-ORDER-2894  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_5R_6s^3 + C_3R_1 + C_3C_3C_5C_6R_1R_2R_3R_5 C_1C_2C_3C_5C_6R_1R_2R_3R_5 + C_1C_2C_3C_6R_1R_2R_3 + C_1C_2C_3C_6R_1R_2R_3 + C_1C_2C_3C_6R_1R_2R_5 + C_1C_2C_3C_6R_1R_2R$
- 9.2895 X-INVALID-ORDER-2895  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_5 R_6 C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_5 C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_3$
- **9.2896** X-INVALID-ORDER-2896  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$
- $H(s) = \frac{1}{s^4 \left(-C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_1 R_2 R_3 + C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_2 C_3 R_1 R_2 R_5 + C_1 C_2 C_4 R_1 R_2 R_4 + C_1 C_2 C_4 R_1 R_2 R_5 + C_1 C_2 C_4 R_1 R_2 R$
- **9.2897** X-INVALID-ORDER-2897  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$
- **9.2898** X-INVALID-ORDER-2898  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{-}{-C_6 + s^4 \left(-C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_$
- **9.2899** X-INVALID-ORDER-2899  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{s^5 \left(-C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 R_1 R_2 R_5 + C_1 C_2 C_3 C_4 R_1 R_2 R_5 +$
- **9.2900** X-INVALID-ORDER-2900  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{-C_1C_2C_3C_4C_5R_1R_2R_3R_4s^4 + C_2 + C_3 + C_4 C_5 + s^3\left(C_1C_2C_3C_4R_1R_2R_3 + C_1C_2C_3C_4R_1R_2R_4 + C_1C_2C_3C_4R_1R_3R_4 C_1C_2C_4C_5R_1R_2R_4 C_1C_3C_4C_5R_1R_3R_4 C_2C_3C_4C_5R_2R_3R_4\right) + s^2\left(C_1C_2C_3R_1R_2 + C_1C_2C_3R_1R_3 + C_1C_2C_3C_4R_1R_3R_4 C_1C_2C_3C_4R_1R_3R_4 C_1C_3C_4C_5R_1R_3R_4 C_2C_3C_4C_5R_1R_3R_4 C_2C_3C_4R_1R_3R_4 C_2C_3C_4R_1R_3R_4 C_2C_3C_4R_1R_3R_4 C_2C_3C_4C_5R_1R_3R_4 C_2C_3C_4C_5R_1R_3R_4 C_2C_3C_4R_1R_3R_4 C_2C_3C_4R_1$

- **9.2901** X-INVALID-ORDER-2901  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- **9.2902** X-INVALID-ORDER-2902  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- **9.2903** X-INVALID-ORDER-2903  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{-C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_6s^5 + C_2 + C_3 + C_4 C_5 + s^4\left(-C_1C_2C_3C_4C_5R_1R_2R_3R_4 + C_1C_2C_3C_4C_6R_1R_2R_4R_6 + C_1C_2C_3C_4C_6R_1R_3R_4R_6 C_1C_2C_3C_5C_6R_1R_2R_3R_6 C_1C_2C_4C_5C_6R_1R_2R_4R_6 C_1C_2C_3C_4C_5R_1R_2R_4R_6 C_1C_2C_3C_4C_5$
- **9.2904** X-INVALID-ORDER-2904  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{1}{C_2 + C_3 + C_4 C_5 + s^4 \left( -C_1 C_2 C_3 C_4 C_5 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 R_1 R_2 R_5 + C_1 C_2 C_3 C_4 R_1 R_2$
- 9.2905 X-INVALID-ORDER-2905  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_2C_6 + C_3C_6 + C_4C_6 C_5C_6 + s^4 \left(-C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_1R_2R_3R_5 + C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5 + C_1C_2C_3C_4C_5C_6R_1R_2R_4 + C_1C_2C_3C_4C_5C_6R_1R_2R_4 + C_1C_2C_3C_4C_5C_6R_1R_2R_4 + C_1C_2C_3C_4C_5C_6R_1R_2R_4 + C_1C_2C_3C_4C_5C_6R_1R_2R_4 + C_1C_2C_3C_4C_5C_6R_1R_2R_5C_5C_6R_1R_2R_5C_5C_6R_1R_2R_5C_5C_6R_1R_2R_5C_5C_6R_1R_2R_5C_5C_5C_6R_1R_2R_5C_5C_5C_5C_5C_5C_5$
- **9.2906** X-INVALID-ORDER-2906  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_2C_6 + C_3C_6 + C_4C_6 C_5C_6 + s^4 \left(-C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4 + C_1C_2C_3C_4C_5C_6R_1R_2R_3R_5 + C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5 + C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5 + C_1C_2C_3C_4C_5C_6R_1R_2R_4R_5 + C_1C_2C_3C_4C_6R_1R_2R_3 + C_1C_2C_3C_4C_6R_1R_2R_4 + C_1C_2C_3C_4C_6$
- 9.2907 X-INVALID-ORDER-2907  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{C_2 + C_3 + C_4 C_5 + s^5 \left(-C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_4 C_5 R_1 R_2$
- **9.2908** X-INVALID-ORDER-2908  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$
- $H(s) = \frac{-}{-C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5s^5 + s^4\left(-C_1C_2C_3C_4R_1R_2R_3R_4 + C_1C_2C_3C_4R_1R_2R_3R_5 + C_1C_2C_3C_4R_1R_2R_3R_5 C_1C_2C_3C_4R_1R_2R_4R_5 C_1C_2C_3C_4R_1R_2R_5 C_1C_2C_3C_4R_1R_2R_5 C_1C_2C_3C_4R_1R_2R_5$
- **9.2909** X-INVALID-ORDER-2909  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{-C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 C_6 + s^4\left(-C_1C_2C_3C_4C_6R_1R_2R_3R_4 + C_1C_2C_3C_4C_6R_1R_2R_3R_5 + C_1C_2C_3C_4C_6R_1R_2R_4R_5 + C_1C_2C_3C_4C_6R_1R_2R_3R_5 C_1C_2C_4C_5C_6R_1R_2R_4R_5 C_1C_2C_4C_5C_6R_1R_2R_4R_5 C_1C_3C_4C_5C_6R_1R_2R_4R_5 C_1C_3C_4C_5C_6R_1R_3R_4R_5 C_1C_3C_4C_5C_6R_1R_3R_4 C_1C_3C_4C_5C_6R_1R_3R_4 C_1C_3C_4C_5C_6R_1R_3R_4 C_1C_3C_4C_5$
- **9.2910** X-INVALID-ORDER-2910  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{-C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 C_6 + s^4\left(-C_1C_2C_3C_4C_6R_1R_2R_3R_4 + C_1C_2C_3C_4C_6R_1R_2R_3R_5 + C_1C_2C_3C_4C_6R_1R_2R_4R_5 + C_1C_2C_3C_4C_6R_1R_2R_3R_5 C_1C_2C_4C_5C_6R_1R_2R_4R_5 C_1C_2C_4C_5C_6R_1R_2R_4R_5 C_1C_3C_4C_5C_6R_1R_2R_4R_5 C_1$

- **9.2911** X-INVALID-ORDER-2911  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-}{-C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^6 + s^5\left(-C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5 C_1C_2C_3C_4C_6R_1R_2R_3R_4R_6 + C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6 + C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6 + C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6 C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5 C_1C_2C_3C_4C_5R_4R_5R_5 C_1C_2C_3C_4C_5R_4R_5R_5 C_1C_2C_3C_4C_5R_4R_5R_5 C_1C_2C_3C_4C_5R_4R_5R_5R_5 C_1C_2C_3C_4C_5R_5R_5R_5 C_1C_2C_3C_4C_5R_5R_5R_5 C_1C_2C_3C_4C_5R_5R_5R_5$
- **9.2912** X-INVALID-ORDER-2912  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$
- $H(s) = \frac{C_2C_3C_4R_1R_2R_3R_4R_5s^4 R_4 + R_5 + s^3\left(-C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_3R_1R_2R_3R_5 + C_1C_2C_3R_1R_2R_4R_5 + C_1C_2C_4R_1R_2R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 + C_2C_3C_4R_2R_3R_4R_5\right) + s^2\left(-C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_4 + C_1C_2R_1R_2R_4R_5 + C_1C_2C_3R_1R_2R_4R_5 + C_1C_2C_3R_1R_2R_4 + C_1C_$
- **9.2913** X-INVALID-ORDER-2913  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 s^4 C_6 R_4 + C_6 R_5 + s^3 \left(-C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R$
- **9.2914** X-INVALID-ORDER-2914  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5s^4 C_6R_4 + C_6R_5 + s^3\left(-C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_3R_4R_5 + C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_3C_6R_1R_3R_5 + C_1C_2C_3C_6R_1R$
- **9.2915** X-INVALID-ORDER-2915  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$
- **9.2916** X-INVALID-ORDER-2916  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2}{s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4 C_1C_2C_3C_5R_1R_2R_3R_4 + S^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_3R_1R_2R_4 + C_1C_2C_4R_1R_2R_4 C_1C_2C_5R_1R_2R_4 + C_1C_3C_4R_1R_3R_4 C_1C_3C_5R_1R_3R_4 + C_2C_3C_4R_2R_3R_4 C_2C_3C_5R_2R_3R_4\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_2C_4R_1R_2R_4 C_1C_3C_5R_1R_3R_4 + C_2C_3C_4R_2R_3R_4 C_2C_3C_5R_2R_3R_4\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_2C_4R_1R_2R_4 C_1C_3C_5R_1R_3R_4 + C_2C_3C_4R_2R_3R_4 C_2C_3C_5R_2R_3R_4\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_3C_4R_1R_3R_4 C_1C_3C_5R_1R_3R_4 + C_2C_3C_5R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_1R_2R_4 + C_1C_3C_3R_1R_2R_4 + C_1C_3C$
- 9.2917 X-INVALID-ORDER-2917  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_4 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_2 R_4 + C_1 C_3 C_4 C_6 R_1 R_3 R_4 C_1 C_3 C_5 C_6 R_1 R_3 R_4 + C_2 C_3 C_4 C_6 R_1 R_3 R_4 + C_1 C_3 C_5 C$
- **9.2918** X-INVALID-ORDER-2918  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- **9.2919** X-INVALID-ORDER-2919  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_4 R_6 \right) + s^4 \left( C_1$
- 9.2920 X-INVALID-ORDER-2920  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5s^5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4 C_1C_2C_3C_5R_1R_2R_3R_4 + C_1C_2C_3C_5R_1R_2R_3R_5 + C_1C_2C_3C_5R_1R_2R_4R_5 + C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_5R_1R_2R_5 + C_1C_2C_3C_5R_1R_2R_5 + C_$

- 9.2921 X-INVALID-ORDER-2921  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 + C_6 + s^4(C_1C_2C_3C_4C_6R_1R_2R_3R_4 C_1C_2C_3C_5C_6R_1R_2R_3R_4 + C_1C_2C_3C_5C_6R_1R_2R_4R_5 + C_1C_2C_3C_5C_6R_1R_3R_4R_5 + C_1C_2C_3C_5C_6R_1R_3R_4 + C_1C_2C_3C_5C_6R_1R_3R_4R_5 + C_1C_2C_3C_5C_6R_1R_3R_4 + C_1C_2C_3C_5C_6R_1R_3R_4 + C_1C_2C_3C_5C_6R_1R_3R_4 + C_1C_2C_3C_5C_6$
- **9.2922** X-INVALID-ORDER-2922  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 + C_6 + s^4(C_1C_2C_3C_4C_6R_1R_2R_3R_4 C_1C_2C_3C_5C_6R_1R_2R_3R_4 + C_1C_2C_3C_5C_6R_1R_2R_4R_5 + C_1C_2C_3C_5C_6R_1R_3R_4R_5 + C_1C_2C_3C_5C_6R_1R_3R_4 + C_1C_2C_3C_5C_6R_1R_3R_4 + C_1C_2C_3C_5C_6R_1R_3R_5 + C_1C_3C_5C_6R_1R_3R_5 + C_1C_3C_5C_6R_1R_3R_5 + C_1C_3C_5C_5C_6R_1R_5C_5$
- **9.2923** X-INVALID-ORDER-2923  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^6 + s^5\left(C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5 + C_1C_2C_3C_5C_6R_1R_2R_3R_4R_6 + C_1C_2C_3C_5C_6R_1R_3R_4R_6 + C_1C_2C_3C_5C_6R_1R_3R_4R_$
- **9.2924** X-INVALID-ORDER-2924  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$
- $H(s) = \frac{-R_4 + R_5 + s^4 \left(C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 R_5 C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_4 R_5\right) + s^3 \left(-C_1 C_2 C_3 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_3 R_1 R_3 R_4 R_5 + C_1 C_2 C_4 R_1 R_2 R_4 R_5 C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_3 R_4 R_5 + C_1 C_2 C_3 R_1 R_2 R_4 R_5 + C_1 C_2 C_3$
- **9.2925** X-INVALID-ORDER-2925  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{-}{-C_6R_4 + C_6R_5 + s^4\left(C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5 C_1C_2C_3C_6R_1R_2R_3R_4R_5\right) + s^3\left(-C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_2C_3C_6R_1R_3R_4R_5 + C_1C_2C_3C_6R_1R_2R_4R_5 + C_1C_2C_3C_6R_1R_2R_$
- **9.2926** X-INVALID-ORDER-2926  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$
- $-C_6R_4 + C_6R_5 + s^4 (C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5 C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5) + s^3 (-C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_2C_3C_6R_1R_2R_4R_5 + C_1$
- **9.2927** X-INVALID-ORDER-2927  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-R_4 + R_5 + s^5 \left(C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 R_6 C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_5 C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 R_5 C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 C_1 C_2 C_3 C_6 R_1 R_2 R_3$
- **9.2928** X-INVALID-ORDER-2928  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$

- $\frac{C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}R_{6}s^{2}+R_{1}R_{4}R_{6}+s\left(C_{2}R_{1}R_{2}R_{4}R_{6}+C_{3}R_{1}R_{3}R_{4}R_{6}\right)}{C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{3}R_{4}+R_{5}s^{3}-R_{5}R_{5}s^{3}-R_{5$
- **9.2929** X-INVALID-ORDER-2929  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{1}{C_6 s}\right)$
- $C_2C_3R_1R_2R_3R_4s^2 + R_1R_4 + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4\right)$
- **9.2930** X-INVALID-ORDER-2930  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$
- $\frac{C_2C_3C_6R_1R_2R_3R_4R_6s^3 + R_1R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_6R_1R_2R_4R_6 + C_3C_6R_1R_3R_4R_6\right) + s\left(C_2R_1R_2R_4 + C_3R_1R_3R_4 + C_6R_1R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_3R_4R_5s^4 + s^3\left(-C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_5 + C_1C_2C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5 + C_2C_3C_6R_1R_3R_4R_5\right) + s^2\left(-C_1C_6R_1R_3R_4 + C_1C_6R_1R_3R_4 + C_1C_6R$

```
9.2931 X-INVALID-ORDER-2931 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{1}{C_1C_2C_3C_6R_1R_2R_3R_4R_5R_6s^4 - R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_6 + C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_3R_4R_5R_6 + C_1C_3C_6R_1R_3R_4R_5R_6 + C_1C_3C_6R_1R_3R_4R_5R_5 + C_1C_3C_6R_1R_3R_4R_5R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_4R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_$ 

**9.2932** X-INVALID-ORDER-2932 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_4R_6s + s^2\left(C_2C_5R_1R_2R_4R_6 + C_3C_5R_1R_3R_4R_6\right)}{R_3 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 - C_1C_2C_5R_1R_2R_3R_4\right) + s^2\left(C_1C_2R_1R_2R_3 + C_1C_2R_1R_2R_4 + C_1C_3R_1R_3R_4 + C_1C_5R_1R_3R_4 + C_2C_3R_1R_3R_4 + C_2C_3R_2R_3R_4 - C_2C_5R_2R_3R_4\right) + s\left(C_1R_1R_3 + C_1R_1R_4 + C_2R_1R_4 + C_2R_2R_4 + C_2R_2R_4 + C_2R_2R_4\right)}$ 

9.2933 X-INVALID-ORDER-2933 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

**9.2934** X-INVALID-ORDER-2934 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_3R_4 + C_2C_5C_6R_1R_3R_4R_6\right) + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 - C_1C_2C_5C_6R_1R_2R_4 + C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_2C_3C_6R_1R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4\right) + s\left(C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_2C_3C_6R_1R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4\right) + s\left(C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_2C_3C_6R_1R_3R_4 + C_2C_3C_6R_2R_3R_4 +$ 

**9.2935** X-INVALID-ORDER-2935 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

 $H(s) = \frac{1}{R_3 + R_4 + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 R_4 - C_1 C_2 C_5 R_1 R_2 R_3 R_4 + C_1 C_2 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_6 R_1 R_3 R_4 R_6 + C_1 C_3 C_6 R_1 R_3 R_4 R_6 + C_1 C_3$ 

# **9.2936** X-INVALID-ORDER-2936 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$

 $\frac{C_2C_3}{C_1C_2C_3C_5R_1R_2R_3R_4R_5s^4 + R_3 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 - C_1C_2C_5R_1R_2R_3R_4 + C_1C_2C_5R_1R_2R_3R_5 + C_1C_2C_5R_1R_2R_4R_5 + C_1C_2C_5R_1R_3R_4R_5 + C_2C_3C_5R_1R_3R_4R_5 + C_2C_3C_5R_1R_3R_4 + C_2C_3C_5R_3R_3R_4 + C_2C_3C_5R_3R_3R$ 

**9.2937** X-INVALID-ORDER-2937 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_3 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 - C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_5 + C_1C_2C_5C_6R_1R_3R_4R_5 + C_1C_3C_5C_6R_1R_3R_4R_5 + C_1C_3C_5C_6R_1R_3R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_5C_6R_$ 

**9.2938** X-INVALID-ORDER-2938 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

 $\overline{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_3 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 - C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_3R_4R_5 + C_1C_2C_5C_6R_1R_3R_5 + C_1C_2C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_5C_5$ 

**9.2939** X-INVALID-ORDER-2939 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

**9.2940** X-INVALID-ORDER-2940 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}s^{3} + R_{1}R_{4}R_{6} + s^{2}\left(C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}R_{6} + C_{2}C_{5}R_{1}R_{2}R_{4}R_{5}R_{6} + C_{3}C_{5}R_{1}R_{3}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{6} + C_{3}R_{1}R_{2}R_{4}R_{5}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{6} + C_{3}R_{1}R_{2}R_{4}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R_{6}\right) + s\left(C_{2}R_{1}R_{2}R_{4}R$  $\frac{C_2C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_4R_6 + s + c_2C_3R_1R_2R_3R_4R_5 + c_3C_5R_1R_3R_4R_5R_6s^2 + r_4R_4R_6 + s + c_2C_3R_1R_2R_3R_4R_5 + c_3C_5R_1R_3R_4R_5R_6s^2 + r_4R_4R_6 + s + c_2C_3R_1R_2R_3R_4R_5 + c_3C_5R_1R_3R_4R_5 + c_3C_5R_3R_4R_5 + c_3C_5R_3R_4R_5 + c_3C_5R_3R_4R_$ 

9.2944 X-INVALID-ORDER-2944  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_3R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_3R_1R_3R_6\right)}{-R_3 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_5 + C_1C_2R_1R_2R_3 + C_1C_2R_1R_2R_3 + C_1C_2R_1R_3R_5 + C_1C_3R_1R_3R_5 + C_2C_3R_1R_3R_5 + C_2C_3R_2R_3R_5 + C_2C_4R_2R_3R_5\right) + s\left(-C_1R_1R_3 + C_1R_1R_5 + C_2R_1R_3 + C_2R_2R_3 + C_2R_2$ 

**9.2945** X-INVALID-ORDER-2945  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_3s^2 + R_1 + s\left(C_2R_1R_2 + C_3R_1R_3\right)}{s^4\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_2C_4C_6R_1R_2R_3 + C_1C_2C_6R_1R_2R_3 + C_1C_2C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_4C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_6C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_3C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_3 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_3C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5\right) + s^2\left(-C_1C_6R_1R_3R_5 + C_2C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5\right) + s^2\left(-C_1C_6R_1R_3R_5 + C_2C_6R_1R_3R_5\right) + s^2\left(-C_1C_6R_1R_3R_5\right) + s$ 

9.2946 X-INVALID-ORDER-2946  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_2C_3C_6R_1R_2R_3R_6s^3 + R_1 + s^2\left(C_2C_3R_1R_2R_3 + C_2C_6R_1R_2R_6 + C_3C_6R_1R_3R_6\right) + s\left(C_2R_1R_2 + C_3R_1R_3 + C_6R_1R_6\right)}{s^4\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_2C_4C_6R_1R_2R_3 + C_1C_2C_6R_1R_2R_3 + C_1C_2C_6R_1R_2R_3 + C_1C_2C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_1C_3C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R_2R_3R_5 + C_2C_4C_6R_2R_3R_5\right) + s^3\left(-C_1C_2C_6R_1R_2R_3 + C_1C_2C_6R_1R_2R_3 + C_1C_2C_6R_1R_3R_5 + C_1C_2C_6R_1R_3R_5 + C_2C_3C_6R_1R_3R_5 + C_2C_3C_6R$ 

**9.2947** X-INVALID-ORDER-2947  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{-R_3 + R_5 + s^4 \left(C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 R_1 R_2 R_3 R_5 - C_1 C_2 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_6 R_1 R_3 R_5 R_6 + C_1 C_3 C_6 R_1 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_5 R_5 R_6 + C_1 C_4 C_6 R_1 R_5 R_5 R_6 + C_1 C_4 C_6 R_1 R_5 R_5 R_6 + C_1 C_5 C_6 R_1 R_5$ 

**9.2948** X-INVALID-ORDER-2948  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $\frac{C_2C_3C_5R_1R_2R_3R_6s^3 + C_5R_1R_6s + s^2\left(C_2C_5R_1R_2R_6 + C_3C_5R_1R_3R_6\right)}{s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_2C_5R_1R_2R_3 + C_1C_2C_5R_1R_2R_3 + C_1C_2R_1R_2 + C_1C_2R_1R_3 + C_1C_3R_1R_3 + C_1C_3R_1R_3 + C_2C_3R_2R_3 + C_2C_4R_2R_3 - C_2C_5R_2R_3\right) + s\left(C_1R_1 + C_2R_1 + C_2R_2 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3\right) + 1}$ 

**9.2949** X-INVALID-ORDER-2949  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

**9.2950** X-INVALID-ORDER-2950  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5C_6R_1R_2R_3R_6s^3 + C_5R_1 + s^2\left(C_2C_3C_5R_1R_2R_3 + C_2C_5C_6R_1R_2R_6 + C_3C_5C_6R_1R_3R_6\right) + s\left(C_2C_5R_1R_2 + C_3C_5R_1R_3 + C_5C_6R_1R_3 + C_5$ 

- 9.2951 X-INVALID-ORDER-2951  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_6 C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_4 R_1 R_2 R_3 C_1 C_2 C_5 R_1 R_2 R_3 + C_1 C_2 C_6 R_1 R_2 R_6 + C_1 C_2 C_6 R_1 R_3 R_6 + C_1 C_4 C_6 R_1 R_3 R_6 C_1 C_5 C_6 R_1 R_3 R_6 + C_2 C_3 C_6 R_1 R_3 R_6 + C_1 C_2 C_6 R_1 R_3 R_6 +$
- **9.2952** X-INVALID-ORDER-2952  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$

- $\frac{C_2C_3C_5R_1R_2R_3R_6s^{\circ} + C_2C_3C_5R_1R_2R_3R_5 + C_1C_2C_4C_5R_1R_2R_3R_5 + C_1C_2C_4R_1R_2R_3 + C_1C_2C_5R_1R_2R_3 + C_1C_2C_5R_1R_2R_3 + C_1C_2C_5R_1R_3R_5 + C_1C_3C_5R_1R_3R_5 + C_1C_4C_5R_1R_3R_5 + C_2C_3C_5R_1R_3R_5 + C_2C_3C_5R_3R_5 +$
- **9.2953** X-INVALID-ORDER-2953  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 + C_1 C_2 C_5 C_6 R_1 R_2 R_3 + C_1 C_2 C_5 C_6 R_1 R_2 R_3 + C_1 C_2 C_5 C_6 R_1 R_3 R_5 + C_1 C_3 C_5 C_6 R_1 R_3 R_5 + C_1 C_4 C_5 C_6 R_1 R_3 R_5 + C_2 C_3 C_5 C_6 R_1 R_3 R_5$
- **9.2954** X-INVALID-ORDER-2954  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- **9.2955** X-INVALID-ORDER-2955  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_2$
- **9.2956** X-INVALID-ORDER-2956  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$
- $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_5R_6s^3 + R_1R_6 + s^2\left(C_2C_3R_1R_2R_3R_6 + C_2C_5R_1R_2R_5R_6 + C_3C_5R_1R_3R_5R_6\right) + s\left(C_2R_1R_2R_6 + C_3R_1R_3R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_5 + C_1C_2C_4R_1R_2R_3R_5 C_1C_2C_5R_1R_2R_3R_5\right) + s^2\left(-C_1C_2R_1R_2R_3 + C_1C_2R_1R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_3R_1R_3R_5 + C_2C_3R_1R_3R_5 + C_2C_3R_1R_3R_5$
- **9.2957** X-INVALID-ORDER-2957  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_5s^3 + R_1 + s^2\left(C_2C_3R_1R_2R_3 + C_2C_5R_1R_2R_5 + C_3C_5R_1R_3R_5\right) + s\left(C_2R_1R_2 + C_3R_1R_3R_5\right) + s\left(C_2R_1R_2 + C_3R_1R_3R_5\right) + s\left(C_2R_1R_2R_3R_5 + C_1C_2C_6R_1R_3R_5 + C_1C_2C_$  $C_2C_3C_5R_1R_2R_3R_5s^3 + R_1 + s^2\left(C_2C_3R_1R_2R_3 + C_2C_5R_1R_2R_5 + C_3C_5R_1R_3R_5\right) + s\left(C_2R_1R_2 + C_3R_1R_3R_5\right) + s\left(C_2R_1R_3 + C_3R_1R_3R_5\right) + s\left(C_2R_1R_3 + C_3R_3R_5\right) + s\left(C_3R_1R_3R_5\right) + s\left(C_3R_1R_5\right) + s\left(C_3R_1R$
- **9.2958** X-INVALID-ORDER-2958  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$
- $\frac{C_2C_3C_5C_6R_1R_2R_3R_5R_6s^4 + R_1 + s^3\left(C_2C_3C_5R_1R_2R_3R_5 + C_2C_3C_6R_1R_2R_3R_6 + C_2C_5C_6R_1R_2R_3R_6 + C_3C_5C_6R_1R_3R_5R_6\right) + s^2\left(C_2C_3R_1R_2R_3 + C_2C_5R_1R_2R_5 + C_2C_6R_1R_2R_6 + C_3C_5C_6R_1R_3R_5 + C_3C_5C_6R_1R_$
- **9.2959** X-INVALID-ORDER-2959  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-R_3 + R_5 + s^4 \left(C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_5 R_6 C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_5 R_6\right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 R_1 R_2 R_3 R_5 C_1 C_2 C_6 R_1 R_2 R_3 R_6 + C_1 C_2 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_6 R_1 R_2 R_5 + C_1 C_2$
- **9.2960** X-INVALID-ORDER-2960  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

- $\frac{C_2C_3C_4R_1R_2R_3R_4R_5s^4 R_3 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_5 C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4R_1R_2R_3R_5 + C_1C_2C_4R_1R_3R_4R_5 + C_1C_3C_4R_1R_3R_4R_5 + C_2C_3C_4R_1R_3R_4R_5 + C_2C_3C_4R_1R_3R_4 +$

- **9.2961** X-INVALID-ORDER-2961  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5s^5 + s^4\left(C_1C_2C_3C_6R_1R_2R_3R_5 C_1C_2C_4C_6R_1R_2R_3R_5 + C_1C_2C_4C_6R_1R_2R_4R_5 + C_1C_2C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_4R_5 + C_1C_3C_4C_6R_1R_3R_5 + C_1C_3C_4C_6R_1R_3R_5 + C_1C_3C_4C_6R_1R_3R_5 + C_$
- **9.2962** X-INVALID-ORDER-2962  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$

- $H(s) = \frac{C_2C_3C_4C_6R_1R_2R_3R_4R_6s^4 + R_1 + s^3\left(C_2C_3C_4R_1R_2R_3R_4R_6s^4 + R_1 + s^3\left(C_2C_3C_4R_1R_2R_3R_4R_5 + C_1C_2C_4C_6R_1R_3R_4R_5 + C_1C_2C_4C_6R_1R_3R_4 + C_1C_2C_4C_6R_1R_3R_4 + C_1C_2C_4C_6R_1R_3R_4 + C_1C_2C_4C_6R_1$
- **9.2963** X-INVALID-ORDER-2963  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$
- **9.2964** X-INVALID-ORDER-2964  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_3R_4R_6s^4 + C_5R_1R_6s + s^3\left(C_2C_3C_5R_1R_2R_3R_6 + C_2C_4C_5R_1R_2R_3R_4 + C_1C_2C_4R_1R_2R_3 + C_1C_2C_4R_1R_2R_3 + C_1C_2C_4R_1R_2R_3 + C_1C_2C_4R_1R_3R_4 C_1C_4C_5R_1R_3R_4 + C_2C_3C_4R_1R_3R_4 + C_2C_3C_3C_3R_1R_3R_4 + C_2C_3C_3R_1R_3R_4 + C_2C_3C_3R_3R_4 + C_2C$
- **9.2965** X-INVALID-ORDER-2965  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- **9.2966** X-INVALID-ORDER-2966  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_2C_3C_4C_5C_6R_1R_2R_3R_4R_6s^4 + C_5R_1 + s^3\left(C_2C_3C_4C_5R_1R_2R_3R_4 + C_2C_3C_5C_6R_1R_2R_3R_4 + C_2C_3C_5C_6R_1R_2R_3R_4 + C_2C_3C_5C_6R_1R_2R_3R_4 + C_2C_3C_5C_6R_1R_2R_3 + C_2C_4C_6R_1R_2R_3 + C_2C_$
- **9.2967** X-INVALID-ORDER-2967  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$
- $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_6 C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_6 + C_1 C_2$
- **9.2968** X-INVALID-ORDER-2968  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5s^5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4 + C_1C_2C_3C_5R_1R_2R_3R_4 + C_1C_2C_4C_5R_1R_2R_3R_5 + C_1C_2C_4C_5R_1R_2R_4R_5 + C_1C_2C_4C_5R_1R_3R_4R_5 + C_1C_3C_4C_5R_1R_3R_4R_5 + C_1C_3C_4C_5R_1R_3R_5 + C_1C_3C_4C_5R_1R_3R_5 + C_1C_3C_4C_5R_1R_3R_5 + C_1C_3C_4C_5R_1R_3R_5 + C_1C_3C_4C_5R_1R_3R_5 + C_1C_3C_5R_5R_5R_5 + C_1C_3C_5R_5R_$
- **9.2969** X-INVALID-ORDER-2969  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 + C_6 + s^4(C_1C_2C_3C_4C_6R_1R_2R_3R_4 + C_1C_2C_4C_5C_6R_1R_2R_3R_4 + C_1C_2C_4C_5C_6R_1R_2R_3R_5 + C_1C_2C_4C_5C_6R_1R_2R_3R_4 + C_1C_2C_4C_5C_6R_1R_3R_4R_5 + C_1C_2C_4C_5C_6R_1R_3R_4R_5 + C_1C_2C_4C_5C_6R_1R_3R_4 + C_1C_2C_4C_5C_6R_1R_3R_4C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_5C_6R_1R_3C_5$
- **9.2970** X-INVALID-ORDER-2970  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 + C_6 + s^4(C_1C_2C_3C_4C_6R_1R_2R_3R_4 + C_1C_2C_4C_5C_6R_1R_2R_3R_4 + C_1C_2C_4C_5C_6R_1R_2R_3R_5 + C_1C_2C_4C_5C_6R_1R_2R_3R_5 + C_1C_2C_4C_5C_6R_1R_2R_3R_4 + C_1C_2C_4C_5C_6R_1R_2R_3R_5 + C_1C_2C_4C_5C_6R_1R_3R_4R_5 + C_1C_2C_4C_5C_6R_1R_3R_4C_5C_6R_1R_3R_5 + C_1C_2C_4C_5C_6R_1R_3R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_6R_1R_5C_5C_5C_6R_1R_5$

```
9.2971 X-INVALID-ORDER-2971 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^6 + s^5(C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5 + C_1C_2C_3C_4C_6R_1R_2R_3R_4R_6 + C_1C_2C_4C_5C_6R_1R_2R_3R_4R_6 + C_1C_4C_5C_6R_1R_2R_3R_4R_6 + C_1C_4C_5C_6R_1R_2R_3R_4R_6 + C_1C_4C_5C_6R_1R_2R_3R_4R_6 + C_1C_4C_5C_6R_1$ 

**9.2972** X-INVALID-ORDER-2972 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

 $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_3R_4R_5R_6s^4 + R_1R_6 + s^3\left(C_1C_2C_3C_4R_1R_2R_3R_4R_5 - C_1C_2C_4R_1R_2R_3R_4R_5 - C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_4R_1R_2R_3R_5 + C_1C_2C_4R_1R_3R_4R_5 - C_1C_2C_5R_1R_2R_3R_4 + C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_$ 

**9.2973** X-INVALID-ORDER-2973 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 - C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_2$ 

**9.2974** X-INVALID-ORDER-2974 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$$

 $\frac{C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5F_6s^5 + R_1 + s^4\left(C_2C_3C_4C_5R_1R_2R_3R_4R_5 + C_2C_3C_4C_6R_1R_2R_3R_4R_6 + C_2C_3C_5C_6R_1R_2R_3R_5R_6 + C_2C_4C_5C_6R_1R_2R_3R_4R_5 + C_2C_3C_4C_6R_1R_2R_3R_4R_5 + C_2C_3C_4C_6R_1R_2R_3R_5 + C_2C_3C_4C_6R_1R_2R_3R_5 + C_2C_3C_4C_6R_1R_2R_3R_5 + C_2C_3C_4C_6R_1R_2R_3$ 

**9.2975** X-INVALID-ORDER-2975  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-R_3 + R_5 + s^5 \left(C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 R_6 - C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 R_5 - C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3$ 

**9.2976** X-INVALID-ORDER-2976  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$ 

 $\frac{C_2C_3R_1R_2R_3R_4R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_3R_1R_3R_4R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_2C_3R_1R_3R_4R_5 + C_2C_3R_3R_4R_5 + C_2C_3R_3R$ 

**9.2977** X-INVALID-ORDER-2977  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3R_1R_2R_3R_4S^2 + R_1R_4 + s\left(C_2R_1R_2R_3R_4S^2 + R_1R_4 + s\left(C_2R_1R_2R_4R_5 + C_1C_2C_6R_1R_2R_3R_4S^2 + R_1R_4 + s\left(C_2R_1R_2R_4R_5 + C_1C_2C_6R_1R_2R_3R_4S^2 + R_1R_4 + s\left(C_2R_1R_2R_4R_5 + C_1C_2C_6R_1R_2R_4R_5 + C_1C_2C_6R$ 

**9.2978** X-INVALID-ORDER-2978  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $\frac{C_2C_3C_6R_1R_2R_3R_4R_6s^3 + R_1R_4 + s^2\left(C_2C_3R_1R_2R_3R_4 + C_2C_6R_1R_2R_4R_6 + C_3C_6R_1R_3R_4R_6\right)}{s^4\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_3R_4R_5 + C_1$ 

9.2979 X-INVALID-ORDER-2979  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-R_3R_4 + R_3R_5 + R_4R_5 + s^4\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_1R_2R_3R_4R_5R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 + C_1C_2C_4R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_3R_4R_6 + C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1$ 

**9.2980** X-INVALID-ORDER-2980  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)$ 

 $C_2C_3C_5R_1R_2R_3R_4R_6s^3 + C_5R_1R_4R_6s + s^2(C_2C_5R_1R_2R_4R_6 + C_3C_5R_1R_3R_4R_6)$ 

 $\frac{C_2C_3C_5n_1n_2n_3n_4n_6s^2 + C_5n_1n_4n_6s + s - (C_2C_5n_1n_2n_4n_6 + C_3C_5n_1n_3n_4n_6)}{R_3 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2R_1R_2R_3 + C_1C_2R_1R_2R_3 + C_1C_2R_1R_3R_4 + C_1C_3R_1R_3R_4 + C_1C_5R_1R_3R_4 + C_2C_3R_1R_3R_4 + C_2C_3R_2R_3R_4 +$ 

```
9.2981 X-INVALID-ORDER-2981 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)
```

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4\right)}{C_6R_3 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_6R_1R_2R_3 + C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_1R_3C$ 

**9.2982** X-INVALID-ORDER-2982  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $\frac{C_2C_3C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_4 + s^2\left(C_2C_3C_5R_1R_2R_3R_4 + C_2C_5C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_3R_4R_6\right) + s\left(C_2C_5R_1R_2R_4 + C_2C_5C_6R_1R_2R_3R_4 + C_2C_5C_6R_1R_2R_3R_4 + C_2C_5C_6R_1R_3R_4 + C$ 

**9.2983** X-INVALID-ORDER-2983  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{R_3 + R_4 + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_4 R_1 R_2 R_3 R_4 + C_1 C_2 C_6 R$ 

**9.2984** X-INVALID-ORDER-2984  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $\overline{R_{3} + R_{4} + s^{4} \left( C_{1} C_{2} C_{3} C_{5} R_{1} R_{2} R_{3} R_{4} R_{5} + C_{1} C_{2} C_{4} C_{5} R_{1} R_{2} R_{3} R_{4} R_{5} \right) + s^{3} \left( C_{1} C_{2} C_{3} R_{1} R_{2} R_{3} R_{4} + C_{1} C_{2} C_{5} R_{1} R_{2} R_{3} R_{4} + C$ 

**9.2985** X-INVALID-ORDER-2985  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{1}{C_{6}R_{3} + C_{6}R_{4} + s^{4}\left(C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{2}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C$ 

**9.2986** X-INVALID-ORDER-2986  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $\overline{C_6R_3 + C_6R_4 + s^4 \left( C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5 + C_1C_2C_4C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_3R_4R_5 + C_1C_2C_5C$ 

**9.2987** X-INVALID-ORDER-2987  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_3 + R_4 + s^5 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_5 C_6 R_1 R_2 R$ 

**9.2988** X-INVALID-ORDER-2988  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

 $C_2C_3C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_4R_6 + s^2(C_2C_3R_1R_2R_3R_4R_6 + C_2C_5R_1R_2R_4R_5R_6 + C_3C_5R_1R_3R_4R_5R_6 + C_3C_5R_1R_3R_4R_5R_5 + C_3C_5R_1R_3R_4R_5R_5 + C_3C_5R_1R_3R_4R_5R_5 + C_3C_5R_1R_3R_5R_5 + C_3C_5R_5R_5 + C_3C_5R_5 + C_3C_5R_5R_5 + C_3C_5R_5 + C_3C_5$  $\frac{C_2C_3C_5R_1R_2R_3R_4R_5 + s^2\left(C_2C_3R_1R_2R_3R_4R_6 + s^2\left(C_2C_3R_1R_2R_3R_4R_6 + C_2C_5R_1R_2R_4R_5 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4 + C_1C_2R_1R_2R_3R_4R_5 + C_1C_2R_1R_3R_4R_5 + C_1C_3R_1R_3R_4R_5 + C_1C_4R_1R_3R_4R_5 + C$ 

**9.2989** X-INVALID-ORDER-2989  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_3R_4R_5 + C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R$ 

**9.2990** X-INVALID-ORDER-2990  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $\frac{C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+G_{5}{}^{4}+R_{1}R_{4}+s^{3}\left(C_{2}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{6}+C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{3}C_{5}C_{6}R_{1}R_{3}R_{4}R_{5}+C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{5}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{$ 

```
9.2991 X-INVALID-ORDER-2991 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
```

 $H(s) = \frac{-R_3R_4 + R_3R_5 + R_4R_5 + s^4\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5R_6 + C_1C_2C_4C_6R_1R_2R_3R_4R_5R_6 - C_1C_2C_5C_6R_1R_2R_3R_4R_5 + C_1C_2C_4R_1R_2R_3R_4R_5 - C_1C_2C_5R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R_3R_4R_5 - C_1C_2C_6R_1R_2R$ 

**9.2992** X-INVALID-ORDER-2992  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{R_1 R_2 R_4}{C_1 C_2 C_6 R_1 R_2 R_3 R_4 R_5 s^3 + s^2 \left(-C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_4 R_5 + C_1 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5\right) + s \left(C_6 R_1 R_4 R_5 - C_6 R_2 R_3 R_4 + C_6 R_2 R_3 R_5 + C_6 R_2 R_4 R_5 + C_6 R_3 R_4 R_5\right)}$ 

**9.2993** X-INVALID-ORDER-2993  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_6R_1R_2R_4R_6s + R_1R_2R_4}{C_1C_2C_6R_1R_2R_3R_4R_5s^3 + s^2\left(-C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_4R_5 - C_6R_2R_3R_4 + C_6R_2R_3R_5 + C_6R_2R_4R_5 + C_6R_3R_4R_5\right)}$ 

9.2994 X-INVALID-ORDER-2994  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

**9.2995** X-INVALID-ORDER-2995  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_5 C_6 R_1 R_2 R_3 R_4 - C_1 C_5 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_6 + C_1 C_6 R_1 R_2 R_4 R_6 + C_2 C_6 R_1 R_2 R_4 R_6 + C_2 C_6 R_2 R_3 R_4 R_6 - C_5 C_6 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_4 R_6 + C_2 C_6 R_1 R_2 R_4 R_6 + C_2 C_6 R_2 R_3 R_4 R_6 - C_5 C_6 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 - C_5 C_6 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_1 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_3 R_4 R_6 + C_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_4 R_6 + C_2 R_3 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_4 R_6 + C_2 R_4 R_6 \right) + s \left(C_1 R_1 R_2 R_4 R_6 + C_2 R_4 R_4 R_6 \right) + s \left(C_1 R_1 R_4 R_4 R_6 + C_2 R_4 R_6 \right) + s \left(C_1 R_1 R_4 R_4 R_6 + C_2$ 

**9.2996** X-INVALID-ORDER-2996  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{C_1 C_2 C_5 R_1 R_2 R_3 R_4 R_5 s^3 + R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_4 + C_1 C_5 R_1 R_2 R_3 R_5 + C_1 C_5 R_1 R_2 R_4 R_5 + C_2 C_5 R_1 R_2 R_4 R_5 + C_2 C_5 R_1 R_2 R_4 R_5 \right) + s \left(C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_4 + C_1 R_1 R_3 R_4 + C_2 R_1 R_2 R_4 + C_1 R_1 R$ 

9.2997 X-INVALID-ORDER-2997  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_4}{C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_4 R_5 s^3 + C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s^2 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_5 C_6 R_1 R_2 R_4 R_5 + C_2 C_5 C_6 R_1 R_2 R_4$ 

9.2998 X-INVALID-ORDER-2998  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_1C_2C_5C_6R_1R_2R_3R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_5 + C_1C_5C_6R_1R_2R_4R_5 + C_2C_5C_6R_1R_2R_4R_5 + C_2C_5C_6R_1R_2R_5 + C_2C_5C_6R_1R_2R_5 + C_2C_5C_6R_1R_2R_5 + C_2C_5C_6R_1R_2R_5 +$ 

**9.2999** X-INVALID-ORDER-2999  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{1}{C_1C_2C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^3\left(C_1C_2C_5R_1R_2R_3R_4R_6 - C_1C_5C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_$ 

**9.3000** X-INVALID-ORDER-3000  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_4 R_5 s + R_1 R_2 R_4}{s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_4 R_5 - C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_2 R_3 R_4 R_5 - C_5 C_6 R_2 R_3 R_4 R_5 + C_6 R_2 R_3 R_4 R_5 + C_6 R_3 R_4 R_5 + C_6 R_2 R_3 R_5 + C_6 R_2 R_3$ 

```
9.3001 X-INVALID-ORDER-3001 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_5C_6R_1R_2R_4R_5R_6s^2 + R_1R_2R_4 + s\left(C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 - C_1C_5C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_4R_5 + C_1C_6R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_3C_6R_1R_2R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_1R
9.3002 X-INVALID-ORDER-3002 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
                                         \frac{C_{5}R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+S^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_
9.3003 X-INVALID-ORDER-3003 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
                                                                                                                                  H(s) = \frac{R_1 R_2}{s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_5 + C_1 C_6 R_1 R_2 R_5 + C_2 C_6 R_1 R_2 R_5 + C_2 C_6 R_2 R_3 R_5 + C_4 C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_3 R_5\right)}
9.3004 X-INVALID-ORDER-3004 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                  H(s) = \frac{C_6R_1R_2R_6s + R_1R_2}{s^3\left(C_1C_2C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_5 + C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_4C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_2R_5 + C_6R_3R_5\right)}
9.3005 X-INVALID-ORDER-3005 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 R_1 R_2 R_3 R_5 - C_1 C_6 R_1 R_2 R_3 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 + C_2 C_6 R_1 R_2 R_5 R_6 + C_2 C_6 R_2 R_3 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 + C_2 C_6 R_1 R_2 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_4 C_6 R_1 R_2 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_4 C_6 R_2 R_3 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_2 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 C_6 R_1 R_2 R_5 R_6 \right) + s \left(-C_1 R_1 R_2 R_5 R_6 + C_1 R_2 R_
9.3006 X-INVALID-ORDER-3006 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_6 + C_1 C_4 C_6 R_1 R_2 R_3 R_6 - C_1 C_5 C_6 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_6 + C_2 C_6 R_1 R_2 R_6 + C_2 C_6 R_2 R_3 R_6 + C_4 C_6 R_2 R_3 R_6 - C_5 C_6 R_2 R_3 R_6 \right) + s \left(C_1 R_1 R_2 + C_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_3 + C
9.3007 X-INVALID-ORDER-3007 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)
H(s) = \frac{C_5 R_1 R_2 R_6 s}{R_1 + R_2 + R_3 + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_3 R_5 + C_1 C_4 C_5 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 + C_1 C_5 R_1 R_2 R_3 + C_1 C_5 R_1 R_2 R_5 + C_2 C_5 R_1 R_2 R_5 + C_2 C_5 R_2 R_3 R_5 + C_4 C_5 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_2 R_2 R_3 + C_4 R_2 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_2 R_3 R_5 + C_4 C_5 R_1 R_2 R_5 + C_4 C_5 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_2 R_3 R_5 + C_4 C_5 R_1 R_2 R_5 + C_4 C_5 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_2 R_3 R_5 + C_4 C_5 R_1 R_2 R_3 + C_4 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_4 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 R_3 + C_4 R_2 R_3 R_5 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_3 + C_4 R_3 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_3 + C_4 R_3 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_4 R_3 R_3 + C_4 R_3 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_1 R_3 + C_4 R_3 R_3 + C_4 R_3 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_3 R_3 + C_4 R_3 R_3 + C_4 R_3 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_3 R_3 + C_4 R_3 R_3 + C_4 R_3 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_3 R_3 + C_4 R_3 R_3 + C_4 R_3 R_3 \right) + s \left( C_1 R_1 R_2 + C_1 R_3 R_3 + C_4 R_3 R_3 + C_4 R_3 R_3 \right) + s \left( C_1 R_1 R_2 + C_4 R_3 R_3 + C_4 R_3 R
9.3008 X-INVALID-ORDER-3008 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)
H(s) = \frac{C_5 R_1 R_2}{C_6 R_1 + C_6 R_2 + C_6 R_3 + s^3 \left(C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_5 + C_2 C_5 C_6 R_1 R_2 R_5 + C_2 C_5 C_6 R_2 R_3 R_5 + C_4 C_5 C_6 R_2 R_3 R_5 \right) + s \left(C_1 C_2 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_5 + C_2 C_5 C_6 R_1 R_2 R_5 + C_2 C_5 C_6 R_2 R_3 R_5 + C_4 C_5 C_6 R_2 R_3 R_5 \right) + s \left(C_1 C_2 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_5 + C_2 C_5 C_6 R_1 R_2 R_5 + C_4 C_5 C_6 R_2 R_3 R_5 \right) + s \left(C_1 C_2 C_6 R_1 R_2 R_3 + C_1 C_5 C_6 R_1 R_2 R_3 + C_1
```

**9.3009** X-INVALID-ORDER-3009  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_2R_6s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_1C_2C_5C_6R_1R_2R_3R_5 + C_1C_4C_5C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_1C_5C_6R_$ 

**9.3010** X-INVALID-ORDER-3010  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_1 + R_2 + R_3 + s^4 \left( C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_2 C_6 R_1 R_2 R_3 R_6 + C_1 C_4 C_5 R_1 R_2 R_3 R_6 + C_1 C_5 C_6 R_1$ 

```
9.3011 X-INVALID-ORDER-3011 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
                                  H(s) = \frac{C_5 R_1 R_2 R_5 s + R_1 R_2}{s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 - C_1 C_5 C_6 R_1 R_2 R_3 R_5\right) + s^2 \left(-C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_1 R_2 R_5 + C_2 C_6 R_1 R_2 R_5 + C_2 C_6 R_2 R_3 R_5 + C_4 C_6 R_2 R_3 R_5 - C_5 C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 + C_6 R_2 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5 + C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_2 R_3 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_1 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 - C_6 R_5 R_5\right) + s \left(C_6 R_5 R_5 -
9.3012 X-INVALID-ORDER-3012 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
                                   H(s) = \frac{C_5C_6R_1R_2R_5R_6s^2 + R_1R_2 + s\left(C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_5 - C_1C_5C_6R_1R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_2R_5 + C_2C_6R_1R_2R_5 + C_2C_6R_2R_3R_5 + C_4C_6R_2R_3R_5 - C_5C_6R_2R_3R_5\right) + s\left(C_6R_1R_5 - C_6R_2R_3 + C_6R_3R_3 + 
9.3013 X-INVALID-ORDER-3013 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_5 R_1 R_2 R_5 + R_6 s + R_1 R_2 R_6}{R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 R_6 - C_1 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 R_1 R_2 R_3 R_5 - C_1 C_5 R_1 R_2 R_3 R_5 - C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_5 + 
9.3014 X-INVALID-ORDER-3014 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5, R_6\right)
H(s) = \frac{C_4 R_1 R_2 R_4 R_6 s + R_1 R_2 R_6}{C_1 C_2 C_4 R_1 R_2 R_3 R_4 R_5 s^3 + R_1 R_5 - R_2 R_3 + R_2 R_5 + R_3 R_5 + s^2 \left(C_1 C_2 R_1 R_2 R_3 R_4 + C_1 C_4 R_1 R_2 R_3 R_5 + C_1 C_4 R_1 R_2 R_4 R_5 + C_2 C_4 R_1 R_2 R_4 R_5 + C_2 C_4 R_2 R_3 R_4 R_5\right) + s \left(-C_1 R_1 R_2 R_3 + C_1 R_1 R_2 R_5 + C_1 R_1 R_2 R
9.3015 X-INVALID-ORDER-3015 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5, \frac{1}{C_6 s}\right)
H(s) = \frac{C_4R_1R_2R_4s + R_1R_2}{C_1C_2C_4C_6R_1R_2R_3R_4R_5s^4 + s^3\left(C_1C_2C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_5 + C_2C_4C_6R_1R_2R_4R_5 + C_2C_4C_4R_4R_4R_5 + C_2C_4C_4R_4R_4R_5 + C_2C_4C_4R_4R_4R_5 + C_2C_4C_4R_4R_4R_5 + C_2C_4C_4R_4R_4R_
9.3016 X-INVALID-ORDER-3016 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C_4C_6R_1R_2R_4R_6s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_6R_1R_2R_6\right)
                                         \frac{C_4C_6R_1R_2R_4R_6s^2 + R_1R_2 + s\left(C_4R_1R_2R_4 + C_6R_1R_2R_6\right)}{C_1C_2C_4C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_4R_5 + C_2C_4C_6R_1R_2R_4R_5 + C_2C_4C_6R_1R_2R_4R_5 + C_2C_4C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_3R_5 + C
9.3017 X-INVALID-ORDER-3017 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{1}{C_1C_2C_4C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3(C_1C_2C_4R_1R_2R_3R_4R_5 - C_1C_4C_6R_1R_2R_3R_4R_6 + C_1C_4C_6R_1R_2R_3R_5R_6 + C_1C_4C_6R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_4R_5R_5 + C_1C_4C_6R_1R_4R_5R_5 + C_1C_4C_6R_1R_4R_5R_5 + C_1C_4C_6R_1R_4R_5R_5 + C_1C_4C_6R_1R_4R_5R_5 + C_1C_4C_6R_1R_4R_5R_5 + C_1C_4C_6R_1R_4R_5 + C_1C_4C_6R_1R_4R_5 + C_1C_4C_6R_1R_5R_5 + 
9.3018 X-INVALID-ORDER-3018 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)
                                         9.3019 X-INVALID-ORDER-3019 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C_4C_5R_1R_2R_4s + C_5R_1R_2
H(s) = \frac{C_4C_5R_1R_2R_4s + C_5R_1R_2}{C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_1C_2C_4C_6R_1R_2R_3R_4 - C_1C_4C_5C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_3 + C_2C_4C_6R_1R_2R_4 + C_2C_4C_4R_4 + C_2C_4C_4R_4 + C_2C_4C_4R_4 + C_2C_4C_4C_4R_4 + C_2C_4C_4C_4R_4 + C_2C_4C_4C_4R_4 + C_2C_4C_4C_4C_4C_4C_4C_4C_4C_4C_4C_4C_
```

 $H(s) = \frac{C_4C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_4 + C_5C_6R_1R_2R$ 

**9.3020** X-INVALID-ORDER-3020  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

```
9.3021 X-INVALID-ORDER-3021 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
```

 $H(s) = \frac{1}{R_1 + R_2 + R_3 + s^4 \left( C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_6 R_1 R_2 R_3 R_6 + C_1 C_4 C_6 R_1$ 

**9.3022** X-INVALID-ORDER-3022 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$$

 $H(s) = \frac{1}{C_1C_2C_4C_5R_1R_2R_3R_4R_5s^4 + R_1 + R_2 + R_3 + s^3\left(C_1C_2C_4R_1R_2R_3R_4 + C_1C_2C_5R_1R_2R_3R_4 + C_1C_4C_5R_1R_2R_3R_5 + C_1C_4C_5R_1R_2R_3R_4 + C_1C_4C_$ 

**9.3023** X-INVALID-ORDER-3023 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{1}{C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_1C_2C_4C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_$ 

**9.3024** X-INVALID-ORDER-3024 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$$

 $H(s) = \frac{1}{C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_1 + C_6R_2 + C_6R_3 + s^3\left(C_1C_2C_4C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_4C_5C_6R_1R_2R_$ 

**9.3025** X-INVALID-ORDER-3025 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{C_1C_2C_4C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_1 + R_2 + R_3 + s^4\left(C_1C_2C_4C_5R_1R_2R_3R_4R_5 + C_1C_2C_4C_6R_1R_2R_3R_4R_6 + C_1C_4C_5C_6R_1R_2R_3R_4R_6 + C_1C_4C_5C_6R_1R_3R_4R_6 + C_1C_4C_5C_6R_$ 

**9.3026** X-INVALID-ORDER-3026 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$$

 $\frac{C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_6 + s\left(C_4R_1R_2R_4R_6 + C_5R_1R_2R_5R_6\right)}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(C_1C_2C_4R_1R_2R_3R_4R_5 - C_1C_4C_5R_1R_2R_3R_5 - C_1C_4R_1R_2R_3R_5 + C_$ 

**9.3027** X-INVALID-ORDER-3027 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

 $H(s) = \frac{C_4C_5R_1R_2R_4R_5s^2 + R_1R_2 + s\left(C_4R_1R_2R_3R_4R_5 - C_1C_4C_6R_1R_2R_3R_4R_5 - C_1C_4C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C$ 

**9.3028** X-INVALID-ORDER-3028 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_4C_5C_6R_1R_2R_4R_5R_6s^3 + R_1R_2 + s^2\left(C_4C_5R_1R_2R_4R_5 + C_4C_6R_1R_2R_4R_6 + C_5C_6R_1R_2R_4R_5 + C_4C_6R_1R_2R_4R_5 + C_4C_6R_1R_4R_4R_5 + C_4C_6R_1R_4R_4R_5 + C_4C_6R_1R_4R_4R_5 + C_4C_6R_1R_4R_4R_5 + C_4C_6R_1R_4R_5 + C_4C_6R_1R_4R_4R_5 + C_4C_6R_1R_4R_4R_5 + C_4C_6R_1R_4R_4R_5 + C_4C_6R_1R_4R_5 +$ 

**9.3029** X-INVALID-ORDER-3029 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$$

 $H(s) = \frac{1}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^4\left(C_1C_2C_4C_6R_1R_2R_3R_4R_5R_6 - C_1C_4C_5C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_3R_4R_5 - C_1C_4C_6R_1R_2R_3R_4R_5 - C_1C_4C_6R_$ 

**9.3030** X-INVALID-ORDER-3030 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{R_1 R_2 R_4}{s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_1 R_2 R_4 R_5 + C_2 C_6 R_1 R_2 R_3 R_4 R_5 + C_4 C_6 R_2 R_3 R_4 R_5 + C_6 R_2 R_3 R_4 R_5 + C_6 R_4 R_5 R_5 + C_6 R_4 R_5 R_5 + C_6 R_5 R_$ 

```
9.3031 X-INVALID-ORDER-3031 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)
H(s) = \frac{C_6R_1R_2R_4R_6s + R_1R_2R_4}{s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4 + C_6R_2R_3R_4 + C_6R_3R_3R_4 +
9.3032 X-INVALID-ORDER-3032 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)
```

 $\frac{R_1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5R_6 + C_1C_4C_6R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4R_5 + C_1C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_4R_5 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_3R_5 + C_1C_6R_1R_5 + C_1C$ 

**9.3033** X-INVALID-ORDER-3033  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_5 R_1 R_2 R_3 R_4 + C_1 C_5 R_1 R_2 R_3 R_4 + C_1 C_6 R_1 R_2 R_$ 

**9.3034** X-INVALID-ORDER-3034  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $\frac{C_5 R_1 R_2 R_4 R_6 s}{R_1 R_4 + R_2 R_3 + R_2 R_4 + R_3 R_4 + s^3 \left(C_1 C_2 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_4 C_5 R_1 R_2 R_3 R_4 + C_1 C_4 R_1 R_2 R_3 R_4 + C_1 C_5 R_1$ 

**9.3035** X-INVALID-ORDER-3035  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_5 R_1 R_2 R_4}{C_6 R_1 R_4 + C_6 R_2 R_3 + C_6 R_2 R_4 + C_6 R_3 R_4 + s^3 \left(C_1 C_2 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_5 C_6 R_1 R_2 R_3$ 

**9.3036** X-INVALID-ORDER-3036  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_6$  $\frac{C_5C_6R_1R_2R_4R_6s + C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + S^3\left(C_1C_2C_5C_6R_1R_2R_3R_4R_5 + C_1C_4C_5C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4 +$ 

**9.3037** X-INVALID-ORDER-3037  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^4\left(C_1C_2C_5C_6R_1R_2R_3R_4R_5R_6 + C_1C_4C_5C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_3R_4R_6 + C_1C_4C_5R_1R_2R_3R_4R_6 + C_1C_4C_5R_1R_2R_3R_4R_6 + C_1C_4C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_1R_2R_3R_4R_6 + C_1C_4C_5R_1R_2R_3R_4R_6 + C_1C_4C_5R_1R_2R_3R_4R_6 + C_1C_5C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_$ 

**9.3038** X-INVALID-ORDER-3038  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $C_5R_1R_2R_4R_5s + R_1R_2R_4 \\$ 

 $\frac{C_{5}R_{1}R_{2}R_{4}R_{5}s+R_{1}R_{2}R_{4}}{s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C$ 

**9.3039** X-INVALID-ORDER-3039  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_5C_6R_1R_2R_4R_5R_6s^2 + R_1R_2R_4 + s\left(C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_4C_6R_1R_2R_3R_4R_5 - C_1C_5C_6R_1R_2R_3R_4R_5\right) + s^2\left(-C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_2R_4R_5 + C_2C_6R_1R_2R_4R_5 + C_2C_6R_2R_3R_4R_5 + C_2C_6R_2R_3R_4R_5 - C_5C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_2R_3R_4R_5 + C_4C_6R_1R_2R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_2R_3R_4R_5\right) + s\left(C_6R_1R_2R_3R_4R_5 + C_4C_6R_1R_2R_4R_5 + C_4C_6R_2R_3R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_4R_5 + C_4C_6R_4R_5 +$ 

**9.3040** X-INVALID-ORDER-3040  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}\right)+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{$ 

**9.3041** X-INVALID-ORDER-3041  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)$  $\frac{C_3R_1R_2R_4R_6s}{-R_2R_4+R_2R_5+R_4R_5+s^3(C_1C_2C_6R_1R_2R_4R_5R_6+C_2C_3C_6R_1R_2R_4R_5R_6)+s^2(C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_1C_6R_1R_2R_5+C_1C_6R_1R_2R_5+C_1C_6R_1R_2R_5+C_1C_6R_1R_2R_5+C_1C_6R_1R_2R_5+C_1C_6R_1R_2R_5+C_1C_6R_1R_2R_5+C_1C_6R$ 

**9.3042** X-INVALID-ORDER-3042  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_1C_2C_6R_1R_2R_4R_6 + C_1C_3C_6R_1R_2R_4R_6 + C_2C_3C_6R_1R_2R_4R_6 + C_2C_3R_1R_2R_4 + C_1C_5R_1R_2R_4 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_4R_6 + C_2C_6R_1R_2R_4 + C_2C_6R_1R_2R_4$ 

**9.3043** X-INVALID-ORDER-3043  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_1C_2C_5R_1R_2R_4R_5 + C_1C_3C_5R_1R_2R_4R_5 + C_2C_3C_5R_1R_2R_4R_5 + C_1C_5R_1R_2R_4 + C_1C_5R_1R_2R_4$ 

**9.3044** X-INVALID-ORDER-3044  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $\frac{C_{3}C_{5}R_{1}R_{2}R_{4}s}{C_{6}R_{2}+C_{6}R_{4}+s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{4}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{5}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{5}+C_{1}C_{5}C_{6}R_$ 

**9.3045** X-INVALID-ORDER-3045  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_2R_4R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_5C_6R_1R_$ 

**9.3046** X-INVALID-ORDER-3046  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\frac{1}{R_2 + R_4 + s^4 \left( C_1 C_2 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 + C_1 C_5 C_6 R_1 R_2 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 R_6 \right) + s^3 \left( C_1 C_2 C_$ 

**9.3047** X-INVALID-ORDER-3047  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_5R$ 

**9.3048** X-INVALID-ORDER-3048  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\frac{C_{3}R_{1}R_{2}R_{6}s}{-R_{2}+R_{5}+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{5}R_{6}+C_{2}C_{3}C_{6}R_{1}R_{2}R_{5}R_{6}+C_{2}C_{3}C_{6}R_{1}R_{2}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{4}R_{1}R_{2}R_{5}+C_{1}C_{6}R_{1}R_{2}R_{5}+C_{2}C_{6}R_{2}R_{5}R_{6}+C_{3}C_{6}R_{1$ 

**9.3049** X-INVALID-ORDER-3049  $Z(s) = \begin{pmatrix} \frac{R_1}{C_1 R_1 s + 1}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{1}{C_3 s}, & \frac{1}{C_4 s}, & \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$ 

 $H(s) = \frac{C_3C_5R_1R_2R_6s^2}{s^3\left(C_1C_2C_6R_1R_2R_6 + C_1C_3C_6R_1R_2R_6 + C_1C_4C_6R_1R_2R_6 + C_2C_3C_6R_1R_2R_6 + C_2C_3C_6R_1R_2 + C_1C_3R_1R_2 + C_1C_4R_1R_2 - C_1C_5R_1R_2 + C_1C_6R_1R_6 + C_2C_3R_1R_2 + C_2C_6R_2R_6 + C_3C_6R_1R_6 + C_3C_6R_2R_6 + C_4C_6R_2R_6 - C_5C_6R_2R_6\right) + s(s) +$ 

**9.3050** X-INVALID-ORDER-3050  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $\frac{C_{3}C_{5}R_{1}R_{2}R_{6}s^{2}}{s^{3}\left(C_{1}C_{2}C_{5}R_{1}R_{2}R_{5}+C_{1}C_{3}C_{5}R_{1}R_{2}R_{5}+C_{1}C_{4}C_{5}R_{1}R_{2}R_{5}+C_{2}C_{3}C_{5}R_{1}R_{2}R_{5}+C_{1}C_{3}R_{1}R_{2}+C_{1}C_{4}R_{1}R_{2}+C_{1}C_{5}R_{1}R_{5}+C_{2}C_{5}R_{1}R_{5}+C_{3}C_{5}R_{1}R_{5}+C_{3}C_{5}R_{1}R_{5}+C_{3}C_{5}R_{1}R_{5}+C_{3}C_{5}R_{1}R_{5}+C_{4}C_{5}R_{2}R_{5}+C_{4}C_{5}$ 

```
9.3051 X-INVALID-ORDER-3051 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_2R_5 + C_1C_3C_5C_6R_1R_2R_5 + C_2C_3C_5C_6R_1R_2R_5 + C_2C_3C_5C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_5C_6R_1R_2 + C_1C_5C_6R_1R_2 + C_2C_5C_6R_1R_2 + C_2C_5C_
9.3052 X-INVALID-ORDER-3052 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_2C_5C_6R_1R_2R_5 + C_1C_3C_5C_6R_1R_2R_5 + C_2C_3C_5C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_
9.3053 X-INVALID-ORDER-3053 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{1}{s^4 \left( C_1 C_2 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_5 R_6 + C_2 C_3 C_5 C_6 R_1 R_2 R_5 R_6 + C_3 C_5 C_6 R_1 R_2 R_5 + C_1 C_2 C_6 R_1 R_2 R_5 + C_1 C_3 C_5 R_1 R_2 R_5 + C_1 C_3 C_6 R_1 R
9.3054 X-INVALID-ORDER-3054 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_5s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_1C_2C_6R_1R_2R_5R_6 + C_1C_3C_6R_1R_2R_5R_6 + C_1C_5C_6R_1R_2R_5R_6 + C_2C_3C_6R_1R_2R_5R_6 + C_2C_3C_6R_1R_2R_5R_5 + C_2C_3C_6R_1R_2R_5 + C_2C_3C_6R_1R_2R
9.3055 X-INVALID-ORDER-3055 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
H(s) = \frac{C_3C_4R_1R_2R_4R_6s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_1C_2C_4R_1R_2R_4R_5 + C_1C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_2R_4R_5 + C_1C_3R_1R_2R_5 - C_1C_4R_1R_2R_4 + C_1C_4R_1R_2R_5 + C_1C_4R_1R_2R_5 + C_2C_4R_2R_4R_5 + C_3C_4R_1R_4R_5 + C_3C_4R_4R_5 + C_3C_4R_5R_5 + C_3C_4R_5 + C_3C_4R_5R_5 + C_3C_4R_5R_5 + C_3C_4R_5 + C_3C
9.3056 X-INVALID-ORDER-3056 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_4R_1R_2R_4s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_2C_4C_6R_1R_2R_4R_5 + C_1C_3C_4C_6R_1R_2R_4R_5 + C_2C_3C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_5 + C_2C_4C_6R_1R_2R_5 + C_2C_4C_6R_1R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C_3C_4R_1R_2R_4s + C_3R_1R_2
9.3057 X-INVALID-ORDER-3057 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C_{3}C_{4}C_{6}R_{1}R_{2}R_{4}R_{6}s^{2} + C_{3}R_{1}R_{2} + s\left(C_{3}C_{4}R_{1}R_{2}R_{4} + C_{3}C_{6}R_{1}R_{2}R_{6}\right)
H(s) = \frac{C_3C_4C_6R_1R_2R_4R_6s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_2C_4C_6R_1R_2R_4R_5 + C_1C_3C_4C_6R_1R_2R_4R_5 + C_2C_3C_4C_6R_1R_2R_4 + C_1C_4C_6R_1R_2R_5 + C_1C_4
```

**9.3058** X-INVALID-ORDER-3058  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-R_2 + R_5 + s^4 \left(C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6\right) + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_2 C_6 R_1 R_2 R_5 R_6 + C_1 C_3 C_6 R_1 R_2 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_4 R_5 + C_1 C_4 C_6 R_1 R_4 R_5 + C_1 C_4 C_6 R_1 R_4 R_5 R_6 + C_1 C_4$ 

**9.3059** X-INVALID-ORDER-3059  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_6s^3 + C_3C_5R_1R_2R_6s^2}{s^3\left(C_1C_2C_4R_1R_2R_4 + C_1C_3C_4R_1R_2R_4 + C_2C_3C_4R_1R_2R_4 + C_2C_3C_4R_1R_2R_4 + C_1C_3R_1R_2 + C_1C_4R_1R_2 + C_1C_4R_1R_4 + C_1C_5R_1R_2 + C_2C_4R_2R_4 + C_3C_4R_1R_4 + C_3C_4R_2R_4 + C_4C_5R_2R_4 \right) + s\left(C_1R_1 + C_2R_2 + C_3R_1R_2 + C_4C_3R_1R_2 + C_4$ 

**9.3060** X-INVALID-ORDER-3060  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_2R_4 + C_1C_3C_4C_6R_1R_2R_4 + C_2C_3C_4C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_2C_4C_6R_1R_2 + C_2C_4C_$ 

```
9.3061 X-INVALID-ORDER-3061 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_6s^3 + C_3C_5R_1R_2s + s^2\left(C_3C_4C_5R_1R_2R_4 + C_3C_5C_6R_1R_2R_6\right)}{C_6 + s^3\left(C_1C_2C_4C_6R_1R_2R_4 + C_1C_3C_4C_6R_1R_2R_4 + C_2C_3C_4C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_1C_4C_6R_1R_2 + C_2C_4C_6R_1R_2 + C_2C_4C_6R_1R_2 + C_2C_4C_6R_1R_2 + C_3C_4C_6R_1R_2 + C_3C_4C$ 

**9.3062** X-INVALID-ORDER-3062  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_4 R_6 - C_1 C_4 C_5 C_6 R_1 R_2 R_4 R_6 + C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_6 + C_1 C_2 C_6 R_1 R_2 R_4 + C_1 C_3 C_6 R_1 R$ 

**9.3063** X-INVALID-ORDER-3063  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_2 C_3 C_4 C_5 R_1 R_2 R_4 + C_1 C_2 C_5 R_1 R_2 R_4 + C_1 C_3 C_5 R_1 R_2 R_4 + C_1 C_3 C_5 R_1 R_2 R_5 + C_1 C_4 C_5 R_1 R_2 R_4 + C_1 C_4 C_5 R_1 R_2 R_4 + C_1 C_3 C_5 R_1 R_2 R_5 + C_1 C_4 C_5 R_1 R_2 R_4 + C_1 C_4 C_5 R_1 R_4 R_5 + C_1 C_4 C_5 R_1 R_4 R_5 + C_1 C_4 C_5 R_1 R_4 R_5 + C_1$ 

**9.3064** X-INVALID-ORDER-3064  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_2 R_4 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 + C_1 C_4 C_5 C_6 R_1 R_2 R_4 + C_1 C_4 C_5 C_6 R_1 R_2 R_4 + C_1 C_4 C_5 C_6 R_1 R_2 R_4 + C_1 C_3 C_5 C_6 R_1 R_2 R_4 + C_1 C$ 

**9.3065** X-INVALID-ORDER-3065  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{1}{C_6 + s^4 (C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 + C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 + C_1 C_2 C_5 C_6 R_1 R_2 R_4 + C_1 C_3 C_5 C_6 R_1 R_2 R_4 + C_1 C_5 C_6 R_1 R_2 R_4 + C_1 C_5 C_6 R_1 R_2 R_4 + C_1 C_5 C_6 R_1 R_2 R_4 + C_1$ 

**9.3066** X-INVALID-ORDER-3066  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 C_6 R_1$ 

**9.3067** X-INVALID-ORDER-3067  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5R_6s^3 + C_3R_1R_2R_6s + s^2\left(C_3C_4R_1R_2R_4R_6 + C_3C_5R_1R_2R_5R_6\right)}{-R_2 + R_5 + s^3\left(C_1C_2C_4R_1R_2R_4R_5 + C_1C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_2R_4R_5 + C_2C_3R_1R_2R_5 + C_2$ 

**9.3068** X-INVALID-ORDER-3068  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_4R_5 + C_4C_6R_1R_2R_4R_5 + C_4C_6R_1R_2R_4 + C_4C_6R$ 

**9.3069** X-INVALID-ORDER-3069  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_4R_5R_6s^3 + C_3R_1R_2 + s^2\left(C_3C_4C_5R_1R_2R_4R_5 + C_3C_4C_6R_1R_2R_4R_6 + C_3C_5C_6R_1R_2R_5R_6\right)}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_2C_4C_6R_1R_2R_4R_5 + C_1C_3C_4C_6R_1R_2R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_6R_1R_4R_5 + C_1C_3C_4C_4C_4R_4R_5 + C_1C_3C_4C_4C_4R_4R_5 + C_1C_3C_4C_4C_4R_4R_5 + C_1C_3C_4C_4C_4R_4R_5 + C$ 

9.3070 X-INVALID-ORDER-3070  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-R_2 + R_5 + s^4 \left(C_1 C_2 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 - C_1 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_4 C_6 R_1 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 - C_1 C_4 C_6 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 - C_1 C_4 C_6 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 - C_1 C_4 C_6 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 - C_1 C_4 C_5 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C_2 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 \right) \\ + s^3 \left(C_1 C$ 

**9.3071** X-INVALID-ORDER-3071  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4 R_6 s}{-R_2 R_4 + R_2 R_5 + R_4 R_5 + s^3 \left(C_1 C_2 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_4 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_4 R_1 R_2 R_4 R_5 + C_1 C_4 R_1 R_2 R_4 R_5 + C_1 C_6 R_1 R_2 R_4$ 

**9.3072** X-INVALID-ORDER-3072  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\frac{C_{3}C_{5}R_{1}R_{2}R_{4}R_{6}s^{2}}{R_{2}+R_{4}+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{4}R_{6}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{4}R_{6}+C_{1}C_{5}C_{6}R_{1}R_{2}R_{4}R_{6}+C_{2}C_{3}C_{6}R_{1}R_{2}R_{4}+C_{1}C_{3}R_{1}R_{2}R_{4}+C_{1}C_{5}R_{1}R_{2}R_{4}+C_{1}C_{5}R_{1}R_{2}R_{4}+C_{1}C_{6}R_{1}R_{2}R_{4}+C$ 

**9.3073** X-INVALID-ORDER-3073  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_1C_2C_5R_1R_2R_4R_5 + C_1C_3C_5R_1R_2R_4R_5 + C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_5R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_1C_5R_1R_2R_4 + C_1C_5R_1R_2$ 

**9.3074** X-INVALID-ORDER-3074  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_2R_4R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 + C_1C_$ 

**9.3075** X-INVALID-ORDER-3075  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_5C_6R_1R_2R_4R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_5C_6R_1R_2R_4 +$ 

**9.3076** X-INVALID-ORDER-3076  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{R_2 + R_4 + s^4 \left( C_1 C_2 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_1 C_4 C_5 C_6 R_1 R_2 R_4 R_5 R_6 + C_2 C_3 C_5 C_6 R_1 R_2 R_4 R_5 R_6 \right) \\ + s^3 \left( C_1 C_2 C_5 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 +$ 

**9.3077** X-INVALID-ORDER-3077  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_1C_2C_6R_1R_2R_4R_5R_6 + C_1C_3C_6R_1R_2R_4R_5R_6 + C_1C_5C_6R_1R_2R_4R_5R_6 + C_2C_3C_6R_1R_2R_4R_5 + C_1C_3R_1R_2R_4R_5 + C_1C_3R$ 

**9.3078** X-INVALID-ORDER-3078  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$ 

 $\frac{C_{3}R_{1}R_{2}R_{4}R_{6}s}{C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}s^{3}-R_{2}R_{4}+R_{2}R_{5}+R_{4}R_{5}+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{4}R_{5}-C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{3}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{2}R_{3}R_{4}R_{5}\right)+s\left(-C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{2}R_{5}+C_{1}R_{1}R_{4}R_{5}+C_{2}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{2}R_{3}R_{4}R_{5}\right)+s\left(-C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{2}R_{5}+C_{1}R_{1}R_{4}R_{5}+C_{2}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{2}R_{3}R_{4}R_{5}\right)+s\left(-C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{2}R_{5}+C_{1}R_{1}R_{4}R_{5}+C_{2}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{4}R_{5}+C_{2}C_{3}R_{2}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}R_{4}+C_{2}C_{3}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}+C_{2}C_{3}R_{2}R_$ 

**9.3079** X-INVALID-ORDER-3079  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2 R_4}{C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 s^3 - C_6 R_2 R_4 + C_6 R_2 R_5 + C_6 R_4 R_5 + s^2 \left(C_1 C_2 C_6 R_1 R_2 R_4 R_5 - C_1 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_2 C_3$ 

**9.3080** X-INVALID-ORDER-3080  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5, R_6 + \frac{1}{C_6s}\right)$ 

 $C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4$  $H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{C_1C_2C_3C_6R_1R_2R_3R_4R_5s^3 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 - C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5 + C_2C_$ 

```
9.3081 X-INVALID-ORDER-3081 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5, \frac{R_6}{C_6 R_6 s + 1}\right)
```

 $H(s) = \frac{1}{C_1C_2C_3C_6R_1R_2R_3R_4R_5R_6s^4 - R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_6 + C_1C_3C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_6R_1R_2R_4R_5R_6 + C_1C_3C_6R_1R_2R_4R_5R_5 + C_1C_3C_6R_1R_2R_4R_5R_5 + C_1C_3C_6R_1R_2R_5R_5 + C_1C_3C_6R_1R_2R_5R_5 + C_1C_3C_6R_1R_2R_5 + C_$ 

**9.3082** X-INVALID-ORDER-3082 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, R_6\right)$$

 $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 - C_1C_3C_5R_1R_2R_3R_4\right) + s^2\left(C_1C_2R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_2C_3R_1R_2R_4 + C_2C_3R_2R_3R_4 - C_3C_5R_2R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_2R_2R_4 + C_3R_1R_2R_4 + C_3R_2R_3 + C_3R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_2R_2R_4 + C_3R_1R_2R_4 + C_3R_2R_3 + C_3R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_2R_2R_4 + C_3R_1R_4 + C_3R_2R_4 + C_3R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_1R_4 + C_2R_2R_4 + C_3R_1R_4 + C_3R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_3R_4 + C_3R_3R_4 + C_3R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_3R_4 + C_3R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_3R_4 + C_3R_3R_4\right) + s\left(C_1R_1R_2 + C_1R_3R_4\right) + s\left(C_1R_1R_2$ 

**9.3083** X-INVALID-ORDER-3083 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 - C_1C_3C_5C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_2C_3C_6R_1R_2R_4 + C_2C_3C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_2C_3C_6R_1R_2R_4 + C_2C_3C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_2C_3C_6R_1R_2R_4 + C_2C_3C_6R_2R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_2C_3C_6R_2R_3R_4 - C_3C_5C_6R_2R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_2C_3C_6R_2R_3R_4 + c_2C_3C_6R_2R_3R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C$ 

**9.3084** X-INVALID-ORDER-3084 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 - C_1C_3C_5C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_1R_2R_4 + C_2C_3C_6R_1R_2R_4 + C_$ 

**9.3085** X-INVALID-ORDER-3085 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$$

 $H(s) = \frac{1}{R_2 + R_4 + s^4 (C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_4 R_6 + C_1 C_3 C_6 R_1 R_2 R_4$ 

**9.3086** X-INVALID-ORDER-3086 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)$$

 $H(s) = \frac{1}{C_1C_2C_3C_5R_1R_2R_3R_4R_5s^4 + R_2 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_2C_5R_1R_2R_4R_5 - C_1C_3C_5R_1R_2R_3R_4 + C_1C_3C_5R_1R_2R_3R_4 + C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_5R_1R_2R_4R_5 + C_1C_3C_5R_1R_2R_4R_5 + C_2C_3C_5R_1R_2R_4R_5 + C_2C_3C_5R_1R_$ 

**9.3087** X-INVALID-ORDER-3087 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_1R_2R_4R_5 + C_$ 

**9.3088** X-INVALID-ORDER-3088 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$$

 $H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5s^4 + C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_2C_5C_6R_1R_2R_3R_4 + C_1C_3C_5C_6R_1R_2R_3R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_1C_3C_5C_6R_1R_2R_4R_5 + C_2C_3C_5C_6R_1R_2R_4R_5 + C_$ 

**9.3089** X-INVALID-ORDER-3089 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

 $H(s) = \frac{1}{C_1C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6s^5 + R_2 + R_4 + s^4(C_1C_2C_3C_5R_1R_2R_3R_4R_5 + C_1C_2C_3C_6R_1R_2R_4R_5R_6 - C_1C_3C_5C_6R_1R_2R_3R_4R_6 + C_1C_3C_5C_6R_1R_3R_4R_6 +$ 

**9.3090** X-INVALID-ORDER-3090 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, R_6\right)$$

 $C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s$  $-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 - C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_3R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_1C_3R_1R_2R_4R_5 + C_1C_3R_1R_2R_4R_5 + C_1C_3R_1R_2R_4R_5 + C_2C_3R_1R_2R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_2C$  **9.3091** X-INVALID-ORDER-3091  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4R_5s + C_3R_1R_2R_4}{-C_6R_2R_5 + C_6R_4R_5 + S^3\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_4R_5 - C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R$ 

**9.3092** X-INVALID-ORDER-3092  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s(C_3C_5R_1R_2R_4R_5 + C_3C_5R_1R_2R_4R_5 + C_3C_5R_1R_2R_4 + c_3C_5R_1R_2R_4R_5 + C_3C_5R_1R_2R_4R_5 + C_3C_5R_1R_2R_4 + c_3C_5R_5R_5R_5 + c_3C_5R_5R_5 + c_3C_5R_5R_5 + c_3C_5R_5 + c_3C_5R_$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + c_6R_4R_5 + c_6R_5R_5 + c_6R_5R_5$ 

**9.3093** X-INVALID-ORDER-3093  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-R_2R_4 + R_2R_5 + R_4R_5 + s^4\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5R_6 - C_1C_3C_5C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_5$ 

**9.3094** X-INVALID-ORDER-3094  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, R_6\right)$ 

**9.3095** X-INVALID-ORDER-3095  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3 R_1 R_2}{-C_6 R_2 + C_6 R_5 + s^3 \left(C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_5\right) + s^2 \left(C_1 C_2 C_6 R_1 R_2 R_3 + C_1 C_3 C_6 R_1 R_2 R_5 + C_1 C_3 C_6 R_1 R_2 R_5 + C_2 C_3 C_6 R_1 R_2 R_5 + C_2 C_3 C_6 R_2 R_3 R_5 + C_3 C_4 C_6 R_2 R_3 R_5\right) + s \left(-C_1 C_6 R_1 R_2 R_5 + C_1 C_3 C_6 R_1 R_$ 

**9.3096** X-INVALID-ORDER-3096  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_2R_6s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_5 + C_1C_3C_6R_1R_2R_5 + C_2C_3C_6R_1R_2R_5 + C_2C_3C_6R_1R_2R_5$ 

**9.3097** X-INVALID-ORDER-3097  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{-R_2 + R_5 + s^4 \left(C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_2 C_6 R_1 R_2 R_5 R_6 + C_1 C_3 C_4 R_1 R_2 R_3 R_5 - C_1 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_6 R_1 R_2 R_5 R_6 + C_1 C_3 C_6$ 

**9.3098** X-INVALID-ORDER-3098  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$ 

 $\frac{C_{3}C_{5}R_{1}R_{2}R_{6}s^{2}}{s^{3}\left(C_{1}C_{2}C_{3}R_{1}R_{2}R_{3}+C_{1}C_{3}C_{4}R_{1}R_{2}R_{3}-C_{1}C_{3}C_{5}R_{1}R_{2}R_{3}\right)+s^{2}\left(C_{1}C_{2}R_{1}R_{2}+C_{1}C_{3}R_{1}R_{2}+C_{1}C_{3}R_{1}R_{3}+C_{1}C_{4}R_{1}R_{2}-C_{1}C_{5}R_{1}R_{2}+C_{2}C_{3}R_{2}R_{3}+C_{3}C_{5}R_{2}R_{3}\right)+s\left(C_{1}R_{1}+C_{2}R_{2}+C_{3}R_{1}+C_{3}R_{2}+C_{3}R_{3}+C_{4}R_{2}-C_{5}R_{2}\right)+1}$ 

**9.3099** X-INVALID-ORDER-3099  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

**9.3100** X-INVALID-ORDER-3100  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1R_2s$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_6s^- + C_3C_5R_1R_2s}{C_6 + s^3\left(C_1C_2C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_1C_3C_6R_1R_3 + C_1C_4C_6R_1R_2 + C_2C_3C_6R_1R_2 + C_2C_3C_6R_2R_3 + C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3 \right) + s\left(C_1C_6R_1 + C_2C_6R_1R_2 + C_1C_3C_6R_1R_3 + C_1C_4C_6R_1R_2 + C_2C_3C_6R_1R_2 + C_2C_3C_6R_2R_3 + C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3 \right) + s\left(C_1C_6R_1 + C_2C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_2C_3C_6R_1R_2 + C_2C_3C_6R_1R_2 + C_2C_3C_6R_2R_3 + C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3 \right) + s\left(C_1C_6R_1 + C_2C_6R_1R_2 + C_1C_3C_6R_1R_2 + C_2C_3C_6R_1R_2 + C_2C_3C_6R_1R_2 + C_2C_3C_6R_2R_3 + C_3C_4C_6R_2R_3 - C_3C_5C_6R_2R_3 + s\left(C_1C_6R_1 + C_2C_6R_1R_2 + C_2C_3C_6R_1R_2 + C_2C_3C_6R_1R_2 + C_2C_3C_6R_2R_3 + C_3C_4C_6R_2R_3 + C_3C_4C_6R_3R_3 + C_3C_4C_4C_4R_3 + C_3C_4C_4R_3 + C_3C_4C_4R_3 +$ 

- **9.3101** X-INVALID-ORDER-3101  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_6 C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_2 C_6 R_1 R_2 R_3 + C_1 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_6 R_1 R_2 R_6 + C_1$
- **9.3102** X-INVALID-ORDER-3102  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_2 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 + C_1 C_3 C_5 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 R$
- **9.3103** X-INVALID-ORDER-3103  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_2 C_5 C_6 R_1 R_2 R_3 C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 + C_1 C_3 C_5 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_5 \right) + s^3 \left( C_1 C_2 C_3 C$
- **9.3104** X-INVALID-ORDER-3104  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 + C_1 C_2 C_5 C_6 R_1 R_2 R_3 + C_1 C_3 C_5 C_6 R_1 R_2 R_3$
- **9.3105** X-INVALID-ORDER-3105  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{s^5 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_5 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_5 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_6 \right) + s^4 \left( C_1 C_2 C_5$
- **9.3106** X-INVALID-ORDER-3106  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$
- $H(s) = \frac{C_3C_5R_1R_2R_5R_6s^2 + C_3R_1R_2R_5s^2 + C_3R_1R_2R_6s}{-R_2 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_5 + C_1C_3C_4R_1R_2R_3R_5 C_1C_3C_5R_1R_2R_3R_5 + C_1C_3R_1R_2R_3 + C_1C_3R_1R_2R_5 + C_1C_3R_1R_2R_5 + C_1C_3R_1R_2R_5 + C_2C_3R_1R_2R_5 + C_2C_3R_2R_3R_5 + C_3C_4R_2R_3R_5 C_3C_5R_2R_3R_5\right) + s\left(-C_3C_3R_1R_2R_3R_5 + C_3C_3R_1R_2R_3R_5 + C_3C_3R_1R_2R_3R_5 + C_3C_3R_1R_2R_5 + C_3C_3R_3R_5 + C_3C_3R_3R_5 + C_3C_3R_3R_5 + C_3C_3R_3R_5 + C_3C_3R_3R_5$
- **9.3107** X-INVALID-ORDER-3107  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$
- $H(s) = \frac{C_3C_5R_1R_2R_5s + C_3R_1R_2}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_5 C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R$
- **9.3108** X-INVALID-ORDER-3108  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3C_5C_6R_1R_2R_5R_6s^2 + C_3R_1R_2 + s\left(C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_3C_6R_1R_2R_3R_5 + C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_5 + C_1C_3C_6R_1$
- **9.3109** X-INVALID-ORDER-3109  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-R_2 + R_5 + s^4 \left(C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_5 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_5 R_6 C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_5 R_6 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_2 C_6 R_1 R_2 R_3 R_5 C_1 C_3 C_5 R_1 R_2 R_3 R_5 C_1 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 C_1 C_3 C_6 R_1 R_2 R_3 R_5 C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 \right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_$ 
  - **9.3110** X-INVALID-ORDER-3110  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4R_1R_2R_3R_4R_5s^4 R_2 + R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_5 + C_1C_2C_4R_1R_2R_4R_5 C_1C_3C_4R_1R_2R_3R_4 + C_1C_3C_4R_1R_2R_4R_5 + C_1C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_2R_4R_5 + C_2C_3C_4R_1R_$

- **9.3111** X-INVALID-ORDER-3111  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5s^4 C_6R_2 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_2C_4C_6R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_4R_5 + C_$
- **9.3112** X-INVALID-ORDER-3112  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5s^4 C_6R_2 + C_6R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_3R_4 + C_1C_3C_4C_6R_1R_3R_4 + C_1C_3C_4C_6R_1R_3R_4 + C_1C_3C_4C_6R_1R_3C_4C_6R_1R_3R_4 + C_1C_3C_4C_6R_1R_3C_4C_6R_1R_3C_4C_6R_1R_3C_4C_6R_1R_3C_4C_6R_1R_3C_4C_6R_1R_3C_4C_6R_1R_3C_4C_6R_1R_3C_4C_6R_$
- **9.3113** X-INVALID-ORDER-3113  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6s^5 R_2 + R_5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4R_5 + C_1C_2C_4C_6R_1R_2R_3R_4R_6 + C_1C_3C_4C_6R_1R_2R_3R_5R_6 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_5R_5 + C_1C_3C_4C_6R_1R_3R_5R_5 + C_1C_3C_4C_6R_1R_3R_5R_5 + C_1C_3C_4C_6R_1R_3R_5R_5 + C_1C_3C_4C_6R_1R_3R_5R_5 + C_1C_3C_4C_6R_1R_3R_5R_5 + C_1C_3C_4C_6R_1R_5R_5 + C_1C_3C_4C_6R_1R_5R_5 + C_1C_3C_4C_6R_1R_5R_5 + C_1C_3C_4C_6R_1R_5 + C_1C_3C_4C_6R_1R_5 + C_1C_3C_4C_6R_1R_5 + C_1C_3C_4C_6R_1R_5 + C_1C_$
- **9.3114** X-INVALID-ORDER-3114  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{C_3C_4C_5R_1}{s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4 C_1C_3C_4C_5R_1R_2R_3R_4\right) + s^3\left(C_1C_2C_3R_1R_2R_3 + C_1C_3C_4R_1R_2R_4 + C_1C_3C_4R_1R_2R_4 + C_1C_3C_4R_1R_2R_4 + C_1C_3C_4R_1R_2R_4 + C_1C_3C_4R_1R_2R_4 + C_2C_3C_4R_1R_2R_4 + C_$
- **9.3115** X-INVALID-ORDER-3115  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 + C_1 C_3 C_4 C_6 R_1 R_2 R_4 + C_1 C_3 C_4 C_6 R_1 R_2 R_4$
- **9.3116** X-INVALID-ORDER-3116  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_6 + s^4 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 + C_1 C_3 C_4 C_6 R_1 R_2 R_4 + C_1 C_3 C_4 C_6 R_1 R_2 R_4$
- **9.3117** X-INVALID-ORDER-3117  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{s_5 \left( C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_6 \right) + s_4 \left( C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_6 +$
- **9.3118** X-INVALID-ORDER-3118  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5s^5 + s^4\left(C_1C_2C_3C_4R_1R_2R_3R_4 + C_1C_2C_3C_5R_1R_2R_3R_5 + C_1C_3C_4C_5R_1R_2R_3R_4 + C_1C_3C_4C_5R_1R_2R_3R_5 + C_1C_3C_4C_5R_1R_2R_3R_5 + C_1C_3C_4C_5R_1R_2R_3R_4 + C_1C_3C_4C_5R_1R_2R_3R_5 + C_1C_3C_4C_5R_1R_2R_$
- **9.3119** X-INVALID-ORDER-3119  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 + C_6 + s^4\left(C_1C_2C_3C_4C_6R_1R_2R_3R_4 + C_1C_2C_3C_5C_6R_1R_2R_3R_5 + C_1C_3C_4C_5C_6R_1R_2R_3R_4 + C_1C_3C_4C_5C_6R_1R_2R_3R_5 + C_1C_3C_4C_5C_6R_1R_3R_4C_5C_6R_1R_3R_5 + C_1C_3C_4C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_5C_6R_1R_3C_5C_5C_6R_1R_3C_5C_5C_6R_1R_3C_5C_5C_5C_6R_1R_3C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_5C_$
- **9.3120** X-INVALID-ORDER-3120  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5s^5 + C_6 + s^4(C_1C_2C_3C_4C_6R_1R_2R_3R_4 + C_1C_2C_3C_5C_6R_1R_2R_3R_5 + C_1C_3C_4C_5C_6R_1R_2R_3R_4 + C_1C_3C_4C_5C_6R_1R_2R_3R_5 + C_1C_3C_4C_5C_6R_1R_3R_3R_5 + C_1C_3C_4C_5C_6R_1R_3R_3R_5 + C_1C_3C_4C_5C_6R_1R_3R_5C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_6R_1R_3C_5C_5C_6R_1R_3C_5C_5C_6R_1R_3C_5C_5C_6R_1R_3$

- **9.3121** X-INVALID-ORDER-3121  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{C_1C_2C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^6 + s^5\left(C_1C_2C_3C_4C_5R_1R_2R_3R_4R_5 + C_1C_2C_3C_4C_6R_1R_2R_3R_4R_6 + C_1C_2C_4C_5C_6R_1R_2R_3R_4R_6 + C_1C_3C_4C_5C_6R_1R_2R_3R_4R_6 + C_1C_3C_4C_5C_6R_1R_2R_3R_5C_5C_6R_1R_2R_5C_5C_6R_1R_2R_5C_5C_6R_1R_2R_5C_5C_5C_6R_1R_2R_5C_5C_5C_6R_1R_$
- **9.3122** X-INVALID-ORDER-3122  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$
- $H(s) = \frac{-R_2 + R_5 + s^4 \left(C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 R_5 C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5\right) + s^3 \left(C_1 C_2 C_3 R_1 R_2 R_3 R_5 + C_1 C_2 C_4 R_1 R_2 R_4 R_5 C_1 C_3 C_4 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 R_1 R_2 R_3 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4 R_1 R_2 R_4 R_5 C_1 C_3 C_4 R_1 R_2 R_4 R_5 + C_1 C_3 C_4$
- **9.3123** X-INVALID-ORDER-3123  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{-}{-C_6R_2 + C_6R_5 + s^4\left(C_1C_2C_3C_4C_6R_1R_2R_3R_4R_5 C_1C_3C_4C_5R_1R_2R_3R_4R_5\right) + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_5 + C_1C_2C_4C_6R_1R_2R_3R_4 + C_1C_3C_4C_6R_1R_2R_3R_5 + C_1C_3C_4C_6R_1R_3R_3R_5 + C_1C_3C_4C_6R_1R_3R_5 + C_1C_3C_4C_6R_1R_3C_5 + C_1C_3C_4C_6R_1R_3$
- **9.3124** X-INVALID-ORDER-3124  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{-C_{6}R_{2} + C_{6}R_{5} + s^{4}\left(C_{1}C_{2}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}\right) + s^{3}\left(C_{1}C_{2}C_{3}C_{6}R_{1}R_{2}R_{3}R_{5} + C_{1}C_{3}C_{4}C_{6}R_{1}R_{2}R_{3}R_{5} +$
- **9.3125** X-INVALID-ORDER-3125  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-R_2 + R_5 + s^5 \left(C_1 C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 R_6 C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_4 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_5 C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3$
- **9.3126** X-INVALID-ORDER-3126  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6\right)$
- $H(s) = \frac{C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_5 + C_1C_3R_1R_2R_4R_5 + C_1C_3R_1R_2R_4R_5 + C_2C_3R_1R_2R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_3R_2R$
- 9.3127 X-INVALID-ORDER-3127  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3 R_1 R_2 R_4}{-C_6 R_2 R_5 + C_6 R_4 R_5 + s^3 \left(C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_4 R_5 + C_1 C_3 C_6 R_1 R_2 R$
- **9.3128** X-INVALID-ORDER-3128  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3C_6R_1R_2R_4R_6s + C_3R_1R_2R_4}{-C_6R_2R_5 + C_6R_4R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R$
- **9.3129** X-INVALID-ORDER-3129  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{-R_2R_4 + R_2R_5 + R_4R_5 + s^4\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_4R_5R_6 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_5$
- **9.3130** X-INVALID-ORDER-3130  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{C_3C_5R_1R_2R_4R_6s^2}{R_2 + R_4 + s^3\left(C_1C_2C_3R_1R_2R_3R_4 + C_1C_3C_4R_1R_2R_3R_4 C_1C_3C_5R_1R_2R_3R_4 + C_1C_3R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_1C_3R_1R_2R_4 + C_2C_3R_1R_2R_4 + C_2C_3R_2R_3R_4 + C_3C_3R_2R_3R_4 + C_3C_3R_3R_3R_4 + C_3C_3R_3R_3R_3 + C_3C_3R_3R_3 + C_3C_3R_3R_3 + C_3C_3R_3R_3 + C_3C_3R_3R_3 + C_3C_3R_3R_3 + C_3C_3R_3R_3$

**9.3131** X-INVALID-ORDER-3131  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_4 + C_1C_3C_6R_$ 

**9.3132** X-INVALID-ORDER-3132  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_1R_2R_4s}{C_6R_2 + C_6R_4 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_4 + C_1C_$ 

**9.3133** X-INVALID-ORDER-3133  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_2 + R_4 + s^4 \left( C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 - C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_6 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_3 R_4 +$ 

**9.3134** X-INVALID-ORDER-3134  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $\overline{R_2 + R_4 + s^4 \left( C_1 C_2 C_3 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_3 R_1 R_2 R_3 R_4 + C_1 C_3 C_5 R_1 R$ 

**9.3135** X-INVALID-ORDER-3135  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{1}{C_{6}R_{2} + C_{6}R_{4} + s^{4}\left(C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5} + C_{1}C$ 

**9.3136** X-INVALID-ORDER-3136  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $\frac{1}{C_{6}R_{2}+C_{6}R_{4}+s^{4}\left(C_{1}C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_$ 

**9.3137** X-INVALID-ORDER-3137  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_2 + R_4 + s^5 \left( C_1 C_2 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_3 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_3 C_5 C_6 R_1 R_2 R$ 

**9.3138** X-INVALID-ORDER-3138  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

 $\frac{C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4R_6s}{-R_2R_4 + R_2R_5 + R_4R_5 + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 - C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_3R_1R_2R_3R_4 + C_1C_3R_1R_2R_$ 

**9.3139** X-INVALID-ORDER-3139  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^3\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4R_5 - C_1C_3C_6R_1R_2R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R$ 

**9.3140** X-INVALID-ORDER-3140  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$ 

 $\frac{C_3C_5C_6R_1R_2R_4R_5}{-C_6R_2R_5+C_6R_4R_5+S^3\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5+C_1C_3C_6R_1R_2R_3R_4R_5-C_1C_3C_6R_1R_2R_3R_4+C_1C_3C_6R_1R_2R_3C_5C_6R_1R_2R_3C_5C_6R_1R_2R_3C_5C_6R_1R_2R_3C_5C_6R_1R_2R_3C_5C_5C_6R_1R_2R_3C_5C_5C_6R_1R_2R_3$ 

```
9.3141 X-INVALID-ORDER-3141 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
```

 $H(s) = \frac{-R_2R_4 + R_2R_5 + R_4R_5 + s^4\left(C_1C_2C_3C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_1R_2R_3R_4R_5R_6 - C_1C_3C_5C_6R_1R_2R_3R_4R_5R_6\right) + s^3\left(C_1C_2C_3R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 - C_1C_3C_5R_1R_2R_3R_4R_5 - C_1C_3C_5R_1R_2R_3R_4R_5 - C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_3C_4R_1R_2R_3R_4R_5 - C_1C_3C_5R_1R_2R_3R_4R_5 - C_1C_3$ 

**9.3142** X-INVALID-ORDER-3142  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5, \frac{1}{C_6s}\right)$ 

 $\frac{C_{3}R_{1}R_{2}R_{3}R_{4}s+R_{1}R_{2}R_{4}}{s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}\right)+s^{2}\left(-C_{1}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}+C_{1}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}+C_{1}C_{6}R_{1}R_{2}+C_{1}C_{6}R_{1}R_{2}+C_{1}$ 

**9.3143** X-INVALID-ORDER-3143  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_6R_1R_2R_3R_4R_6s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_6R_1R_2R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_2C_3C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4R_5 + C_2C_6R_1R_2R_3R_4R_5 + C_2C_6R_1R_2R_3R_4R_5 + C_3C_6R_1R_3R_4R_5 + C_3C_6R_1R_3R_4R$ 

**9.3144** X-INVALID-ORDER-3144  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5, \frac{R_6}{C_6R_6s+1}\right)$ 

 $\overline{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{6}R_{1}R_{2}R_$ 

**9.3145** X-INVALID-ORDER-3145  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_3C_5R_1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^3\left(C_1C_2C_6R_1R_2R_3R_4R_6 + C_1C_3C_6R_1R_2R_3R_4R_6 + C_2C_3C_6R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_1C_5R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3$ 

**9.3146** X-INVALID-ORDER-3146  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, R_6\right)$ 

 $\frac{C_3C_5R_1R_2R_3R_4R_6s^2 + C_5R_6s^2 +$ 

**9.3147** X-INVALID-ORDER-3147  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $H(s) = \frac{1}{C_{6}R_{1}R_{4} + C_{6}R_{2}R_{3} + C_{6}R_{2}R_{4} + C_{6}R_{3}R_{4} + s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{$ 

**9.3148** X-INVALID-ORDER-3148  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $\frac{\cup_{3}\cup_{5}\cup_{6}\kappa_{5}}{C_{6}R_{1}R_{4}+C_{6}R_{2}R_{3}+C_{6}R_{2}R_{4}+C_{6}R_{3}R_{4}+s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{5}C_{6}R$ 

**9.3149** X-INVALID-ORDER-3149  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$ 

 $H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^4\left(C_1C_2C_5C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_5C_6R_1R_2R_3R_4R_5 + C_1C_2C_6R_1R_2R_3R_4R_6 + C_1C_3C_5R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_1C_3C_5R_3R_4R_5 + C_1C_3C_5R_3R_5 + C_1C_3C_5R_5R_5 + C_$ 

**9.3150** X-INVALID-ORDER-3150  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$ 

 $C_3C_5R_1R_2R_3R_4R_5s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5\right)$ 

 $c_{3}c_{5}n_{1}n_{2}n_{3}n_{4}n_{5}s + n_{1}n_{2}n_{4} + s \\ (c_{3}n_{1}n_{2}n_{3}n_{4} + c_{5}n_{1}n_{2}n_{4}n_{5})$   $s^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{$ 

```
9.3151 X-INVALID-ORDER-3151 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
```

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_4 + s^2\left(C_3C_5R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_6 + C_5C_6R_1R_2R_4R_5R_6\right) + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5 + C_6R_1R_2R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_1C_5C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_2R_3$ 

**9.3152** X-INVALID-ORDER-3152 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$$

 $\overline{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + S^3\left(C_1C_2C_6R_1R_2R_3R_4R_5R_6 + C_1C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_6R_1R_2R_3R_4R_5 + C_1C_3R_1R_2R_3R_4R_5 + C_1C_3R_1R_2R_3R_4$ 

**9.3153** X-INVALID-ORDER-3153 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_3 R_1 R_2 R_3 s + R_1 R_2}{s^3 \left(C_1 C_2 C_6 R_1 R_2 R_3 R_5 + C_1 C_3 C_6 R_1 R_2 R_3 R_5 + C_2 C_3 C_6 R_1 R_2 R_3 R_5 + C_2 C_3 C_6 R_1 R_2 R_3 R_5 + C_1 C_6 R_1 R_2 R_3 + C_1 C_6 R_$ 

**9.3154** X-INVALID-ORDER-3154 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)$$

 $\frac{C_3C_6R_1R_2R_3R_6s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_6R_1R_2R_3\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_5 + C_1C_3C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_3 + C_1C_6R_$ 

**9.3155** X-INVALID-ORDER-3155 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)$$

 $H(s) = \frac{C}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(C_1C_2C_6R_1R_2R_3R_5R_6 + C_1C_3C_6R_1R_2R_3R_5R_6 + C_2C_3C_6R_1R_2R_3R_5R_6\right) + s^2\left(C_1C_2R_1R_2R_3R_5 + C_1C_4R_1R_2R_3R_5 + C_1C_6R_1R_2R_3R_5 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_2R_5 + C_1C$ 

**9.3156** X-INVALID-ORDER-3156 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_6}{C_6R_6s+1}\right)$$

 $C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s$ 

 $\frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_3R_6s^2 + C_$ 

**9.3157** X-INVALID-ORDER-3157 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$$

 $C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_6s$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_6s^2 + C_5R_1R_2R_3}{R_1 + R_2 + R_3 + s^3\left(C_1C_2C_5R_1R_2R_3R_5 + C_1C_3C_5R_1R_2R_3R_5 + C_1C_4C_5R_1R_2R_3R_5 + C_2C_3C_5R_1R_2R_3R_5 + C_2C_3C_5R_1R_2R_3R_5 + C_2C_3C_5R_1R_2R_3 + C_1C_4R_1R_2R_3 + C_1C_5R_1R_2R_3 + C_1C_5R_1R_2R_3$ 

**9.3158** X-INVALID-ORDER-3158 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

 $\frac{C_{3}C_{5}R_{1}R_{2}R_{3}R_{5}}{C_{6}R_{1}+C_{6}R_{2}+C_{6}R_{3}+s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{5}+C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}+C_{1}C_{5}C_{$ 

**9.3159** X-INVALID-ORDER-3159 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$$

 $C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + s^2$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + S_5C_6R_1R_2R_3R_5 + C_5C_6R_1R_2R_3R_5 + C$ 

**9.3160** X-INVALID-ORDER-3160 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

 $\overline{R_{1} + R_{2} + R_{3} + s^{4} \left(C_{1} C_{2} C_{5} C_{6} R_{1} R_{2} R_{3} R_{5} R_{6} + C_{1} C_{3} C_{5} C_{6} R_{1} R_{2} R_{3} R_{5} R_{6} + C_{1} C_{4} C_{5} C_{6} R_{1} R_{2} R_{3} R_{5} R_{6} + C_{2} C_{3} C_{5} C_{6} R_{1} R_{2} R_{3} R_{5} R_{6} + C_{1} C_{3} C_{5} R_{1} R_{2} R_{3} R_{5} + C_{1} C_{3} C_{5} R_{1} R_$ 

```
9.3161 X-INVALID-ORDER-3161 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5R_1R_2R_3R_5s^2 + R_1R_2 + s\left(C_3R_1R_2R_3 + C_5R_1R_2R_5\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_5 + C_1C_3C_6R_1R_2R_3R_5 + C_1C_5C_6R_1R_2R_3R_5 + C_2C_3C_6R_1R_2R_3R_5\right) + s^2\left(-C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_3 + C_2C_6R_1R_2R_3 + C_3C_6R_1R_2R_3 + C_3C_6R_1R_3 + C_3C_
9.3162 X-INVALID-ORDER-3162 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5C_6R_1R_2R_3R_5R_6s^3 + R_1R_2 + s^2\left(C_3C_5R_1R_2R_3R_5 + C_3C_6R_1R_2R_3R_6 + C_5C_6R_1R_2R_3R_6 + C_5C_6R_1R_2R_3 + C_5R_1R_2R_3 + C_5R_1R_2R_3 + C_5R_1R_2R_5 + C_6R_1R_2R_6\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_5 + C_1C_3C_6R_1R_2R_3R_5 + C_2C_3C_6R_1R_2R_3R_5 + C_2C_3C_6R_1R_2R_3R_5 + C_2C_6R_1R_2R_3 + C_5C_6R_1R_2R_3 + C_
9.3163 X-INVALID-ORDER-3163 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{1}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^3\left(C_1C_2C_6R_1R_2R_3R_5R_6 + C_1C_4C_6R_1R_2R_3R_5R_6 + C_1C_5C_6R_1R_2R_3R_5R_6 + C_1C_5C_6R_1R_2R_3R_5R_6 + C_1C_5C_6R_1R_2R_3R_5R_6 + C_1C_3R_1R_2R_3R_5 + C_1C_4R_1R_2R_3R_5 + C_1C_4R_
9.3164 X-INVALID-ORDER-3164 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          \frac{C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}R_{6}s^{2} + R_{1}R_{2}R_{6} + s\left(C_{3}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{4}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}R_{1}R_{2}R_{3}R_{5} + C_{1}C_{4}R_{1}R_{2}R_{3}R_{5} + C_{1}C_{4}R_{1}R_{2}R_{3
9.3165 X-INVALID-ORDER-3165 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, \frac{1}{C_6s}\right)
H(s) = \frac{1}{s^4 \left( C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 + C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R
9.3166 X-INVALID-ORDER-3166 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, R_6 + \frac{1}{C_6s}\right)
                                            \frac{C_3C_4C_6R_1R_2R_3R_4R_6s^3 + R_1R_2}{s^4\left(C_1C_2C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_4C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R_4 + C_1C_4C_6R_1R_2R_3R_5 + C_1C_4C_6R_1R_2R_3R
9.3167 X-INVALID-ORDER-3167 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5, \frac{R_6}{C_6R_6s+1}\right)
H(s) = \frac{1}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^4\left(C_1C_2C_4C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_4R_1R_2R_3R_4R_5 + C_1C_3C_
9.3168 X-INVALID-ORDER-3168 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6\right)
```

 $\frac{C_{3}C_{4}C_{5}R_{1}R_{2}R_{3}R_{4}R_{6}s^{3} + C_{5}R_{1}R_{2}R_{6}s + s^{2}\left(C_{3}C_{5}R_{1}R_{2}R_{3}R_{6} + C_{4}C_{5}R_{1}R_{2}R_{3}R_{6} + C_{4}C_{5}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{4}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{4}C_{5}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{4}R_{1}R_{2}R_{3} + C_{1}C_{4}R_{1}R_{2}R_{3$ 

**9.3169** X-INVALID-ORDER-3169  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$ 

 $C_3C_4C_5R_1R_2R_3R_4s^2 + C_5R_1R_2 +$ 

 $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4s^2 + C_5R_1R_2 + S_5R_1R_2 + S_5R$ 

**9.3170** X-INVALID-ORDER-3170  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

 $C_3C_4C_5C_6R_1R_2R_3R_4R_6s^3 + C_5R_1R_2 + s^2(C_3C_4C_5R_1R_2R_3R_4 + C_3C_5C_6R_1R_2R_3R_4 + C_3C_5C_6R_3R_5 + C_5C_6R_5R_5 + C_5C_6R_5R_5 + C_5C_6R_5R_5 + C_5C_6R_5R_5 + C_5C_6R_5 + C_5C_5C_5 + C_5C_5 + C_5C_5C_5 + C_5C_5 + C_5C_5C_5 + C_5C_5 + C_5C_5$ 

 $\frac{C_3C_4C_5C_6R_1R_2R_3R_4+C_5R_1R_2R_3R_4+C$ 

- **9.3171** X-INVALID-ORDER-3171  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{R_1 + R_2 + R_3 + s^4 \left( C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_6 + C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_3 C_6 R_1 R_2 R_3 R$
- **9.3172** X-INVALID-ORDER-3172  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6\right)$
- $H(s) = \frac{H(s)}{R_1 + R_2 + R_3 + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_2 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) + s^3 \left( C_1 C_2 C_4 R_1 R_2 R_3 R_4 + C_1 C_3 C_5 R_1 R_2 R_3 R_4 + C_1 C_$
- **9.3173** X-INVALID-ORDER-3173  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_{6}R_{1} + C_{6}R_{2} + C_{6}R_{3} + s^{4}\left(C_{1}C_{2}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}\right) + s^{3}\left(C_{1}C_{2}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_$
- **9.3174** X-INVALID-ORDER-3174  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{C_{6}R_{1} + C_{6}R_{2} + C_{6}R_{3} + s^{4}\left(C_{1}C_{2}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{2}C_{3}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{5}C_{6}R_{1}R$
- **9.3175** X-INVALID-ORDER-3175  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, R_5 + \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{R_1 + R_2 + R_3 + s^5 \left( C_1 C_2 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_1 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 R_6 + C_2 C_3 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 R_6 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 C_5 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_5 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 R_5 R_4 R_5 \right) \\ + s^4 \left( C_1 C_2 C_4 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^4 \left( C_1$
- **9.3176** X-INVALID-ORDER-3176  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$
- $H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4R_5R_6s^3 + R_1R_2R_6 + s^2\left(C_3C_4R_1R_2R_3R_4R_5 + R_5R_6s^3 + R_1R_2R_6 + s^2\left(C_3C_4R_1R_2R_3R_4R_5 + R_5R_5R_5 + R_3R_5 + R_3R_5$
- **9.3177** X-INVALID-ORDER-3177  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{1}{C_6s}\right)$
- $H(s) = \frac{1}{s^4 \left( C_1 C_2 C_4 C_6 R_1 R_2 R_3 R_4 R_5 + C_1 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 C_1 C_4 C_5 C_6 R_1 R_2 R_3 R_4 R_5 + C_2 C_3 C_4 C_6 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 R_5 \right) \\ + s^3 \left( C_1 C_2 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 \right) \\ + s^3 \left( C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 + C_1 C_4 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_3 R_5 \right) \\ + s^3 \left( C_1 C_2 C_6 R_1 R_2 R_3 R_4 + C_1 C_4 C_6 R_1 R_2 R_4 + C_1 C_4 C_6 R_1 R_4$
- **9.3178** X-INVALID-ORDER-3178  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3C_4C_5C_6R_1R_2R_3R_4R_5R_6s^4 + R_1R_2 + s^3\left(C_3C_4C_5R_1R_2R_3R_4R_5 + C_3C_4C_6R_1R_2R_3R_4R_5 + C_3C_4C_6R_1R_$
- 9.3179 X-INVALID-ORDER-3179  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$
- $H(s) = \frac{1}{R_1R_5 R_2R_3 + R_2R_5 + R_3R_5 + s^4\left(C_1C_2C_4C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_4C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_4R_4R_3R_4R_5R_6 + C_2C_3C_4C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_4C_6R_1R_$
- **9.3180** X-INVALID-ORDER-3180  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{1}{C_6s}\right)$
- $H(s) = \frac{C_3R_1R_2R_3R_4s + R_1R_2R_4}{s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_2C_3C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_$

```
9.3181 X-INVALID-ORDER-3181 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, R_6 + \frac{1}{C_6s}\right)
```

 $H(s) = \frac{C_3C_6R_1R_2R_3R_4R_6s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_6R_1R_2R_4R_6\right)}{s^3\left(C_1C_2C_6R_1R_2R_3R_4R_5 + C_1C_3C_6R_1R_2R_3R_4R_5 + C_2C_3C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_2R_3R_4 + C_1C_6R_1R_2R_3R_4R_5 + C_1C_6R_1R_2R_3R_4R_5 + C_2C_6R_1R_2R_3R_4R_5 + C$ 

**9.3182** X-INVALID-ORDER-3182 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5, \frac{R_6}{C_6R_6s+1}\right)$$

 $\overline{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+R_{5}R_{6}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{2}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{4}R_{1}R_{$ 

**9.3183** X-INVALID-ORDER-3183 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, \frac{R_6}{C_6R_6s+1}\right)$$

 $H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^3\left(C_1C_2C_6R_1R_2R_3R_4R_6 + C_1C_3C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_1R_2R_3R_4R_6 + C_1C_5C_6R_1R_2R_3R_$ 

**9.3184** X-INVALID-ORDER-3184 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6\right)$$

 $\overline{R_{1}R_{4} + R_{2}R_{3} + R_{2}R_{4} + R_{3}R_{4} + s^{3}\left(C_{1}C_{2}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{4}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{5}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}R_{1}R_{2}R_{3}R_{4} + C$ 

**9.3185** X-INVALID-ORDER-3185 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, \frac{1}{C_6s}\right)$$

 $H(s) = \frac{1}{C_{6}R_{1}R_{4} + C_{6}R_{2}R_{3} + C_{6}R_{2}R_{4} + C_{6}R_{3}R_{4} + s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{4}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5} + C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{$ 

**9.3186** X-INVALID-ORDER-3186 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, R_5 + \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$$

 $\overline{C_{6}R_{1}R_{4}+C_{6}R_{2}R_{3}+C_{6}R_{2}R_{4}+C_{6}R_{3}R_{4}+s^{3}\left(C_{1}C_{2}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{3}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4}+C_{1}C_{3}C_{6}R_{1}R_{2}R_{$ 

**9.3187** X-INVALID-ORDER-3187 
$$Z(s) = \begin{pmatrix} \frac{R_1}{C_1 R_1 s + 1}, & \frac{R_2}{C_2 R_2 s + 1}, & \frac{R_3}{C_3 R_3 s + 1}, & \frac{R_4}{C_4 R_4 s + 1}, & R_5 + \frac{1}{C_5 s}, & \frac{R_6}{C_6 R_6 s + 1} \end{pmatrix}$$

 $H(s) = \frac{1}{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4 + s^4\left(C_1C_2C_5C_6R_1R_2R_3R_4R_5R_6 + C_1C_3C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_5C_6R_1R_2R_3R_4R_5R_6 + C_2C_3C_5C_6R_1R_2R_3R_4R_5 +$ 

$$\textbf{9.3188} \quad \textbf{X-INVALID-ORDER-3188} \ \ Z(s) = \left( \frac{R_1}{C_1 R_1 s + 1}, \ \ \frac{R_2}{C_2 R_2 s + 1}, \ \ \frac{R_3}{C_3 R_3 s + 1}, \ \ \frac{R_4}{C_4 R_4 s + 1}, \ \ \frac{R_5}{C_5 R_5 s + 1}, \ \ \frac{1}{C_6 s} \right)$$

 $C_3C_5R_1R_2R_3R_4R_5s^2 + R_1R_2R_4 + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_4R_5\right)$ 

 $\frac{C_3C_5R_1R_2R_3R_4R_5s + R_1R_2R_4 + s (C_3R_1R_2R_3R_4 + C_5R_1R_2R_3R_4 + C_5R$ 

9.3189 X-INVALID-ORDER-3189 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$$

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_5 + C_3C_6R_1R_2R_3R_4R_6 + C_5C_6R_1R_2R_4R_5R_6) + s\left(C_3R_1R_2R_3R_4 + C_5R_1R_2R_3R_4R_5 + C_5C_6R_1R_2R_3R_4R_5 + C_5C_6R_1R_2R_3R_4R_5$ 

**9.3190** X-INVALID-ORDER-3190 
$$Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$$

 $\overline{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+S^{3}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{4}C_{6}R_{1}R_{2}R_{3}R_{4}R_{5}R_{6}+C_{1}C_{5}C_{6}R_{1}R_{$ 

## 10 X-INVALID-WZ

**10.1** X-INVALID-WZ-1 
$$Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_4C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_6\right)}{-C_4C_5C_6R_2R_3R_4s^2 + C_6R_1 + C_6R_2 + C_6R_3 + s\left(C_4C_6R_1R_4 + C_4C_6R_2R_3 + C_4C_6R_2R_4 + C_4C_6R_3R_4 - C_5C_6R_2R_3\right)}$$

### Parameters:

bandwidth:  $i\sqrt{-R_1-R_2-R_3}(C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4-C_5R_2R_3)$ 

K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$ K-HP:  $-\frac{R_1R_6}{R_3}$ 

K-BP:  $\frac{C_4C_5R_1R_2R_4+C_5C_6R_1R_2R_6}{C_4C_6R_1R_4+C_4C_6R_2R_3+C_4C_6R_2R_4+C_4C_6R_3R_4-C_5C_6R_2R_3}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

# 10.2 X-INVALID-WZ-2 $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_4C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_6\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_4C_5C_6R_1R_4R_5 - C_4C_5C_6R_2R_3R_4 + C_4C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_4R_5 + C_4C_5C_6R_3R_4R_5\right) + s\left(C_4C_6R_1R_4 + C_4C_6R_2R_4 + C_4C_6R_3R_4 + C_5C_6R_1R_5 - C_5C_6R_2R_3 + C_5C_6R_2R_5 + C_5C_6R_3R_5\right)}$$

### Parameters:

 $Q: \frac{\sqrt{C_4}\sqrt{C_5}R_1R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_3R_4\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_4}\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}\sqrt{C_5}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_4}\sqrt{C_5}R_2R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_4R_5\sqrt{R_1+R_2+R_3}} + \sqrt{C_4}\sqrt{C_5}R_4R_5\sqrt{$ 

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_4 C_5 R_1 R_4 R_5 - C_4 C_5 R_2 R_3 R_4 + C_4 C_5 R_2 R_3 R_5 + C_4 C_5 R_2 R_4 R_5 + C_4 C_5 R_3 R_4 R_5}$ 

 $\sqrt{R_1 + R_2 + R_3} (C_4 R_1 R_4 + C_4 R_2 R_3 + C_4 R_2 R_4 + C_4 R_3 R_4 + C_5 R_1 R_5 - C_5 R_2 R_3 + C_5 R_2 R_5 + C_5 R_3 R_5) \sqrt{\frac{1}{C_4 C_5 R_1 R_4 R_5 - C_4 C_5 R_2 R_3 R_4 + C_4 C_5 R_2 R_4 R_5 + C_4 C_5 R_2 R_4 R_5 + C_4 C_5 R_3 R_4 R_5 + C_4 C_5 R_2 R_4 R_5 + C_4 C_5 R_3 R_5 + C_4 C_5 R_5 R_5 + C_$  $\frac{\text{bandwidth:}}{\sqrt{C_4\sqrt{C_5}R_1R_4R_5\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2+R_3R_5+R_2R_4R_5+R_3R_4R_5}}}-\sqrt{C_4\sqrt{C_5}R_2R_3R_4\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2+R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_4\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}}+\sqrt{C_4\sqrt{C_5}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5}+\sqrt{C_4\sqrt{C_5}R_2R_3R_4+R_2R_5}+C_4\sqrt{C_5}R_3R_4+R_2R_5+R_3R_4R_5}+C_4\sqrt{C_5}R_3R_4+R_2R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3R_5+R_3$ 

 $\begin{array}{l} \text{K-LP:} \ \frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3} \\ \text{K-HP:} \ \frac{C_5R_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2\tilde{R}_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_4}\sqrt{C_5R_2R_5} \\ \text{K-HP:} \ \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP:} \ \frac{C_4C_5R_1R_2R_4+C_5C_6R_1R_2R_6}{C_4C_6R_1R_4+C_4C_6R_2R_3+C_4C_6R_3R_4+C_5C_6R_1R_5-C_5C_6R_2R_3+C_5C_6R_2R_5+C_5C_6R_3R_5} \\ \text{Qz:} \ \text{None} \\ \\ \text{W} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

## **10.3** X-INVALID-WZ-3 $Z(s) = \left(R_1, R_2, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_6 + s\left(C_4R_1R_2R_4R_6 + C_5R_1R_2R_5R_6\right)}{-C_4C_5R_2R_3R_4R_5s^2 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s\left(C_4R_1R_4R_5 - C_4R_2R_3R_4 + C_4R_2R_3R_5 + C_4R_2R_4R_5 + C_4R_3R_4R_5 - C_5R_2R_3R_5\right)}$$

#### Parameters:

Q:  $-\frac{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-R_1R_5} + R_2R_3 - R_2R_5 - R_3R_5}{C_4R_1R_4R_5 - C_4R_2R_3R_4 + C_4R_2R_3R_5 + C_4R_2R_4R_5 + C_4R_3R_4R_5 - C_5R_2R_3R_5}$  wo:  $\frac{\sqrt{-R_1R_5 + R_2R_3 - R_2R_5 - R_3R_5}}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $-\frac{C_4R_1R_4R_5 - C_4R_2R_3R_4 + C_4R_2R_3R_5 + C_4R_2R_4R_5 + C_4R_3R_4R_5 - C_5R_2R_3R_5}{C_4C_5R_2R_3R_4R_5}$ 

K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$ K-HP:  $-\frac{R_1R_6}{R_2}$ 

K-BP:  $\frac{C_4R_1R_2R_4R_6+C_5R_1R_2R_5R_6}{C_4R_1R_4R_5-C_4R_2R_3R_4+C_4R_2R_3R_5+C_4R_2R_4R_5+C_4R_3R_4R_5-C_5R_2R_3R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}}$ 

**10.4** X-INVALID-WZ-4 
$$Z(s) = \left(R_1, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_4C_6R_1R_2R_4R_6s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^2\left(C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_2R_4R_5\right) + s\left(C_3C_6R_1R_5 + C_3C_6R_2R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_4R_5\right)}$$

### Parameters:

K-BP:  $\frac{C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_6}{C_3C_6R_1R_5 + C_3C_6R_2R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_4R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

## 10.5 X-INVALID-WZ-5 $Z(s) = \left(R_1, R_2, \frac{1}{C_{3s}}, R_4 + \frac{1}{C_{4s}}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_4C_5R_1R_2R_4R_5s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_5R_1R_2R_5\right)}{-C_6R_2 + C_6R_5 + s^2\left(C_3C_4C_6R_1R_4R_5 + C_3C_4C_6R_2R_4R_5 - C_4C_5C_6R_2R_4R_5\right) + s\left(C_3C_6R_1R_5 + C_3C_6R_2R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_4R_5 - C_5C_6R_2R_5\right)}$$

### Parameters:

$$Q: \frac{C_3\sqrt{C_4}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}}{+C_3\sqrt{C_4}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}} - \sqrt{C_4}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}} - \sqrt{C_4}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}}$$

 $\frac{-R_2 + R_5}{\sqrt{C_3 C_4 R_1 R_4 R_5 + C_3 C_4 R_2 R_4 R_5}} (C_3 R_1 R_5 + C_3 R_2 R_5 - C_4 R_2 R_4 + C_4 R_2 R_5 + C_4 R_4 R_5 - C_5 R_2 R_5)}{(C_3 \sqrt{C_4} R_1 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 - C_5 R_2}} + \frac{R_5}{C_3 R_1 + C_3 R_2 - C_5 R_2} + C_3 \sqrt{C_4} R_2 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 - C_5 R_2}} - \sqrt{C_4} C_5 R_2 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 - C_5 R_2}} + \frac{R_5}{C_3 R_1 + C_3 R_2 - C_5 R_2} + \frac{R_5}{C_3 R_1 + C_3 R_2 - C_5 R_2} - \sqrt{C_4} C_5 R_2 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_2}{C_3 R_1 + C_3 R_2 - C_5 R_2}} + \frac{R_5}{C_3 R_1 + C_3 R_2 - C_5 R_2} + \frac{R_5}{C_3 R_1 + C$ 

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}}$ 

**10.6** X-INVALID-WZ-6  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_3C_5C_6R_2R_3R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_2R_4R_5\right)}$$

### Parameters:

 $\begin{aligned} & \text{Q:} & - \frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_2R_4 - R_2R_5 - R_4R_5}}{C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 - C_5R_2R_4R_5} \\ & \text{wo:} & \frac{\sqrt{R_2R_4 - R_2R_5 - R_4R_5}}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}} \\ & \text{bandwidth:} & - \frac{C_3R_1R_4R_5 - C_3R_2R_3R_4 + C_3R_2R_3R_5 + C_3R_2R_4R_5 + C_3R_3R_4R_5 - C_5R_2R_4R_5}{C_3C_5R_2R_3R_4R_5} \end{aligned}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6}{C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_3R_4R_5 - C_5C_6R_2R_4R_5} \\ \text{Qz: None} \ \ \vdots \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

# 10.7 X-INVALID-WZ-7 $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_5R_6s^2 + C_3R_1R_2 + s\left(C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^2\left(C_3C_4C_6R_2R_3R_5 - C_3C_5C_6R_2R_3R_5\right) + s\left(C_3C_6R_1R_5 - C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_3R_5 + C_4C_6R_2R_5 - C_5C_6R_2R_5\right)}$$

### Parameters:

```
Q: \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}}}{C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5-C_5R_2R_5}
 bandwidth: \frac{\sqrt{\frac{-R_2+R_5}{C_3C_4R_2R_3R_5-C_3C_5R_2R_3R_5}}(C_3R_1R_5-C_3R_2R_3+C_3R_2R_5+C_3R_3R_5+C_4R_2R_5-C_5R_2R_5)}{(C_3R_1R_5-C_3R_2R_5+C_3R_3R_5+C_4R_2R_5-C_5R_2R_5)}
                                          \sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_2}{C_4-C_5}+\frac{R_5}{C_4-C_5}}
K-LP: -\frac{C_3R_1R_2}{C_6R_2-C_6R_5}
K-HP: \frac{C_5R_1R_6}{C_4R_3-C_5R_3}
 \begin{array}{l} \text{K-BP: } \frac{C_4R_3-C_5R_3}{C_3C_6R_1R_5-C_3C_6R_2R_3+C_3C_6R_2R_5+C_3C_6R_1R_2R_6} \\ \text{Qz: None} \end{array} 
 Wz: \frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}
```

10.8 X-INVALID-WZ-8  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_3C_4C_6R_1R_2R_4R_6s^2 + C_3R_1R_2 + s\left(C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_6\right)$  $H(s) = \frac{-C_{6}R_{2} + C_{6}R_{5} + s^{2}\left(C_{3}C_{4}C_{6}R_{1}R_{4}R_{5} - C_{3}C_{4}C_{6}R_{2}R_{3}R_{4} + C_{3}C_{4}C_{6}R_{2}R_{3}R_{5} + C_{3}C_{4}C_{6}R_{2}R_{4}R_{5} + C_{3}C_{4}C_{6}R_{2}R_{3}R_{4} + C_{3}C_{4}C_{6}R_{2}R_{3}R_{5} + C_{3}C_{4}C_{6}R_{2}R_{3}R_{4} + C_{3}C_{4}C_{6}R_{2}R_{3}R_{5} + C_{3}C_{6}R_{2}R_{5} + C_{4}C_{6}R_{2}R_{5} + C_{4}C_{6}R_$ 

### Parameters:

 $O: \frac{\sqrt{C_3}\sqrt{C_4}R_1R_4R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_3}\sqrt{C_4}R_3R_5+R_3R_4R_5} + \sqrt{C_$ Wo:  $\sqrt{\frac{-R_2+R_5}{C_3C_4R_1R_4R_5-C_3C_4R_2R_3R_4+C_3C_4R_2R_3R_5+C_3C_4R_2R_4R_5+C_3C_4R_3R_4R_5}}$ 

 $\begin{array}{l} \text{K-HP:} \ \frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5} \\ \text{K-BP:} \ \frac{C_3C_4R_1R_2R_4 + C_3C_6R_1R_2R_6}{C_3C_6R_1R_5 - C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_3R_5 - C_4C_6R_2R_4 + C_4C_6R_2R_5 + C_4C_6R_4R_5} \end{array}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

10.9 X-INVALID-WZ-9  $Z(s) = \left(R_1, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_3C_4C_6R_2R_3R_4R_5 - C_3C_5C_6R_2R_3R_4R_5\right) + s\left(C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_4R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5$ 

### Parameters:

 $Q: \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}}{C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5}$  $\sqrt{\frac{-R_2R_4 + R_2R_5 + R_4R_5}{C_3C_4R_2R_3R_4R_5 - C_3C_5R_2R_3R_4R_5}}$  $\frac{\sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_3C_4R_2R_3R_4R_5-C_3C_5R_2R_3R_4R_5}}(C_3R_1R_4R_5-C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_3R_4R_5+C_4R_2R_4R_5-C_5R_2R_4R_5)}{\sqrt{C_3C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_2R_5}{C_4-C_5}}}-\sqrt{C_3C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}+\frac{R_4R_5}{C_4-C_5}}}}$ K-LP:  $-\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}$ K-HP:  $\frac{C_5R_1R_6}{C_4R_3-C_5R_3}$  $\begin{array}{l} \text{K-BP:} \ \frac{C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6}{C_3C_6R_1R_4R_5 - C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_3R_4R_5 + C_4C_6R_2R_4R_5 - C_5C_6R_2R_4R_5} \\ \text{Qz: None} \ \ . \end{array}$ Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

**10.10** X-INVALID-WZ-10  $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_2R_3R_4 + C_5C_6R_1R_3R_4 + C_5C_6R_1R_4R_5 - C_5C_6R_2R_3R_4 + C_5C_6R_3R_4 + C_5C_6R_3R_4$ 

#### Parameters:

Q:  $\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_3R_1R_3R_4+C_3R_2R_3R_4+C_5R_1R_4R_5-C_5R_2R_3R_4+C_5R_2R_3R_5+C_5R_2R_4R_5+C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_5}}{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_5}}$ wo:  $\frac{1}{\sqrt{C_3C_5R_1R_3R_4}} \frac{1}{R_3R_4R_5 + C_3C_5R_2R_3R_4R_5}$  bandwidth:  $\frac{C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_5R_1R_4R_5 - C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2R_4R_5 + C_5R_3R_4R_5}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1 + R_2}\sqrt{C_3C_5R_1R_3R_4R_5 + C_3C_5R_2R_3R_4R_5}}$ 

```
K-BP: \frac{C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6}{C_3C_6R_1R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_2R_3R_5 + C_5C_6R_2R_4R_5 + C_5C_6R_3R_4R_5} Qz: None
                      Wz: \frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}
10.11 X-INVALID-WZ-11 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6)
                                                        \overline{R_1 R_4 R_5 - R_2 R_3 R_4 + R_2 R_3 R_5 + R_2 R_4 R_5 + R_3 R_4 R_5 + S^2 \left( C_3 C_6 R_1 R_3 R_4 R_5 R_6 + C_5 C_6 R_2 R_3 R_4 R_5 R_6 \right) + s \left( C_3 R_1 R_3 R_4 R_5 + C_5 R_2 R_3 R_4 R_5 + C_6 R_1 R_4 R_5 R_6 + C_6 R_2 R_3 R_4 R_5 + C_6 R_2 R_4 R_5 + C_6 R_4 R_5 R_5 + C_6 R_4 R_5 R_5 + C_6 R_4 R_5 + C_6 R_4 R_5 + C_6 R_5 R_5 + C_6 R_5 R_5 + C_6 R_5 R_5
         Parameters:
                       Q: \frac{C_3\sqrt{C_6}R_1\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{\frac{R_1R_4R_5}{C_3R_1+C_3R_2-C_5R_2}} - \frac{R_2R_3R_4}{C_3R_1+C_3R_2-C_5R_2} + \frac{R_2R_3R_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{R_2R_4R_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{R_3R_4R_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{R_3R_4R_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{R_2R_3R_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{R_2R_3R_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{R_2R_4R_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \frac{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}{C_3C_6R_1R_3R_4R_5R_6-C_5C_6R_2R_3R_4R_5R_6}(C_3R_1R_3R_4R_5+C_3R_2R_3R_4R_5-C_5R_2R_3R_4R_5+C_6R_1R_4R_5R_6-C_6R_2R_3R_4R_6+C_6R_2R_3R_5R_6+C_6R_2R_4R_5R_6+C_6R_3R_4R_5R_6)
                                                                                                          \overline{C_{3}\sqrt{C_{6}}R_{1}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}} - \frac{R_{2}R_{3}R_{4}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}} + \frac{R_{2}R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}} + \frac{R_{2}R_
                       \text{K-BP:} \frac{C_3 R_1 R_2 R_3 R_4 R_6 + C_5 R_1 R_2 R_4 R_5 R_6}{C_3 R_1 R_3 R_4 R_5 + C_3 R_2 R_3 R_4 R_5 - C_5 R_2 R_3 R_4 R_5 + C_6 R_1 R_4 R_5 R_6 - C_6 R_2 R_3 R_4 R_6 + C_6 R_2 R_3 R_5 R_6 + C_6 R_2 R_4 R_5 R_6 + C_6 R_2 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R_6 + C_6 R_5 R_5 R
                      Wz: \frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}
10.12 X-INVALID-WZ-12 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                 H(s) = \frac{C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_5C_6R_1R_2R_6\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_3C_5C_6R_1R_3R_5 + C_3C_5C_6R_2R_3R_5 + C_4C_5C_6R_2R_3R_5\right) + s\left(C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_5C_6R_1R_5 - C_5C_6R_2R_3 + C_5C_6R_2R_5 + C_5C_6R_3R_5\right)}
           Parameters:
                \begin{array}{l} \text{Q:} \ \frac{\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}\sqrt{R_1+R_2+R_3}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_3R_1R_3+C_3R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5} \\ \text{wo:} \ \frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_3C_5R_1R_3R_5+C_3C_5R_2R_3R_5+C_4C_5R_2R_3R_5}} \\ \text{bandwidth:} \ \frac{C_3R_1R_3+C_3R_2R_3+C_4R_2R_3+C_5R_1R_5-C_5R_2R_3+C_5R_2R_5+C_5R_3R_5}{\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_3C_5R_1R_3R_5+C_3C_5R_2R_3R_5+C_4C_5R_2R_3R_5}} \\ \text{K-LP:} \ \frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}} \\ \text{K-HP:} \ \frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_3} \\ \text{K-BP:} \ \frac{C_3C_5R_1R_2R_6}{C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3+C_5C_6R_1R_2R_6}} \\ \text{C2:} \ \text{None} \end{array}
                         Qz: None
                      Wz: \frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}
10.13 X-INVALID-WZ-13 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, \frac{R_6}{C_6 R_6 s+1}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_3C_5R_1R_2R_3R_5R_6s^2 + R_1R_2R_6 + s(C_3R_1R_2R_3R_6 + C_5R_1R_2R_5R_6)
                                                                                 H(s) = \frac{1}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_3C_6R_1R_3R_5R_6 + C_3C_6R_2R_3R_5R_6 + C_4C_6R_2R_3R_5R_6 + C_5C_6R_2R_3R_5R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_3R_5R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6\right) + s\left(C_3R_1R_3R_5 + C_4R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_3R_1R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_3R_1R_3R_5 + C_6R_2R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_3R_1R_3R_5 + C_6R_2R_3R_5\right) + s\left(C_3R_1R
           Parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          \frac{R_2R_5}{2^{-C_5R_2}} + \frac{R_2R_5}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2} + \frac{R_3R_5}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2} + C_3\sqrt{C_6}R_2\sqrt{R_3}\sqrt{R_5}\sqrt{R_6}\sqrt{\frac{R_1R_5}{C_3R_1 + C_3R_2 + C_4R_3}}
                       Wo: \sqrt{\frac{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5}{C_3C_6R_1R_3R_5R_6 + C_3C_6R_2R_3R_5R_6 + C_4C_6R_2R_3R_5R_6 - C_5C_6R_2R_3R_5R_6}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                \sqrt{\frac{R_1R_5-R_2R_3+R_2R_5+R_3R_5}{C_3C_6R_1R_3R_5R_6+C_3C_6R_2R_3R_5R_6+C_4C_6R_2R_3R_5R_6-C_5C_6R_2R_3R_5R_6}}(C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_2R_3R_5-C_5R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_2R_3R_5+C_6R_5R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5+C_6R_5
                       \frac{\sqrt{\sqrt{3}\sqrt{6}R_{1}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{\frac{R_{1}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}-\frac{R_{2}R_{3}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}+C_{3}\sqrt{C_{6}}R_{2}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{\frac{R_{1}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}+\frac{R_{2}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}R_{5}}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}+\frac{R_{3}
                \begin{array}{c} & \begin{array}{c} & \begin{array}{c} & \begin{array}{c} & \begin{array}{c} & \begin{array}{c} & A_1R_5 \\ \end{array} \end{array} \end{array} - \overline{A_1R_5} - \overline{A_2R_3} - \overline{A_2R_2} + \overline{A_2R_3} \end{array} \\ \text{K-LP:} & \begin{array}{c} & \begin{array}{c} & A_1R_2R_6 \\ \hline & R_1R_2R_6 \end{array} \end{array} \\ \text{K-HP:} & \begin{array}{c} & C_3C_5R_1R_2 \\ \hline & C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2 \end{array} \\ \text{K-BP:} & \begin{array}{c} & C_3R_1R_2R_3R_6 + C_5R_1R_2R_5R_6 \\ \hline & C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_5 - C_5R_2R_3R_5 + C_6R_1R_5R_6 - C_6R_2R_3R_6 + C_6R_2R_5R_6 + C_6R_3R_5R_6 \end{array} \\ \text{Qz:} & \text{None} \end{array}
```

K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$ 

K-HP:  $\frac{R_1R_2R_6}{R_1R_5+R_2R_5}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

```
10.14 X-INVALID-WZ-14 Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)
```

$$H(s) = \frac{C_3C_4R_1R_2R_3R_4R_6s^2 + R_1R_2R_6 + s\left(C_3R_1R_2R_3R_6 + C_4R_1R_2R_4R_6\right)}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_3C_4R_1R_3R_4R_5 + C_3C_4R_2R_3R_4R_5\right) + s\left(C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_4 + C_4R_2R_3R_5 + C_4R_2R_4R_5 + C_4R_3R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_3}\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_1R_4R_5-C_4R_2R_3R_4+C_4R_2R_3R_5+C_4R_2R_4R_5+C_4R_3R_4R_5}$  wo:  $\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_3}C_4R_1R_3R_4R_5+C_3C_4R_2R_3R_4R_5}$  bandwidth:  $\frac{C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_1R_4R_5-C_4R_2R_3R_4+C_4R_2R_3R_5+C_4R_2R_4R_5+C_4R_3R_4R_5}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_3}C_4R_1R_3R_4R_5+C_3}C_4R_2R_3R_4R_5}$  K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$  K-HP:  $\frac{R_1R_2R_6}{R_1R_5+R_2R_5}$ 

K-BP:  $\frac{C_3R_1R_2R_3R_6+C_4R_1R_2R_4R_6}{C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_1R_4R_5-C_4R_2R_3R_4+C_4R_2R_3R_5+C_4R_2R_4R_5+C_4R_3R_4R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}}$ 

## **10.15** X-INVALID-WZ-15 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_4C_5R_1R_2R_3R_4s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_4C_5R_1R_2R_4\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_3C_4C_6R_1R_3R_4 + C_3C_4C_6R_2R_3R_4 - C_4C_5C_6R_2R_3R_4\right) + s\left(C_3C_6R_1R_3 + C_4C_6R_1R_4 + C_4C_6R_2R_3 + C_4C_6R_2R_4 + C_4C_6R_2R_4 + C_4C_6R_2R_4\right)}$$

### Parameters:

 $\frac{C_3\sqrt{C_4}R_1\sqrt{R_3}\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}+C_3\sqrt{C_4}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-\sqrt{C_4}C_5R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-C_3R_1R_3+C_3R_2R_3+C_4R_1R_4+C_4R_2R_3+C_4R_2R_4+C_4R_3R_4-C_5R_2R_3}$ 

 $\sqrt{R_1 + R_2 + R_3} (C_3 R_1 R_3 + C_3 R_2 R_3 + C_4 R_1 R_4 + C_4 R_2 R_3 + C_4 R_2 R_4 + C_4 R_3 R_4 - C_5 R_2 R_3) \sqrt{\frac{1}{C_3 C_4 R_1 R_3 R_4 + C_3 C_4 R_2 R_3 R_4 - C_4 C_5 R_2 R_3 R_4}}$ 

 $\frac{\sqrt{3\sqrt{C_4}R_1\sqrt{R_3}\sqrt{R_4\sqrt{R_1+R_2+R_3}}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}+C_3\sqrt{C_4}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}-\sqrt{C_4}C_5R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}}$ 

## **10.16** X-INVALID-WZ-16 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)$ 

 $H(s) = \frac{1}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_3C_5C_6R_1R_3R_4R_5 + C_3C_5C_6R_2R_3R_4R_5 + s^2\left(C_3C_5C_6R_2R_3R_4R_5 + C_4C_5C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 + C_5C_6R_2R_3R_4 + C_5C_6R_3$ 

## Parameters:

wo:  $\frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}{\sqrt{C_3C_5R_1R_3R_4R_5 + C_3C_5R_2R_3R_4R_5 + C_4C_5R_2R_3R_4R_5}}$ bandwidth:  $\frac{C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 + C_5R_1R_4R_5 - C_5R_2R_3R_4 + C_5R_2R_3R_5 + C_5R_2R_4R_5 + C_5R_3R_4R_5}{\sqrt{C_5}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1 + C_3R_2 + C_4R_2}\sqrt{C_3C_5R_1R_3R_4R_5 + C_3C_5R_2R_3R_4R_5 + C_4C_5R_2R_3R_4R_5}}$ K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4}$ K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6}{C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_5C_6R_1R_4R_5 - C_5C_6R_2R_3R_4 + C_5C_6R_2R_3R_5 + C_5C_6R_2R_4R_5 + C_5C_6R_3R_4R_5} \\ \text{Qz: None} \ \ . \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

## 10.17 X-INVALID-WZ-17 $Z(s) = \left(R_1, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, \frac{R_6}{C_6R_6s+1}\right)$

 $C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6)$ 

 $\overline{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+s^{2}\left(C_{3}C_{6}R_{1}R_{3}R_{4}R_{5}R_{6}+C_{4}C_{6}R_{2}R_{3}R_{4}R_{5}R_{6}-C_{5}C_{6}R_{2}R_{3}R_{4}R_{5}+C_{4}R_{2}R_{3}R_{4}R_{5}+C_{4}R_{2}R_{3}R_{4}R_{5}+C_{5}R_{2}R_{3}R_{4}R_{5}+C_{6}R_{1}R_{4}R_{5}R_{6}-C_{6}R_{2}R_{3}R_{4}R_{5}+C_{6}R$ 

#### Parameters:

```
Q_{i} C_{i} \nabla_{i} R_{i} \nabla_{i} \nabla_{i
```

**10.19** X-INVALID-WZ-19  $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_4C_5R_1R_4R_5R_6s^2 + R_1R_6 + s\left(C_4R_1R_4R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^2\left(C_2C_4R_1R_4R_5 + C_2C_4R_3R_4R_5 - C_4C_5R_3R_4R_5\right) + s\left(C_2R_1R_5 + C_2R_3R_5 - C_4R_3R_4 + C_4R_3R_5 + C_4R_4R_5 - C_5R_3R_5\right)}$$

### Parameters:

Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

```
 \begin{array}{c} Q: \frac{C_2\sqrt{C_4}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}}+C_2\sqrt{C_4}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3-C_5R_3}}-\sqrt{C_4}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3}{C_2R_1+C_2R_3-C_5R_3}}+\frac{R_5}{C_2R_1+C_2R_3-C_5R_3}}\\ wo: \sqrt{\frac{-R_3+R_5}{C_2C_4R_1R_4R_5+C_2C_4R_3R_4R_5-C_4C_5R_3R_4R_5}}}\\ bandwidth: \frac{-R_3+R_5}{C_2\sqrt{C_4}R_1R_4R_5+C_2C_4R_3R_4R_5-C_4C_5R_3R_4R_5}} \\ (C_2R_1R_5+C_2R_3R_5-C_4R_3R_4+C_4R_3R_5+C_4R_4R_5-C_5R_3R_5}\\ (C_2R_1R_5+C_2R_3R_5-C_4R_3R_4+C_4R_3R_5+C_4R_4R_5-C_5R_3R_5)\\ (C_2R_1R_5+C_2R_
```

10.20 X-INVALID-WZ-20  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_4R_5R_6s^2 + C_3R_1R_4 + s\left(C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{C_2C_3C_6R_1R_4R_5s^2 - C_6R_4 + C_6R_5 + s\left(C_2C_6R_4R_5 + C_3C_6R_4R_5 - C_5C_6R_4R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2\sqrt{R_4}\sqrt{R_5}+C_3\sqrt{R_4}\sqrt{R_5}-C_5\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ 

K-HP:  $\frac{C_5R_6}{C_2}$ K-BP:  $\frac{C_3C_5R_1R_5 + C_3C_6R_1R_6}{C_2C_6R_5 + C_3C_6R_5 - C_5C_6R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

## 10.21 X-INVALID-WZ-21 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_5R_6s^2 + C_3R_1 + s\left(C_3C_5R_1R_5 + C_3C_6R_1R_6\right)}{C_2C_3C_6R_1R_5s^2 - C_6 + s\left(C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5\right)}$$

### Parameters:

Q:  $\frac{i\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}-C_5\sqrt{R_5}}$  wo:  $\frac{i}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_5}}$  bandwidth:  $\frac{C_2\sqrt{R_5}+C_3\sqrt{R_5}+C_4\sqrt{R_5}-C_5\sqrt{R_5}}{C_2C_3R_1\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_1}{C_6}$ K-HP:  $\frac{C_5R_6}{C_2}$ K-BP:  $\frac{C_3C_5R_1R_5 + C_3C_6R_1R_6}{C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

# 10.22 X-INVALID-WZ-22 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_4C_5C_6R_1R_4R_6s^2 + C_3C_5R_1 + s\left(C_3C_4C_5R_1R_4 + C_3C_5C_6R_1R_6\right)}{C_2C_3C_4C_6R_1R_4s^2 + C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s\left(C_2C_3C_6R_1 + C_2C_4C_6R_4 + C_3C_4C_6R_4 - C_4C_5C_6R_4\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}\sqrt{C_2+C_3+C_4-C_5}}{C_2C_3R_1+C_2C_4R_4+C_3C_4R_4-C_4C_5R_4}$  wo:  $\frac{\sqrt{C_2+C_3+C_4-C_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$  bandwidth:  $\frac{C_2C_3R_1+C_2C_4R_4+C_3C_4R_4-C_4C_5R_4}{C_2C_3C_4R_1R_4}$ 

K-LP:  $\frac{C_2C_3C_4}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2C_3C_6R_1+C_2C_4C_6R_4+C_3C_4C_6R_4-C_4C_5C_6R_4}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

10.23 X-INVALID-WZ-23 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_4R_5R_6s^2 + C_3R_1R_4 + s\left(C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{C_2C_3C_6R_1R_4R_5s^2 - C_6R_4 + C_6R_5 + s\left(C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5 - C_5C_6R_4R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{-R_{4}+R_{5}}}{C_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{3}\sqrt{R_{4}}\sqrt{R_{5}}+C_{4}\sqrt{R_{4}}\sqrt{R_{5}}-C_{5}\sqrt{R_{4}}\sqrt{R_{5}}}$ wo:  $\frac{\sqrt{-R_{4}+R_{5}}}{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}}$ bandwidth:  $\frac{C_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{3}\sqrt{R_{4}}\sqrt{R_{5}}+C_{4}\sqrt{R_{4}}\sqrt{R_{5}}-C_{5}\sqrt{R_{4}}\sqrt{R_{5}}}{C_{2}C_{3}R_{1}\sqrt{R_{4}}\sqrt{R_{5}}}$ 

K-LP:  $\frac{C_3R_1R_4}{C_2C_3R_1\sqrt{R_5}+C_3\sqrt{R_4}}$ K-HP:  $\frac{C_5R_6}{C_2}$ K-BP:  $\frac{C_3C_5R_1R_5+C_3C_6R_1R_6}{C_2C_6R_5+C_3C_6R_5+C_4C_6R_5-C_5C_6R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

**10.24** X-INVALID-WZ-24 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_4R_5R_6s^2 + C_3R_1R_4 + s\left(C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 - C_3C_6R_3R_4R_5\right) + s\left(C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_4R_5 - C_5C_6R_4R_5\right)}$$

### Parameters:

 $Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{R_5}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{R_5}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{R_5}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_3-C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_3-C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_3-C_5R_3}}} - \sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_3-$ 

# 10.25 X-INVALID-WZ-25 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_5R_6s^2 + C_3R_1 + s\left(C_3C_5R_1R_5 + C_3C_6R_1R_6\right)}{-C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_3R_5 + C_3C_4C_6R_3R_5 - C_3C_5C_6R_3R_5\right) + s\left(C_2C_6R_5 - C_3C_6R_3 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5\right)}$$

### Parameters:

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

 $Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_3C_4R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} } \\ wo: \sqrt{-\frac{1}{C_2C_3}R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}} \\ bandwidth: \frac{\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_5R_3R_5}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + C_2\sqrt{C_3}R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_3}C_5R_3\sqrt{R_5}\sqrt{-\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5$ 

# 10.26 X-INVALID-WZ-26 $Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_4C_5C_6R_1R_4R_6s^2 + C_3C_5R_1 + s\left(C_3C_4C_5R_1R_4 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_3R_4 - C_3C_4C_5C_6R_3R_4\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_3 + C_2C_4C_6R_4 + C_3C_4C_6R_3 + C_3C_4C_6R_3 - C_4C_5C_6R_3\right)}$$

## Parameters:

 $\begin{array}{c} \text{Q:} \frac{C_2\sqrt{C_3}\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{C_2}{C_2R_1+C_2R_3-c_5R_3}+\frac{C_2}{C_2R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C_3}{C_3R_1+C_2R_3-c_5R_3}-\frac{C$ 

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

10.27 X-INVALID-WZ-27 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_4R_5R_6s^2 + C_3R_1R_4 + s\left(C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_3R_4R_5 + C_3C_4C_6R_3R_4R_5 - C_3C_5C_6R_3R_4R_5\right) + s\left(C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5 - C_5C_6R_4R_5\right)}$$

### Parameters:

 $Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}{C_2R_4R_5-C_3R_3R_4+C_3R_3R_5+C_4R_4S-C_5R_4} + \frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}$ 

 $\frac{-R_4 + R_5}{\sqrt{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 + C_3 C_5 R_3 R_4 R_5}} (C_2 R_4 R_5 - C_3 R_3 R_4 + C_3 R_3 R_5 + C_3 R_4 R_5 - C_5 R_4 R_5)}{\sqrt{C_2 C_3 R_1 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 + C_4 R_3 - C_5 R_3}}$  $\begin{array}{c} C_{2\,Y}\,C_{3\,R_{1}\,Y\,R_{4}\,V}\,R_{5}\,\sqrt{-\frac{n_{4}}{C_{2\,R_{1}}+C_{2}\,R_{3}+C_{4}\,R_{3}-C_{5}\,R_{3}}} + \frac{R_{5}}{C_{2\,R_{1}}+C_{2}\,R_{3}+C_{4}\,R_{3}} \\ \text{K-LP:} & -\frac{C_{3}R_{1}R_{4}}{C_{6}R_{4}-C_{6}\,R_{5}} \\ \text{K-HP:} & \frac{C_{5}R_{1}\,R_{6}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}\,R_{3}-C_{5}\,R_{3}} \\ \text{K-BP:} & \frac{C_{3}C_{5}R_{1}R_{4}R_{5}+C_{3}C_{6}R_{1}R_{4}R_{6}}{C_{2}C_{6}R_{4}R_{5}-C_{3}C_{6}R_{3}R_{4}+C_{3}C_{6}R_{3}R_{5}+C_{3}C_{6}R_{4}R_{5}+C_{4}C_{6}R_{4}R_{5}-C_{5}C_{6}R_{4}R_{5}} \\ \text{Qz:} & \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

## **10.28** X-INVALID-WZ-28 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_3R_4R_6s^2 + C_5R_1R_4 + s\left(C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_2C_3C_6R_1R_3R_4s^2 + C_6R_3 + C_6R_4 + s\left(C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_3+R_4}}{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_3+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}}$ 

bandwidth:  $\frac{C_2 R_1 \sqrt{R_4} + C_2 R_3 \sqrt{R_4} + C_3 R_3 \sqrt{R_4} - C_5 R_3 \sqrt{R_4}}{C_2 C_3 R_1 R_3 \sqrt{R_4}}$ 

K-LP:  $\frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}$ K-HP:  $\frac{C_5 R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2C_6R_1+C_2C_6R_3+C_3C_6R_1R_6} \\ \text{Qz: None}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

# **10.29** X-INVALID-WZ-29 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_6 + C_5R_1R_4R_5R_6\right)}{C_2C_3R_1R_3R_4R_5s^2 - R_3R_4 + R_3R_5 + R_4R_5 + s\left(C_2R_1R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5 - C_5R_3R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{-R_3}R_4 + R_3R_5 + R_4R_5}{C_2R_1\sqrt{R_4}\sqrt{R_5} + C_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_3\sqrt{R_4}\sqrt{R_5} - C_5R_3\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_3}R_4 + R_3R_5 + R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_1\sqrt{R_4}\sqrt{R_5} + C_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_3\sqrt{R_4}\sqrt{R_5} - C_5R_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_3\sqrt{R_4}\sqrt{R_5}}$ 

K-BP:  $\frac{C_2}{C_2R_1R_5+C_2R_3R_5+C_3R_3R_5-C_5R_3R_5} \\ \text{Qz: None}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

**10.30** X-INVALID-WZ-30 
$$Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_3R_6s^2 + C_5R_1 + s\left(C_3C_5R_1R_3 + C_5C_6R_1R_6\right)}{C_2C_3C_6R_1R_3s^2 + C_6 + s\left(C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$$

### Parameters:

```
wo: \frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}
bandwidth: \frac{C_2R_1+C_2R_3+C_3R_3+C_4R_3-C_5R_3}{C_2C_3R_1R_3}
K-LP: \frac{C_5R_1}{C_6}

K-HP: \frac{C_5R_6}{C_2}

K-BP: \frac{C_3C_5R_1R_3 + C_5C_6R_1R_6}{C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 - C_5C_6R_3}

Qz: None
 Wz: \frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}
```

# **10.31** X-INVALID-WZ-31 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_3R_5R_6s^2 + R_1R_6 + s\left(C_3R_1R_3R_6 + C_5R_1R_5R_6\right)}{C_2C_3R_1R_3R_5s^2 - R_3 + R_5 + s\left(C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5 - C_5R_3R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{-R_3+R_5}}{C_2R_1\sqrt{R_5}+C_2R_3\sqrt{R_5}+C_3R_3\sqrt{R_5}+C_4R_3\sqrt{R_5}-C_5R_3\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_3+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_1\sqrt{R_5}+C_2R_3\sqrt{R_5}+C_3R_3\sqrt{R_5}+C_4R_3\sqrt{R_5}-C_5R_3\sqrt{R_5}}{C_2C_3R_1R_3\sqrt{R_5}}$ K-LP:  $-\frac{R_1R_6}{R_3-R_5}$ K-HP:  $\frac{C_5R_6}{C_2}$ K-BP:  $\frac{C_2}{C_2R_1R_5 + C_2R_3R_5 + C_3R_1R_5R_6}{C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5 - C_5R_3R_5}$ Qz: None Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

10.32 X-INVALID-WZ-32  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_3R_4R_6s^2 + C_5R_1R_4 + s\left(C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_2C_3C_6R_1R_3R_4s^2 + C_6R_3 + c_6R_4 + s\left(C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_4C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_3+R_4}}{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}+C_4R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_3+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{C_2R_1\sqrt{R_4}+C_2R_3\sqrt{R_4}+C_3R_3\sqrt{R_4}+C_4R_3\sqrt{R_4}-C_5R_3\sqrt{R_4}}{C_2C_3R_1R_3\sqrt{R_4}}$ K-LP:  $\frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}$ K-HP:  $\frac{C_5 R_6}{C_2}$ K-BP:  $\frac{C_2}{C_2C_6R_1+C_2C_6R_3+C_3C_6R_3+C_4C_6R_3-C_5C_6R_3} \\ \text{Qz: None}$ Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

**10.33** X-INVALID-WZ-33  $Z(s) = \left(R_1, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_6 + C_5R_1R_4R_5R_6\right)}{C_2C_3R_1R_3R_4R_5s^2 - R_3R_4 + R_3R_5 + R_4R_5 + s\left(C_2R_1R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5 + C_4R_3R_4R_5 - C_5R_3R_4R_5\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{-R_3}R_4 + R_3R_5 + R_4R_5}{C_2R_1\sqrt{R_4}\sqrt{R_5} + C_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_3\sqrt{R_4}\sqrt{R_5} + C_4R_3\sqrt{R_4}\sqrt{R_5} - C_5R_3\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_3}R_4 + R_3R_5 + R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_1\sqrt{R_4}\sqrt{R_5} + C_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_3\sqrt{R_4}\sqrt{R_5} + C_4R_3\sqrt{R_4}\sqrt{R_5} - C_5R_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_3\sqrt{R_4}\sqrt{R_5}}$ K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP:  $\frac{C_5R_6}{C_2}$ K-BP:  $\frac{C_3R_1R_3R_6 + C_5R_1R_5R_6}{C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5 - C_5R_3R_5}$ Oz: None

```
Wz: \frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}
```

**10.34** X-INVALID-WZ-34 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_5C_6R_1R_4R_6\right)}{-C_2C_5C_6R_2R_3R_4s^2 + C_6R_3 + C_6R_4 + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_4 + C_2C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

### Parameters:

Q:  $-\frac{i\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}}{C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4-C_5R_3R_4}$  wo:  $\frac{\sqrt{-R_3-R_4}}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{i\sqrt{-R_3-R_4}(C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4-C_5R_3R_4)}{C_2C_5R_2R_3R_4\sqrt{R_3+R_4}}$ 

K-LP:  $\frac{C_5R_1R_4}{C_6R_3+C_6R_4}$ K-HP:  $-\frac{R_1R_6}{R_3}$ 

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}$ 

# **10.35** X-INVALID-WZ-35 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^2\left(C_2C_5C_6R_1R_4R_5 - C_2C_5C_6R_2R_3R_4 + C_2C_5C_6R_2R_4R_5 + C_2C_5C_6R_2R_4R_5\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_4 + C_2C_6R_3R_4 + C_5C_6R_3R_4 +$$

#### Parameters:

 $Q: \frac{\sqrt{C_2}\sqrt{C_5}R_1R_4R_5\sqrt{R_3}+R_4}{\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2}\sqrt{C_5}R_2R_3R_4\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3}+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{R_3}+R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{+\sqrt{C_2}\sqrt{C_5}R_3R_4+C_5$ 

wo:  $\sqrt{R_3 + R_4} \sqrt{\frac{1}{C_2 C_5 R_1 R_4 R_5 - C_2 C_5 R_2 R_3 R_4 + C_2 C_5 R_2 R_3 R_5 + C_2 C_5 R_2 R_4 R_5 + C_2 C_5 R_3 R_4 R_5}$ 

 $\frac{\sqrt{R_3 + R_4} (C_2 R_1 R_4 + C_2 R_2 R_4 + C_2 R_3 R_4 - C_5 R_3 R_4 + C_5 R_5 R_4 + C_5 R_5 R_4 + C_5 R_5 R_5 + C_5 R_5 R_5$ 

K-LP:  $\frac{C_5 R_1 R_4}{C_6 R_3 + C_6 R_4}$ 

 $\begin{array}{l} \text{K-HP:} \ \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP:} \ \frac{C_2C_5R_1R_2R_4+C_5C_6R_1R_4R_6}{C_2C_6R_2R_3+C_2C_6R_2R_4+C_2C_6R_3R_4-C_5C_6R_3R_4+C_5C_6R_3R_5+C_5C_6R_4R_5} \\ \text{Qz:} \ \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}$ 

# **10.36** X-INVALID-WZ-36 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_2C_5R_1R_2R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_5R_1R_4R_5R_6\right)}{-C_2C_5R_2R_3R_4R_5s^2 - R_3R_4 + R_3R_5 + R_4R_5 + s\left(C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_2R_2R_4R_5 + C_2R_3R_4R_5 - C_5R_3R_4R_5\right)}$$

## Parameters:

Q:  $-\frac{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_3R_4-R_3R_5-R_4R_5}}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5-C_5R_3R_4R_5}$  wo:  $\frac{\sqrt{R_3R_4-R_3R_5-R_4R_5}}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $-\frac{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5-C_5R_3R_4R_5}{C_2C_5R_2R_3R_4R_5}$ 

K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP:  $-\frac{R_1R_6}{R_3}$ 

K-BP:  $\frac{C_2R_1R_2R_4R_6+C_5R_1R_4R_5R_6}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5-C_5R_3R_4R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}}$ 

10.37 X-INVALID-WZ-37 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_5C_6R_1R_2R_6s^2 + C_5R_1 + s\left(C_2C_5R_1R_2 + C_5C_6R_1R_6\right)}{C_6 + s^2\left(C_2C_4C_6R_2R_3 - C_2C_5C_6R_2R_3\right) + s\left(C_2C_6R_1 + C_2C_6R_2 + C_2C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$$

$$\begin{array}{l} Q\colon \frac{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}{C_2R_1+C_2R_2+C_2R_3+C_4R_3-C_5R_3}\\ \text{wo: } \sqrt{\frac{1}{C_2C_4R_2R_3-C_2C_5R_2R_3}}\\ \text{bandwidth: } \frac{(C_2R_1+C_2R_2+C_2R_3+C_4R_3-C_5R_3)\sqrt{\frac{1}{C_2C_4R_2R_3-C_2C_5R_2R_3}}}{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: } \frac{C_5R_1}{C_6}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3}\\ \text{K-BP: } \frac{C_2C_5R_1R_2+C_5C_6R_1R_6}{C_2C_6R_1+C_2C_6R_2+C_2C_6R_3+C_4C_6R_3-C_5C_6R_3}\\ \text{Qz: None} \end{array}$$

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}$ 

# **10.38** X-INVALID-WZ-38 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_2C_5R_1R_2R_5R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^2\left(C_2C_4R_2R_3R_5 - C_2C_5R_2R_3R_5\right) + s\left(C_2R_1R_5 - C_2R_2R_3 + C_2R_2R_5 + C_2R_3R_5 + C_4R_3R_5 - C_5R_3R_5\right)}$$

### Parameters:

$$\begin{array}{l} Q\colon \frac{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}\sqrt{-\frac{R_3}{C_4-C_5}}+\frac{R_5}{C_4-C_5}}{C_2R_1R_5-C_2R_2R_3+C_2R_2R_5+C_2R_3R_5+C_4R_3R_5-C_5R_3R_5}\\ \text{Wo:} \frac{-R_3+R_5}{\sqrt{\frac{-R_3+R_5}{C_2C_4R_2R_3R_5-C_2C_5R_2R_3R_5}}}\\ \text{bandwidth:} \frac{\sqrt{\frac{-R_3+R_5}{C_2C_4R_2R_3R_5-C_2C_5R_2R_3R_5}}}{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}\sqrt{-\frac{R_3}{C_4-C_5}}+\frac{R_5}{C_4-C_5}}}{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}\sqrt{-\frac{R_3}{C_4-C_5}+\frac{R_5}{C_4-C_5}}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{R_3}{C_4-C_5}+\frac{R_5}{C_4-C_5}}}\\ \text{K-LP:} \frac{R_1R_6}{R_3-R_5}\\ \text{K-HP:} \frac{C_5R_1R_6}{C_4R_3-C_5R_3}\\ \text{K-BP:} \frac{C_2R_1R_2R_6+C_5R_1R_5R_6}{C_2R_1R_5-C_2R_2R_3+C_2R_2R_5+C_2R_3R_5}\\ \text{Qz:} \text{ None} \\ \text{Wz:} \frac{1}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}} \sqrt{R_5} \sqrt{-\frac{R_3}{C_4-C_5}+\frac{R_5}{C_4R_3R_5-C_5R_3R_5}}\\ \end{array}$$

## **10.39** X-INVALID-WZ-39 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_2C_4R_1R_2R_4R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_4R_1R_4R_6\right)}{-R_3 + R_5 + s^2\left(C_2C_4R_1R_4R_5 - C_2C_4R_2R_3R_4 + C_2C_4R_2R_3R_5 + C_2C_4R_2R_4R_5 + C_2C_4R_3R_4R_5\right) + s\left(C_2R_1R_5 - C_2R_2R_3 + C_2R_2R_5 + C_2R_3R_5 - C_4R_3R_4 + C_4R_3R_5 + C_4R_4R_5\right)}$$

## Parameters:

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}}$ 

$$Q: \frac{\sqrt{C_2}\sqrt{C_4}R_1R_4R_5\sqrt{-\frac{R_3}{R_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{R_3}{R_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_3}{R_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5\sqrt{-\frac{R_3}{R_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+C_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+C_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+C_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+C_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_2R_4R_5} + \sqrt{C_2}\sqrt{C_4}R_2R_3R_5+R$$

541

**10.40** X-INVALID-WZ-40 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^2\left(C_2C_4C_6R_2R_3R_4 - C_2C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_4 + C_2C_6R_3R_4 + C_4C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

$$\begin{array}{l} Q\colon \frac{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}}{C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4}\\ \text{wo: } \sqrt{R_3+R_4}\sqrt{\frac{1}{C_2C_4R_2R_3R_4-C_2C_5R_2R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{R_3+R_4}(C_2R_1R_4+C_2R_2R_3+C_2R_2R_4+C_2R_3R_4+C_4R_3R_4-C_5R_3R_4)\sqrt{\frac{1}{C_2C_4R_2R_3R_4-C_2C_5R_2R_3R_4}}}{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_4-C_5}}}\\ \text{K-LP: } \frac{C_5R_1R_4}{C_6R_3+C_6R_4}\\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3}\\ \text{K-BP: } \frac{C_2C_5R_1R_2R_4+C_5C_6R_1R_4R_6}{C_2C_6R_2R_4+C_2C_6R_2R_4+C_2C_6R_3R_4+C_4C_6R_3R_4-C_5C_6R_3R_4}\\ \text{Qz: None}\\ \text{Wz: } \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}} \end{array}$$

# 10.41 X-INVALID-WZ-41 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_2C_5R_1R_2R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_5R_1R_4R_5R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_4R_2R_3R_4R_5 - C_2C_5R_2R_3R_4R_5\right) + s\left(C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_2R_2R_4R_5 + C_2R_3R_4R_5 + C_4R_3R_4R_5 - C_5R_3R_4R_5\right)}$$

### Parameters:

$$Q: \frac{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}\sqrt{-\frac{R_3R_4}{C_4-C_5} + \frac{R_3R_5}{C_4-C_5}} - \sqrt{C_2C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}\sqrt{-\frac{R_3R_4}{C_4-C_5} + \frac{R_3R_5}{C_4-C_5}} + \frac{R_4R_5}{C_4-C_5}}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5-C_5R_3R_4R_5} \\ wo: \sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_2C_4R_2R_3R_4R_5-C_2C_5R_2R_3R_4R_5}} \\ bandwidth: \frac{\sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_2C_4R_2R_3R_4R_5-C_2C_5R_2R_3R_4R_5}}(C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5-C_5R_3R_4R_5)}{\sqrt{C_2C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_4-C_5}} + \frac{R_3R_5}{C_4-C_5} + \frac{R_4R_5}{C_4-C_5}}} \\ k-LP: -\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_4R_5+C_4R_3R_4R_5-C_5R_3R_4R_5} \\ k-HP: \frac{C_5R_1R_6}{C_4R_3-C_5R_3} \\ k-BP: \frac{C_2R_1R_2R_4R_6+C_5R_1R_4R_5R_6}{C_2R_1R_4R_5-C_2R_2R_4R_5+C_4R_3R_4R_5-C_5R_3R_4R_5}}{C_2R_1R_4R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5-C_5R_3R_4R_5} \\ wz: \sqrt{\frac{1}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_4-C_5}} + \frac{R_4R_5}{C_4-C_5}}} \\ vz: None \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}} \end{aligned}$$

## 10.42 X-INVALID-WZ-42 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5\right)}$$

$$\begin{array}{l} \mathrm{Q:} -\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{-R_4+R_5}}{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5} \\ \mathrm{wo:} \ \frac{\sqrt{-R_4+R_5}}{\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5}} \\ \mathrm{bandwidth:} \ -\frac{C_2R_2R_4-C_2R_2R_5-C_2R_4R_5-C_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5}} \\ \mathrm{K-LP:} \ -\frac{C_3R_1R_4}{C_6R_4-C_6R_5} \\ \mathrm{K-HP:} \ \frac{R_1R_2R_6}{R_1R_5+R_2R_5} \\ \mathrm{K-BP:} \ \frac{R_1R_2R_6}{C_2C_6R_2R_4-C_2C_6R_2R_5-C_2C_6R_4R_5-C_3C_6R_4R_5} \\ \mathrm{Qz:} \ \mathrm{None} \\ \mathrm{Wz:} \ \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}} \end{array}$$

**10.43** X-INVALID-WZ-43 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 - C_2C_5C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 - C_5C_6R_4R_5\right)}$$

$$Q: \frac{-\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}}{C_2R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}} + \sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}} \\ wo: \sqrt{\frac{-R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5-C_2C_5R_2R_4R_5}} \\ bandwidth: \frac{-\frac{R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5-C_2C_5R_2R_4R_5}}{-\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}} - \sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}} + \sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2-C_5R_2}} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}} \\ K-LP: -\frac{C_3R_1R_4}{C_6R_4-C_6R_5} \\ K-HP: \frac{C_3C_5R_1R_2}{C_3C_5R_1+C_3C_6R_2-C_5C_6R_2}}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2} - \frac{R_4}{C_5C_5R_2+C_5C_6R_4R_5} - \frac{R_5}{C_3C_5R_1+C_3R_2-C_5R_2} + \frac{R_5}{C_3R_1+C_3R_2-C_5R_2}} {-\frac{C_2C_3R_1R_2R_4-C_2C_5R_2R_5-C_2C_6R_4R_5-C_3C_6R_4R_5-C_3C_6R_4R_5}}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}} \\ Wz: \frac{1}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}}$$

# **10.44** X-INVALID-WZ-44 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3C_6R_1R_2R_6s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_6R_1R_6\right)}{-C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5\right)}$$

## Parameters:

$$\begin{array}{l} \text{Q:} -\frac{i\sqrt{C_2}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_2R_2-C_2R_5-C_3R_5-C_4R_5} \\ \text{wo:} \ \frac{i}{\sqrt{C_2C_3R_1R_5+C_2C_3R_2R_5+C_2C_4R_2R_5}} \\ \text{bandwidth:} -\frac{C_2R_2-C_2R_5-C_3R_5-C_4R_5}{\sqrt{C_2}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_2C_3R_1R_5+C_2C_3R_2R_5+C_2C_4R_2R_5}} \\ \text{K-LP:} -\frac{C_3R_1}{C_6} \\ \text{K-HP:} \ \frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5} \\ \text{K-BP:} \ \frac{-C_2C_3R_1R_2-C_3C_6R_1R_6}{C_2C_6R_2-C_2C_6R_5-C_3C_6R_5-C_4C_6R_5} \\ \text{Qz:} \ \text{None} \\ \text{Wz:} \ \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}} \end{array}$$

# 10.45 X-INVALID-WZ-45 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_5C_6R_1R_5 + C_2C_3C_5C_6R_2R_5 + C_2C_4C_5C_6R_2R_5\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_4C_6R_2 - C_2C_5C_6R_2 + C_2C_5C_6R_5 + C_3C_5C_6R_5 + C_4C_5C_6R_5\right)}$$

### Parameters:

```
Q: \frac{\nabla_{2}\nabla_{3}R_{1} + C_{2}C_{3}R_{2} + C_{2}C_{4}R_{2} - C_{2}C_{5}R_{2} + C_{2}C_{5}R_{5} + C_{4}C_{5}R_{5}}{\nabla_{2}C_{3}C_{5}R_{1}R_{5} + C_{2}C_{3}C_{5}R_{2} + C_{2}C_{4}C_{5}R_{2}R_{5}}
wo: \frac{\nabla_{2}\nabla_{2}\nabla_{3}C_{5}R_{1}R_{5} + C_{2}C_{3}C_{5}R_{2}R_{5} + C_{2}C_{4}C_{5}R_{2}R_{5}}{\nabla_{2}\nabla_{2}\nabla_{5}\nabla_{8}\nabla_{5}\nabla_{3}R_{1} + C_{2}C_{3}R_{2} + C_{2}C_{4}R_{2} - C_{2}C_{5}R_{2} + C_{2}C_{5}R_{5} + C_{3}C_{5}R_{5} + C_{4}C_{5}R_{5}}{\nabla_{2}\nabla_{2}\nabla_{5}\nabla_{8}\nabla_{5}\nabla_{3}R_{1} + C_{3}R_{2} + C_{4}R_{2}\nabla_{2}C_{2}C_{3}C_{5}R_{1}R_{5} + C_{2}C_{3}C_{5}R_{2}R_{5} + C_{2}C_{4}C_{5}R_{2}R_{5}}
K-LP: \frac{C_{3}C_{5}R_{1}}{C_{2}C_{6} + C_{3}C_{6} + C_{4}C_{6} - C_{5}C_{6}}}{C_{3}R_{1}R_{2}R_{6}}
K-HP: \frac{C_{3}R_{1}R_{2}R_{6}}{C_{3}R_{1}R_{5} + C_{3}R_{2}R_{5} + C_{4}R_{2}R_{5}}}{C_{2}C_{3}C_{5}R_{1}R_{2} + C_{3}C_{5}C_{6}R_{1}R_{6}}}
K-BP: \frac{C_{2}C_{3}C_{6}R_{1} + C_{2}C_{3}C_{6}R_{2} + C_{2}C_{5}C_{6}R_{2} + C_{2}C_{5}C_{6}R_{5} + C_{4}C_{5}C_{6}R_{5}}}{C_{2}C_{3}C_{6}R_{1} + C_{2}C_{3}C_{6}R_{2} + C_{2}C_{5}C_{6}R_{2} + C_{2}C_{5}C_{6}R_{5} + C_{4}C_{5}C_{6}R_{5}}}
Qz: None
Wz: \frac{1}{\sqrt{C_{2}}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{6}}}}
```

**10.46** X-INVALID-WZ-46  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_1R_2R_5s^2 + C_3R_1 + s\left(C_2C_3R_1R_2 + C_3C_5R_1R_5\right)}{-C_6 + s^2\left(C_2C_3C_6R_1R_5 + C_2C_3C_6R_2R_5 + C_2C_4C_6R_2R_5 - C_2C_5C_6R_2R_5\right) + s\left(-C_2C_6R_2 + C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5\right)}$$

```
\mathbf{Q} \colon \frac{-\sqrt{C_2}C_3R_1\sqrt{R_5}\sqrt{-\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}-\sqrt{C_2}C_3R_2\sqrt{R_5}\sqrt{-\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}-\sqrt{C_2}C_4R_2\sqrt{R_5}\sqrt{-\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_5}\sqrt{-\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}-\frac{1}{C_2R_2-C_2R_5-C_3R_5-C_4R_5+C_5R_5}
Wo: \sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_2R_5+C_2C_4R_2R_5-C_2C_5R_2R_5}}
                                                                                             \sqrt{-\frac{1}{C_{2}C_{3}R_{1}R_{5}+C_{2}C_{3}R_{2}R_{5}+C_{2}C_{4}R_{2}R_{5}-C_{2}C_{5}R_{2}R_{5}}}(C_{2}R_{2}-C_{2}R_{5}-C_{3}R_{5}-C_{4}R_{5}+C_{5}R_{5})
 \begin{array}{l} \text{K-HP:} \ \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2} \\ \text{K-BP:} \ \frac{-C_2C_3R_1R_2-C_3C_5R_1R_5}{C_2C_6R_2-C_2C_6R_5-C_3C_6R_5-C_4C_6R_5+C_5C_6R_5} \\ \text{Qz:} \ \text{None} \end{array} 
Wz: \frac{1}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}}
```

## 10.47 X-INVALID-WZ-47 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_2C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_4C_5R_1R_4\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_2R_4 - C_2C_4C_5C_6R_2R_4\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_4C_6R_2 + C_2C_4C_6R_4 - C_2C_5C_6R_2 + C_3C_4C_6R_4 - C_4C_5C_6R_4\right)}$ 

#### Parameters:

```
Q: \frac{\sqrt{C_2C_3\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{C_2}{C_3R_1+C_3R_2-C_5R_2}} + \frac{C_3}{C_3R_1+C_3R_2-C_5R_2} + \frac{C_4}{C_3R_1+C_3R_2-C_5R_2} + \frac{C_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{C_5}{C_3R_1+C_3R_2-C_5R_2} + \frac{C_5}{C_3R_1+C_3R_2-C_5R_2} - \frac{C_5}{C_3R_1+C_3R_2-C_5R_2} 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             \frac{C_2 + C_3 + C_4 - C_5}{C_2 C_3 C_4 R_1 R_4 + C_2 C_3 C_4 R_2 R_4 - C_2 C_4 C_5 R_2 R_4} (C_2 C_3 R_1 + C_2 C_3 R_2 + C_2 C_4 R_2 + C_2 C_4 R_4 - C_2 C_5 R_2 + C_3 C_4 R_4 - C_4 C_5 R_4)
\frac{\sqrt{\frac{C_2C_3C_4R_1R_4+C_2C_3C_4R_2R_4-C_2C_4C_5R_2+C_3}{C_2C_3C_4R_1\sqrt{R_4}\sqrt{\frac{C_2}{C_3R_4+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}+\frac{C_3}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R_2}-\frac{C_5}{C_3R_1+C_3R_2-C_5R
```

 $\begin{array}{l} \text{K-LP: } \frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6} \\ \text{K-HP: } \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2} \\ \text{K-BP: } \frac{C_2C_3C_5R_1R_2+C_3C_4C_5R_1R_4}{C_2C_3C_6R_1+C_2C_3C_6R_2+C_2C_4C_6R_2+C_2C_5C_6R_2+C_3C_4C_6R_4-C_4C_5C_6R_4} \end{array}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}}$ 

**10.48** X-INVALID-WZ-48  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_4C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5\right)}$ 

### Parameters:

W0:  $\frac{\sqrt{-R_4 + R_5}}{\sqrt{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_2 R_4 R_5 + C_2 C_4 R_2 R_4 R_5}}$ bandwidth:  $-\frac{C_2 R_2 R_4 - C_2 R_2 R_5 - C_2 R_4 R_5 - C_3 R_4 R_5 - C_4 R_4 R_5}{\sqrt{C_2} \sqrt{R_4} \sqrt{R_5} \sqrt{C_3 R_1 + C_3 R_2 + C_4 R_2} \sqrt{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_2 R_4 R_5}}$ K-LP:  $-\frac{C_3 R_1 R_4}{C_6 R_4 - C_6 R_5}$ K-HP:  $\frac{C_3 R_1 R_2 R_6}{C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5}$   $-C_2 C_3 R_1 R_2 R_4 - C_3 C_6 R_1 R_4 R_6}{C_3 R_1 R_2 R_4 - C_3 C_6 R_1 R_4 R_6}$ K-BP:  $\frac{-C_2C_3R_1R_2R_4 - C_3C_6R_1R_4R_6}{C_2C_6R_2R_4 - C_2C_6R_2R_5 - C_2C_6R_4R_5 - C_3C_6R_4R_5 - C_4C_6R_4R_5}$  Qz: None Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}$ 

**10.49** X-INVALID-WZ-49  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_2C_3C_5R_1R_2R_4R_5s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_5R_1R_4R_5\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 + C_2C_3C_6R_2R_4R_5 + C_2C_4C_6R_2R_4R_5 - C_2C_5C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_4C_6R_4R_5 - C_5C_6R_4R_5\right)}$ 

#### Parameters:

Wo:  $\sqrt{\frac{-R_4+R_5}{C_2C_3R_1R_4R_5+C_2C_3R_2R_4R_5+C_2C_4R_2R_4R_5-C_2C_5R_2R_4R_5}}$  $\sqrt{\frac{-R_4 + R_5}{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_2 R_4 R_5 + C_2 C_4 R_2 R_4 R_5 - C_2 C_5 R_2 R_4 R_5}} (C_2 R_2 R_4 - C_2 R_2 R_5 - C_2 R_4 R_5 - C_3 R_4 R_5 - C_4 R_4 R_5 + C_5 R_4 R_5)$  $-\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\frac{R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_4R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\frac{R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3R_1+C_3R_2+C_4$ 

```
 \begin{aligned} & \text{K-LP:} - \frac{C_3 R_1 R_4}{C_6 R_4 - C_6 R_5} \\ & \text{K-HP:} \quad \frac{C_3 C_5 R_1 R_2}{C_3 C_6 R_1 + C_3 C_6 R_2 + C_4 C_6 R_2 - C_5 C_6 R_2} \\ & \text{K-BP:} \quad \frac{-C_2 C_3 R_1 R_2 R_4 - C_3 C_5 R_1 R_4 R_5}{C_2 C_6 R_2 R_4 - C_2 C_6 R_2 R_5 - C_2 C_6 R_4 R_5 - C_3 C_6 R_4 R_5 - C_4 C_6 R_4 R_5 + C_5 C_6 R_4 R_5} \\ & \text{Qz: None} \\ & \text{Wz:} \quad \frac{1}{\sqrt{C_2 \sqrt{C_5} \sqrt{R_2} \sqrt{R_5}}} \end{aligned}
```

# 10.50 X-INVALID-WZ-50 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_2C_3C_6R_1R_2R_4R_6s^2 + C_3R_1R_4 + s\left(C_2C_3R_1R_2R_4 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_4R_5 - C_2C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_4R_5 + C_2C_3C_6R_2R_4R_5\right) + s\left(-C_2C_6R_2R_4 + C_2C_6R_2R_5 + C_2C_6R_4R_5 - C_3C_6R_3R_4 + C_3C_6R_3R_5 + C_3C_6R_4R_5\right)}$ 

#### Parameters:

```
 \begin{array}{c} \text{Q:} \frac{R_4}{-\sqrt{C_2\sqrt{C_3}}R_1R_4R_5\sqrt{-\frac{R_4}{E_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_3R_4\sqrt{-\frac{R_4}{E_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_3R_5\sqrt{-\frac{R_4}{E_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_3R_5\sqrt{-\frac{R_4}{E_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_3R_5\sqrt{-\frac{R_4}{E_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_3R_5\sqrt{-\frac{R_4}{E_1R_4R_5-R_2}R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_3R_5\sqrt{-\frac{R_4}{E_1R_4}R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_4R_5+R_3R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_4R_5+R_3R_4R_5} - \sqrt{C_2\sqrt{C_3}}R_2R_4R_5+R_3R_4R_5} - \sqrt{C_
```

10.51 X-INVALID-WZ-51  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_2C_3C_4C_6R_2R_3 - C_2C_3C_5C_6R_2R_3\right) + s\left(C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_3C_6R_3 + C_2C_4C_6R_2 - C_2C_5C_6R_2 + C_3C_4C_6R_3 - C_3C_5C_6R_3\right)}$$

#### Parameters:

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}$ 

```
 Q: \frac{\sqrt{C_2}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{C_2}{C_4-C_5} + \frac{C_3}{C_4-C_5} + \frac{C_4}{C_4-C_5} - \frac{C_5}{C_4-C_5}}}{C_2C_3R_1 + C_2C_3R_2 + C_2C_3R_3 + C_2C_4R_2 - C_2C_5R_2 + C_3C_4R_3 - C_3C_5R_3} } \\ wo: \sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2C_3C_4R_2R_3 - C_2C_3C_5R_2R_3}}} \\ bandwidth: \frac{\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2C_3C_4R_2R_3 - C_2C_3C_5R_2R_3}}}{\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2C_3C_4R_2R_3 - C_2C_3C_5R_2R_3}}} (C_2C_3R_1 + C_2C_3R_2 + C_2C_3R_3 + C_2C_4R_2 - C_2C_5R_2 + C_3C_4R_3 - C_3C_5R_3)} \\ bandwidth: \frac{\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2C_3C_4R_2R_3 - C_2C_3C_5R_2R_3}}}}{\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_2C_3C_4R_2R_3 - C_2C_3C_5R_2R_3}}} (C_2C_3R_1 + C_2C_3R_3 + C_2C_4R_2 - C_2C_5R_2 + C_3C_4R_3 - C_3C_5R_3)} \\ c_2C_3C_3C_4C_4C_5 + \frac{C_4}{C_4C_5} + \frac{C_4}{C_4-C_5} - \frac{C_5}{C_4-C_5}} - \sqrt{C_2}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}}\sqrt{\frac{C_2}{C_4-C_5}} + \frac{C_4}{C_4-C_5} - \frac{C_5}{C_4-C_5}} \\ k-HP: \frac{C_3C_5R_1}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6}}{C_4R_3 - C_5R_3} \\ k-BP: \frac{C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6}{C_2C_3C_6R_2 + C_2C_3C_6R_3 + C_2C_4C_6R_2 - C_2C_5C_6R_2 + C_3C_4C_6R_3 - C_3C_5C_6R_3}} \\ k-BP: \frac{C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6}{C_2C_3C_6R_2 + C_2C_3C_6R_3 + C_2C_4C_6R_2 - C_2C_5C_6R_2 + C_3C_4C_6R_3 - C_3C_5C_6R_3}}{C_2C_3\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}}} \\ wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6}\sqrt{C_6
```

**10.52** X-INVALID-WZ-52  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$ 

$$H(s) = \frac{C_2C_3R_1R_2R_3R_4R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_3R_1R_3R_4R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_3R_2R_3R_4R_5\right) + s\left(C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_2R_2R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5\right)}$$

```
\begin{array}{l} \text{Q: } \frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_3R_3R_4R_5}\\ \text{wo: } \frac{\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{\sqrt{C_2C_3R_1R_3R_4R_5+C_2C_3R_2R_3R_4+C_2R_2R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5}\\ \text{bandwidth: } \frac{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_2R_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_3}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_2C_3R_1R_3R_4R_5+C_2C_3R_2R_3R_4R_5}}\\ \text{K-LP: } -\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}\\ \text{K-HP: } \frac{R_1R_2R_6}{R_1R_5+R_2R_5}\\ \text{K-BP: } \frac{C_2R_1R_2R_4R_6+C_3R_1R_3R_4R_6}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_3R_3R_4R_5}\\ \text{Qz: None}\\ \text{Wz: } \frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}} \end{array}
```

**10.53** X-INVALID-WZ-53 
$$Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4\right)}{C_6R_3 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_3R_4 + C_2C_3C_6R_2R_3R_4 - C_2C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

# **10.54** X-INVALID-WZ-54 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_2C_3R_1R_2R_3R_6s^2 + R_1R_6 + s\left(C_2R_1R_2R_6 + C_3R_1R_3R_6\right)}{-R_3 + R_5 + s^2\left(C_2C_3R_1R_3R_5 + C_2C_3R_2R_3R_5 + C_2C_4R_2R_3R_5\right) + s\left(C_2R_1R_5 - C_2R_2R_3 + C_2R_2R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5\right)}$$

## Parameters:

```
\begin{array}{l} \text{Q: } \frac{\sqrt{C_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-R_3+R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}}{C_2R_1R_5-C_2R_2R_3+C_2R_3R_5+C_2R_3R_5+C_3R_3R_5+C_4R_3R_5} \\ \text{wo: } \frac{\sqrt{-R_3+R_5}}{\sqrt{C_2C_3R_1R_3R_5+C_2C_3R_2R_3R_5+C_2C_4R_2R_3R_5}} \\ \text{bandwidth: } \frac{C_2R_1R_5-C_2R_2R_3+C_2R_2R_5+C_2R_3R_5+C_3R_3R_5+C_4R_3R_5}{\sqrt{C_2}\sqrt{R_3}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_2C_3R_1R_3R_5+C_2C_3R_2R_3R_5+C_2C_4R_2R_3R_5}} \\ \text{K-LP: } -\frac{R_1R_6}{R_3-R_5} \\ \text{K-HP: } \frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5} \\ \text{K-BP: } \frac{C_2R_1R_2R_6+C_3R_1R_3R_6}{C_2R_1R_2R_6+C_3R_2R_3+C_2R_3R_5+C_4R_3R_5} \\ \text{Qz: None} \\ \text{Wz: } \frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}} \end{array}
```

**10.55** X-INVALID-WZ-55  $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_2C_3C_5R_1R_2R_3s^2 + C_5R_1 + s\left(C_2C_5R_1R_2 + C_3C_5R_1R_3\right)}{C_6 + s^2\left(C_2C_3C_6R_1R_3 + C_2C_3C_6R_2R_3 + C_2C_4C_6R_2R_3 - C_2C_5C_6R_2R_3\right) + s\left(C_2C_6R_1 + C_2C_6R_2 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$$

$$Q: \frac{\sqrt{C_2}C_3R_1\sqrt{R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_4R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} - \sqrt{C_2}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} } {C_2R_1+C_2R_2+C_2R_3+C_3R_3+C_4R_3-C_5R_3} \\ wo: \sqrt{\frac{1}{C_2C_3R_1R_3+C_2C_3R_2R_3+C_2C_4R_2R_3-C_2C_5R_2R_3}} \\ bandwidth: \frac{(C_2R_1+C_2R_2+C_2R_3+C_3R_3+C_4R_3-C_5R_3)\sqrt{\frac{1}{C_2C_3R_1R_3+C_2C_3R_2R_3+C_2C_5R_2R_3}} }{\sqrt{C_2C_3R_1\sqrt{R_3}}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_2}C_4R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2R_3-C_2C_5R_2R_3}} } \\ K-LP: \frac{C_5R_1}{C_6} \\ K-HP: \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}} \\ K-BP: \frac{C_2C_5R_1R_2}{C_2C_6R_1+C_2C_6R_2+C_2C_6R_3+C_3C_6R_3} + C_4C_6R_3-C_5C_6R_3} {C_2C_5R_1R_3+C_4C_6R_3-C_5C_6R_3} \\ Qz: None \\ Wz: \frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}}} \end{aligned}$$

```
10.56 X-INVALID-WZ-56 Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)
```

$$H(s) = \frac{C_2C_3R_1R_2R_3R_4R_6s^2 + R_1R_4R_6 + s\left(C_2R_1R_2R_4R_6 + C_3R_1R_3R_4R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_2C_3R_1R_3R_4R_5 + C_2C_3R_2R_3R_4R_5 + C_2C_4R_2R_3R_4R_5\right) + s\left(C_2R_1R_4R_5 - C_2R_2R_3R_4 + C_2R_2R_3R_5 + C_2R_2R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5 + C_4R_3R_4R_5\right)}$$

Q:  $\frac{\sqrt{C_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{-R_3R_4+R_3R_5+R_4R_5}}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_3R_3R_4R_5+C_4R_3R_4R_5}$ wo:  $\frac{\sqrt{-R_3}R_4+R_3R_5+R_4R_5}{\sqrt{C_2C_3R_1R_3R_4R_5+C_2C_3R_2R_3R_4+C_2C_4R_2R_3R_4R_5}}$ bandwidth:  $\frac{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_3R_5+C_2R_2R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5}{\sqrt{C_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_2}C_3R_1R_3R_4R_5+C_2C_3R_2R_3R_4+C_2C_4R_2R_3R_4R_5}}$ K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}$ K-BP:  $\frac{C_2R_1R_2R_4R_6+C_3R_1R_3R_4R_6}{C_2R_1R_4R_5-C_2R_2R_3R_4+C_2R_2R_4R_5+C_2R_3R_4R_5+C_4R_3R_4R_5}$ Qz: None
Wz:  $\frac{1}{R_2R_4R_5}$ 

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}}$ 

# 10.57 X-INVALID-WZ-57 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_2C_3C_5R_1R_2R_3R_4s^2 + C_5R_1R_4 + s\left(C_2C_5R_1R_2R_4 + C_3C_5R_1R_3R_4\right)}{C_6R_3 + C_6R_4 + s^2\left(C_2C_3C_6R_1R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_2C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_1R_4 + C_2C_6R_2R_3 + C_2C_6R_2R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_4C_6R_3R_4 - C_5C_6R_3R_4\right)}$$

## Parameters:

 $Q: \frac{\sqrt{C_2C_3R_1\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} + \sqrt{C_2C_3R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} + \sqrt{C_2C_4R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} - \sqrt{C_2C_5R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}} \\ - \sqrt{C_2C_3R_4\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}} - \sqrt{C_2C_5R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}}} \\ - \sqrt{C_2C_3R_4\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_4+C_4R_3R_4+C_4R_3R_4+C_5R_3R_4+C_5R_3R_4}}}} - \sqrt{C_2C_3R_3\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_4+C_4R_3R_4+C_4R_3R_4+C_5R_3R_4}}}} \\ - \sqrt{C_2C_3R_3\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_4+C_4R_3R_4+C_4R_3R_4+C_5R_3R_4+C_5R_3R_4}}}} \\ - \sqrt{C_2C_3R_3\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_4+C_4R_3R_4+C_4R_3R_4+C_5R_3R_4+C_5R_3R_4}}}} \\ - \sqrt{C_2C_3R_3\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_4+C_4R_3R_4+C_5R_3R_4+C_5R_3R_4}}}} - \sqrt{C_2C_3R_3\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_3R_4+C_4R_3R_4+C_5R_3R_4}}}}}$ 

 $\frac{\cdot}{\sqrt{R_3 + R_4}(C_2 R_1 R_4 + C_2 R_2 R_4 + C_2 R_3 R_4 + C_3 R_3 R_4 + C_4 R_3 R_4 - C_5 R_3 R_4)} \sqrt{\frac{1}{C_2 C_3 R_1 R_3 R_4 + C_2 C_3 R_2 R_3 R_4 + C_2 C_5 R_2 R_3 R_4}} \sqrt{\frac{1}{C_3 C_3 R_1 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} + \sqrt{C_2} C_3 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}} \sqrt{C_2} C_4 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}{2C_4 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}{2C_4 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}{2C_4 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}{2C_4 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}{2C_4 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}{2C_4 R_2 - C_5 R_2}}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}{2C_4 R_2 - C_5 R_2}}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_2 - C_5 R_2}}}} \sqrt{C_2} C_5 R_2 \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_3 R_4 - C_5 R_3}}}} \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_3 R_1 + C_3 R_2 + C_4 R_3 R_4 - C_5 R_3}}}} \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{C_3} R_4 \sqrt{R_3 +$  $\begin{array}{c} \text{K-LP: } \frac{C_5R_1R_4}{C_6R_3+C_6R_4} \\ \text{K-HP: } \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2} + \sqrt{C_2C_3}R_2\sqrt{R_3}\sqrt{R_4}\sqrt{R_5} \\ \text{K-BP: } \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2} \\ \text{K-BP: } \frac{C_2C_5R_1R_2R_4+C_3C_5R_1R_3R_4}{C_2C_6R_1R_4+C_2C_6R_2R_3+C_2C_6R_2R_4+C_2C_6R_3R_4+C_3C_6R_3R_4+C_4C_6R_3R_4-C_5C_6R_3R_4} \\ \text{Qz: None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}}$ 

# 10.58 X-INVALID-WZ-58 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_4C_5C_6R_1R_2R_4R_6s^2 + C_5R_1R_2 + s\left(C_4C_5R_1R_2R_4 + C_5C_6R_1R_2R_6\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_2C_4C_6R_1R_2R_4 + C_2C_4C_6R_2R_3R_4 - C_4C_5C_6R_2R_3R_4\right) + s\left(C_2C_6R_1R_2 + C_4C_6R_2R_3 + C_4C_6R_2R_3 + C_4C_6R_2R_4 + C_4C_6R_2R_4 + C_4C_6R_2R_4\right)}$$

### Parameters:

$$Q \colon \frac{C_2\sqrt{C_4}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + C_2\sqrt{C_4}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_4}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - C_2R_1R_2 + C_2R_2R_3 + C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3}{C_2R_1R_2 + C_2R_2R_3 + C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3}$$

wo:  $\sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_2 C_4 R_1 R_2 R_4 + C_2 C_4 R_2 R_3 R_4 - C_4 C_5 R_2 R_3 R_4}}$ 

 $\text{bandwidth: } \frac{\sqrt{R_1 + R_2 + R_3}(C_2R_1R_2 + C_2R_2R_3 + C_4R_1R_4 + C_4R_2R_3 + C_4R_2R_4 + C_4R_3R_4 - C_5R_2R_3)\sqrt{\frac{1}{C_2C_4R_1R_2R_4 + C_2C_4R_2R_3R_4 - C_4C_5R_2R_3R_4}}}{C_2\sqrt{C_4}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_1 + R_2 + R_3}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + C_2\sqrt{C_4}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_1 + R_2 + R_3}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - \sqrt{C_4}C_5\sqrt{R_2}R_3\sqrt{R_4}\sqrt{R_1 + R_2 + R_3}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}}}$ 

 $\begin{array}{l} \text{K-LP: } \frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3} \\ \text{K-HP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3} \end{array}$ 

K-BP:  $\frac{C_2R_1 + C_2R_3 - C_5R_3}{C_2C_6R_1R_2 + C_5C_6R_1R_2 + C_5C_6R_1R_2R_6}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

**10.59** X-INVALID-WZ-59 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3, R_4 + \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$$

$$H(s) = \frac{C_4C_5R_1R_2R_4R_5R_6s^2 + R_1R_2R_6 + s\left(C_4R_1R_2R_4R_6 + C_5R_1R_2R_5R_6\right)}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_2C_4R_1R_2R_4R_5 + C_2C_4R_2R_3R_4R_5 - C_4C_5R_2R_3R_4R_5\right) + s\left(C_2R_1R_2R_5 + C_2R_2R_3R_5 + C_4R_2R_3R_4 + C_4R_2R_3R_5 + C_4R_2R_4R_5 + C_4R_2R_4R_5 + C_5R_2R_3R_5\right)}$$

 $\underbrace{\frac{C_2\sqrt{C_4}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_5}{C_2R_1+C_2R_3-C_5R_3}-\frac{R_2R_3}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}-\frac{R_2R_3}{C_2R_1+C_2R_3-C_5R_3}-\frac{R_2R_3}{C_2R_1+C_2R_3-C_5R_3}-\frac{R_2R_3}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3-C_5R_3}-\frac{R_2R_3}{C_2R_1+C_2R_3-C_5R_3}+\frac{R_2R_5}{C_2R_1+C_2R_3 \frac{R_{1}R_{5}-R_{2}R_{3}+R_{2}R_{5}+R_{3}R_{5}}{C_{2}C_{4}R_{1}R_{2}R_{3}+C_{2}C_{4}R_{2}R_{3}R_{4}+C_{4}R_{2}R_{3}R_{5}+C_{4}R_{2}R_{$ 

K-BP:  $\frac{C_4R_1R_2R_4R_6+C_5R_1R_2R_5R_6}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_4R_1R_4R_5-C_4R_2R_3R_4+C_4R_2R_3R_5+C_4R_2R_4R_5+C_4R_3R_4R_5-C_5R_2R_3R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}}$ 

# **10.60** X-INVALID-WZ-60 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, R_4, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{C_2C_3C_6R_1R_2R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}-C_5R_2\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-R_2R_4+R_2R_5+R_4R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}-C_5R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_2}{C_2C_6R_2R_5+C_3C_6R_1R_2R_6} \\ \text{Qz: None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

# **10.61** X-INVALID-WZ-61 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_5R_6s^2 + C_3R_1R_2 + s\left(C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{C_2C_3C_6R_1R_2R_5s^2 - C_6R_2 + C_6R_5 + s\left(C_2C_6R_2R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5 - C_5C_6R_2R_5\right)}$$

#### **Parameters:**

Q:  $\frac{\sqrt{C_2\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2+R_5}}}{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}-C_5R_2\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_2+R_5}}{\sqrt{C_2\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_5}}}$  bandwidth:  $\frac{C_2R_2\sqrt{R_5}+C_3R_1\sqrt{R_5}+C_3R_2\sqrt{R_5}+C_4R_2\sqrt{R_5}-C_5R_2\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_5}}$ 

K-BP:  $\frac{C_2C_5R_1R_2R_5+C_3C_6R_1R_2R_6}{C_2C_6R_2R_5+C_3C_6R_1R_5+C_3C_6R_2R_5+C_4C_6R_2R_5-C_5C_6R_2R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

10.62 X-INVALID-WZ-62 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{C_2C_3C_6R_1R_2R_4R_5s^2 - C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s\left(C_2C_6R_2R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_4C_6R_2R_4R_5 - C_5C_6R_2R_4R_5\right)}$$

```
Q: \frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-R_2}R_4 + R_2R_5 + R_4R_5}{C_2R_2\sqrt{R_4}\sqrt{R_5} + C_3R_1\sqrt{R_4}\sqrt{R_5} + C_3R_2\sqrt{R_4}\sqrt{R_5} + C_4R_2\sqrt{R_4}\sqrt{R_5} - C_5R_2\sqrt{R_4}\sqrt{R_5}}
                   wo: \frac{\sqrt{-R_2R_4+R_5+C_3R_1+R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}} bandwidth: \frac{C_2R_2\sqrt{R_4}\sqrt{R_5}+C_3R_1\sqrt{R_4}\sqrt{R_5}+C_3R_2\sqrt{R_4}\sqrt{R_5}+C_4R_2\sqrt{R_4}\sqrt{R_5}-C_5R_2\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}
                \begin{array}{l} \text{K-LP:} \ -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5} \\ \text{K-HP:} \ \frac{C_5R_6}{C_2} \end{array}
                    K-BP: \frac{C_3C_5R_1R_2R_5+C_3C_6R_1R_2R_6}{C_2C_6R_2R_5+C_3C_6R_1R_5+C_3C_6R_2R_5+C_4C_6R_2R_5-C_5C_6R_2R_5} Qz: None
                  Wz: \frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}
10.63 X-INVALID-WZ-63 Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                        H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_3C_6R_2R_3R_4R_5 - C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_3R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_2R_3R_5 + C_3C_6R_3R_3R_5 + C_3C_6R_3R_5 + C_3C_6
          Parameters:
                    \frac{-R_2R_4+R_2R_5+R_4R_5}{\sqrt{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4R_5}}(C_2R_2R_4R_5+C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C
                   \begin{array}{l} \text{K-LP:} -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5} \\ \text{K-HP:} \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3} \end{array}
                  Wz: \frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}
10.64 X-INVALID-WZ-64 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                    H(s) = \frac{C_3C_5C_6R_1R_2R_5R_6s^2 + C_3R_1R_2 + s\left(C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^2\left(C_2C_3C_6R_1R_2R_5 + C_2C_3C_6R_2R_3R_5 + C_3C_4C_6R_2R_3R_5 - C_3C_5C_6R_2R_3R_5\right) + s\left(C_2C_6R_2R_5 + C_3C_6R_2R_3 + C_3C_6R_2R_3 + C_3C_6R_2R_5 + C_3C_6R_2R_5 + C_3C_6R_2R_5\right)}
          Parameters:
                     Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_5}\sqrt{-\frac{R_2}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}{C_2R_2R_3\sqrt{R_5}\sqrt{-\frac{R_2}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{R_5}\sqrt{-\frac{R_2}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_3}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C_4\sqrt{R_2}C
                    \frac{-R_2 + R_5}{\sqrt{C_2 C_3 R_1 R_2 R_5 + C_2 C_3 R_2 R_3 + C_3 C_5 R_2 R_3 F_5}} (C_2 R_2 R_5 + C_3 R_1 R_5 - C_3 R_2 R_3 + C_3 R_2 R_5 + C_3 R_3 R_5 + C_4 R_2 R_5 - C_5 R_2 R_5)}{C_2 \sqrt{C_3} R_1 \sqrt{R_2} \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_2 \sqrt{C_3} \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_3} C_4 \sqrt{R_2} R_3 \sqrt{R_5} \sqrt{-\frac{R_2}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + \sqrt{C_
                  \begin{array}{l} \text{K-LP:} \ -\frac{C_3R_1R_2}{C_6R_2-C_6R_5} \\ \text{K-HP:} \ \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} \\ \text{K-BP:} \ \frac{C_3C_5R_1R_2R_5+C_3C_6R_1R_2R_6}{C_2C_6R_2R_5+C_3C_6R_1R_5-C_3C_6R_2R_3+C_3C_6R_2R_5+C_3C_6R_3R_5+C_4C_6R_2R_5-C_5C_6R_2R_5} \\ \text{Qz: None} \end{array} 
                    Wz: \frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}
10.65 X-INVALID-WZ-65 Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6 + \frac{1}{C_6s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)
                                                 \overline{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_2C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4R_5 + C_3C_6R_2R_3R_4 + C_3C_6R_3R_4 + C_3C_6R_3R_
        Parameters:
                     Q: \frac{C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_2R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_2R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \sqrt{C_3}C_4\sqrt{R_2}Q_4\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \sqrt{C_3}C_4\sqrt{R_2}Q_4\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \frac{R_4R_5}{C_2R_1+C_2R_
                 \frac{-R_2R_4+R_2R_5+R_4R_5}{C_2C_3R_1R_2R_4R_5+C_2C_3R_2R_3R_4+C_3C_3R_2R_3R_4+C_3C_3R_2R_3R_4+C_3R_2R_3R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_3R_2R_4R_5+C_
```

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

# **10.66** X-INVALID-WZ-66 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_2C_3C_6R_1R_2R_3R_4s^2 + C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s\left(C_2C_6R_1R_2R_4 + C_2C_6R_2R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{C_2R_1R_2\sqrt{R_4}+C_2R_2R_3\sqrt{R_4}+C_3R_1R_3\sqrt{R_4}+C_3R_2R_3\sqrt{R_4}-C_5R_2R_3\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_1R_4+R_2R_3+R_2R_4+R_3R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{C_2R_1R_2\sqrt{R_4}+C_2R_2R_3\sqrt{R_4}+C_3R_1R_3\sqrt{R_4}+C_3R_2R_3\sqrt{R_4}-C_5R_2R_3\sqrt{R_4}}{C_2C_3R_1R_2R_3\sqrt{R_4}}$ 

 $\begin{array}{c} \text{K-LP:} \ \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4} \\ \text{K-HP:} \ \frac{C_5R_6}{C_2} \end{array}$ 

K-BP:  $\frac{C_2}{C_2C_6R_1R_2+C_2C_6R_2R_3+C_5C_6R_1R_2R_6}{Qz: \text{ None}}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

## **10.67** X-INVALID-WZ-67 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)}{C_2C_3R_1R_2R_3R_4R_5s^2 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s\left(C_2R_1R_2R_4R_5 + C_2R_2R_3R_4R_5 + C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 - C_5R_2R_3R_4R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1R_4R_5} - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{C_2R_1R_2\sqrt{R_4}\sqrt{R_5} + C_2R_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_1R_3\sqrt{R_4}\sqrt{R_5} + C_3R_2R_3\sqrt{R_4}\sqrt{R_5} - C_5R_2R_3\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{R_1R_4R_5} - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_2R_1R_2\sqrt{R_4}\sqrt{R_5} + C_2R_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_1R_3\sqrt{R_4}\sqrt{R_5} + C_3R_2R_3\sqrt{R_4}\sqrt{R_5} - C_5R_2R_3\sqrt{R_4}\sqrt{R_5}}{C_2C_3R_1R_2R_3\sqrt{R_4}\sqrt{R_5}}$  K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$  K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_2R_1R_2R_5+C_2R_2R_3R_6+C_5R_1R_2R_5R_6}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_3R_1R_3R_5+C_3R_2R_3R_5-C_5R_2R_3R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

# **10.68** X-INVALID-WZ-68 $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_5C_6R_1R_2R_6\right)}{C_2C_3C_6R_1R_2R_3s^2 + C_6R_1 + C_6R_2 + C_6R_3 + s\left(C_2C_6R_1R_2 + C_2C_6R_2R_3 + C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_4C_6R_2R_3 - C_5C_6R_2R_3\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}}{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}$  wo:  $\frac{\sqrt{R_1+R_2+R_3}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}}$  bandwidth:  $\frac{C_2R_1R_2+C_2R_2R_3+C_3R_1R_3+C_3R_2R_3+C_4R_2R_3-C_5R_2R_3}{C_2C_3R_1R_2R_3}$ 

K-LP:  $\frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_2C_5R_1R_2R_3+C_5C_6R_1R_2R_6}{C_2C_6R_1R_2+C_2C_6R_2R_3+C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3-C_5C_6R_2R_3}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

**10.69** X-INVALID-WZ-69 
$$Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_1R_2R_3R_5R_6s^2 + R_1R_2R_6 + s\left(C_3R_1R_2R_3R_6 + C_5R_1R_2R_5R_6\right)}{C_2C_3R_1R_2R_3R_5s^2 + R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s\left(C_2R_1R_2R_5 + C_2R_2R_3R_5 + C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_5 - C_5R_2R_3R_5\right)}$$

Q:  $\frac{\sqrt{C_2\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1R_5}-R_2R_3+R_2R_5+R_3R_5}}{C_2R_1R_2\sqrt{R_5}+C_2R_2R_3\sqrt{R_5}+C_3R_1R_3\sqrt{R_5}+C_3R_2R_3\sqrt{R_5}+C_4R_2R_3\sqrt{R_5}-C_5R_2R_3\sqrt{R_5}}}$ wo:  $\frac{\sqrt{R_1R_5-R_2R_3+R_2R_5+R_3R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}}$ bandwidth:  $\frac{C_2R_1R_2\sqrt{R_5}+C_2R_2R_3\sqrt{R_5}+C_3R_1R_3\sqrt{R_5}+C_3R_2R_3\sqrt{R_5}+C_4R_2R_3\sqrt{R_5}-C_5R_2R_3\sqrt{R_5}}{C_2C_3R_1R_2R_3\sqrt{R_5}}$ 

K-LP:  $\frac{R_1R_2R_6}{R_1R_5-R_2R_3+R_2R_5+R_3R_5}$  K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_3R_1R_2R_3R_6+C_5R_1R_2R_5R_6}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_2R_3R_5-C_5R_2R_3R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

10.70 X-INVALID-WZ-70  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_2C_3C_6R_1R_2R_3R_4s^2 + C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + c\left(C_3C_6R_1R_2R_4 + C_2C_6R_2R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$$

### Parameters:

Q:  $\frac{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}{C_2R_1R_2\sqrt{R_4} + C_2R_2R_3\sqrt{R_4} + C_3R_1R_3\sqrt{R_4} + C_3R_2R_3\sqrt{R_4} + C_4R_2R_3\sqrt{R_4} - C_5R_2R_3\sqrt{R_4}}$  wo:  $\frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}$  bandwidth:  $\frac{C_2R_1R_2\sqrt{R_4} + C_2R_2R_3\sqrt{R_4} + C_3R_1R_3\sqrt{R_4} + C_3R_2R_3\sqrt{R_4} + C_4R_2R_3\sqrt{R_4} - C_5R_2R_3\sqrt{R_4}}{C_2C_3R_1R_2R_3\sqrt{R_4}}$ 

K-LP:  $\frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}$  K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_3C_5R_1R_2R_3+C_5C_6R_1R_2R_6}{C_2C_6R_1R_2+C_2C_6R_2R_3+C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3-C_5C_6R_2R_3}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

10.71 X-INVALID-WZ-71  $Z(s) = \left(R_1, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)}{C_2C_3R_1R_2R_3R_4R_5s^2 + R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + s\left(C_2R_1R_2R_4R_5 + C_2R_2R_3R_4R_5 + C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 + C_4R_2R_3R_4R_5 - C_5R_2R_3R_4R_5\right)}$ 

### Parameters:

Q:  $\frac{\sqrt{C_2\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}}\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{C_2R_1R_2\sqrt{R_4}\sqrt{R_5} + C_2R_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_1R_3\sqrt{R_4}\sqrt{R_5} + C_3R_2R_3\sqrt{R_4}\sqrt{R_5} + C_4R_2R_3\sqrt{R_4}\sqrt{R_5} - C_5R_2R_3\sqrt{R_4}\sqrt{R_5}}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}}$ wo:  $\frac{\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}}$ bandwidth:  $\frac{C_2R_1R_2\sqrt{R_4}\sqrt{R_5} + C_2R_2R_3\sqrt{R_4}\sqrt{R_5} + C_3R_1R_3\sqrt{R_4}\sqrt{R_5} + C_3R_2R_3\sqrt{R_4}\sqrt{R_5} + C_4R_2R_3\sqrt{R_4}\sqrt{R_5} - C_5R_2R_3\sqrt{R_4}\sqrt{R_5}}}{C_2C_3R_1R_2R_3\sqrt{R_4}\sqrt{R_5}}}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$  K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_3R_1R_2R_3R_6+C_5R_1R_2R_5R_6}{C_2R_1R_2R_5+C_2R_2R_3R_5+C_3R_1R_3R_5+C_3R_2R_3R_5+C_4R_2R_3R_5-C_5R_2R_3R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

10.72 X-INVALID-WZ-72  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_4C_5C_6R_2R_4R_6s^2 + C_3C_5R_2 + s\left(C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_6\right)}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_4 - C_1C_4C_5C_6R_2R_4\right) + s\left(C_1C_3C_6R_2 + C_1C_4C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_3C_4C_6R_4\right)}$$

$$\text{Q: } \frac{\sqrt{C_1}C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}}-\sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_3-C_5}}}{C_1C_3R_2+C_1C_4R_2+C_1C_4R_4-C_1C_5R_2+C_3C_4R_4}$$

wo:  $\sqrt{C_1 + C_3} \sqrt{\frac{1}{C_1 C_3 C_4 R_2 R_4 - C_1 C_4 C_5 R_2 R_4}}$ bandwidth:  $\frac{\sqrt{C_1 + C_3}(C_1 C_3 R_2 + C_1 C_4 R_2 + C_1 C_4 R_4 - C_1 C_5 R_2 + C_3 C_4 R_4) \sqrt{\frac{1}{C_1 C_3 C_4 R_2 R_4 - C_1 C_4 C_5 R_2 R_4}}}{\sqrt{C_1} C_3 \sqrt{C_4} \sqrt{R_2} \sqrt{R_4} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 - C_5}} - \sqrt{C_1} \sqrt{C_4} C_5 \sqrt{R_2} \sqrt{R_4} \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_3 - C_5}}}$ K-LP:  $\frac{C_3C_5R_2}{C_1C_6+C_3C_6}$ K-HP:  $\frac{C_3C_5R_6}{C_1C_3-C_1C_5}$ 

K-BP:  $\frac{C_3C_4C_5R_2R_4+C_3C_5C_6R_2R_6}{C_1C_3C_6R_2+C_1C_4C_6R_2+C_1C_4C_6R_4-C_1C_5C_6R_2+C_3C_4C_6R_4}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

**10.73** X-INVALID-WZ-73  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6 + s\left(C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_2R_4R_5 - C_1C_4C_5R_2R_4R_5\right) + s\left(C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 - C_1C_5R_2R_5 + C_3C_4R_4R_5\right)}$$

#### **Parameters:**

 $Q: \frac{\sqrt{C_1}C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_3-C_5}+\frac{C_1R_5}{C_3-C_5}+\frac{C_3R_5}{C_3-C_5}}-\sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_3-C_5}+\frac{C_1R_5}{C_3-C_5}+\frac{C_3R_5}{C_3-C_5}}}{C_1C_3R_2R_5-C_1C_4R_2}R_4+C_1C_4R_2R_5+C_1C_4R_4R_5-C_1C_5R_2R_5+C_3C_4R_4R_5}$  $\text{bandwidth:} \ \frac{\sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_3C_4R_2R_4R_5-C_1C_4C_5R_2R_4R_5}}(C_1C_3R_2R_5-C_1C_4R_2R_4+C_1C_4R_2R_5+C_1C_4R_4R_5-C_1C_5R_2R_5+C_3C_4R_4R_5)}{\sqrt{C_1}C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_3-C_5}+\frac{C_1R_5}{C_3-C_5}+\frac{C_3R_5}{C_3-C_5}}-\sqrt{C_1}\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_3-C_5}+\frac{C_1R_5}{C_3-C_5}+\frac{C_3R_5}{C_3-C_5}}$ K-BP:  $\frac{C_3C_4R_2R_4R_6+C_3C_5R_2R_5R_6}{C_1C_3R_2R_5-C_1C_4R_2R_4+C_1C_4R_2R_5+C_1C_4R_4R_5-C_1C_5R_2R_5+C_3C_4R_4R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}}$ 

**10.74** X-INVALID-WZ-74  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_3R_4R_6s^2 + C_5R_2R_4 + s\left(C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_3C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_3C_6R_3R_4\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3-C_5}}-\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3-C_5}}}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_3R_3R_4}$ bandwidth:  $\frac{(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4)\sqrt{\frac{1}{C_1C_3R_2R_3 - C_1C_5R_2R_3}}}{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3 - C_5}} - \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3 - C_5}}}$ K-LP:  $\frac{C_5R_2}{C_6}$ K-HP:  $\frac{C_3C_5R_6}{C_1C_3-C_1C_5}$ K-BP:  $\frac{C_3C_5R_6}{C_1C_6R_2R_3+C_1C_6R_2R_4+C_5C_6R_2R_4R_6}$ Qz: None Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

**10.75** X-INVALID-WZ-75  $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, R_4, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_3R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5\right)}$$

#### Parameters:

 $\mathbf{Q} \colon \frac{-\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3-C_5}}+\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3-C_5}}}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}$ WO:  $\sqrt{\frac{1}{C_1C_3R_2R_3-C_1C_5R_2R_3}}$ bandwidth:  $\frac{(C_1R_2R_3R_4 - C_1R_2R_3R_5 - C_1R_2R_4R_5 - C_1R_3R_4R_5 - C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_3R_2R_3 - C_1C_5R_2R_3}}{-\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3 - C_5}} + \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3 - C_5}}}$ 

K-LP:  $\frac{R_2R_6}{R_5}$ K-HP:  $\frac{C_3C_5R_6}{C_1C_3-C_1C_5}$ 

K-BP:  $\frac{-C_3R_2R_3R_4R_6-C_5R_2R_4R_5R_6}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

## **10.76** X-INVALID-WZ-76 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_2R_3R_6s^2 + C_5R_2 + s\left(C_3C_5R_2R_3 + C_5C_6R_2R_6\right)}{C_6 + s^2\left(C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3\right)}$$

### Parameters:

Q: 
$$\frac{\sqrt{C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} + \sqrt{C_{1}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}}{C_{1}R_{2}+C_{1}R_{3}+C_{3}R_{3}}$$
wo: 
$$\sqrt{\frac{1}{C_{1}C_{3}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}$$
bandwidth: 
$$\frac{(C_{1}R_{2}+C_{1}R_{3}+C_{3}R_{3})\sqrt{\frac{1}{C_{1}C_{3}R_{2}R_{3}+C_{1}C_{4}R_{2}R_{3}-C_{1}C_{5}R_{2}R_{3}}}{\sqrt{C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} + \sqrt{C_{1}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}} - \sqrt{C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}}$$

K-HP:  $\frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}}$ K-BP:  $\frac{C_{3}C_{5}R_{2}R_{3}+C_{5}C_{6}R_{2}R_{6}}{C_{1}C_{6}R_{2}+C_{1}C_{6}R_{3}+C_{3}C_{6}R_{3}}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

# **10.77** X-INVALID-WZ-77 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_2R_3R_5R_6s^2 + R_2R_6 + s\left(C_3R_2R_3R_6 + C_5R_2R_5R_6\right)}{R_5 + s^2\left(C_1C_3R_2R_3R_5 + C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_3R_3R_5\right)}$$

## Parameters:

Q: 
$$\frac{-\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_3+C_4-C_5}}-\sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_3+C_4-C_5}}+\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_2R_3-C_1R_2R_5-C_1R_3R_5-C_3R_3R_5}$$

 $\text{wo: } \sqrt{\frac{1}{C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{(C_1R_2R_3 - C_1R_2R_5 - C_1R_3R_5 - C_3R_3R_5)\sqrt{\frac{1}{C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}}{-\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_3 + C_4 - C_5}}} - \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_3 + C_4 - C_5}}}$ 

K-LP:  $\frac{R_2R_6}{R_5}$ 

 $\begin{array}{l} \text{K-HP:} \ \frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5} \\ \text{K-BP:} \ \frac{C_3R_2R_3R_6-C_5R_2R_5R_6}{C_1R_2R_3-C_1R_2R_5-C_1R_3R_5-C_3R_3R_5} \\ \text{Qz:} \ \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

# 10.78 X-INVALID-WZ-78 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_2R_3R_4R_6s^2 + C_5R_2R_4 + s\left(C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_3C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_3C_6R_3R_4\right)}$$

#### Parameters:

$$\text{Q: } \frac{\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3+C_4-C_5}}+\sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3+C_4-C_5}}-\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_3R_3R_4}$$

 $(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4)\sqrt{\frac{1}{C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}$ bandwidth:  $\frac{(C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_1C_3R_2R_3+C_1C_4R_3+C_1C_4R_3+C_$ 

 $\begin{array}{l} \text{K-LP: } \frac{C_5R_2}{C_6} \\ \text{K-HP: } \frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5} \\ \text{K-BP: } \frac{C_3C_5R_6}{C_1C_6R_2R_3+C_1C_6R_2R_4+C_5C_6R_2R_4R_6} \\ \text{Conv. Novel 2} \end{array}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

**10.79** X-INVALID-WZ-79 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_3R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_3R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5\right)}$$

### Parameters:

 $Q \colon \frac{-\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3+C_4-C_5}}-\sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3+C_4-C_5}}+\sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}$ bandwidth:  $\frac{(C_1R_2R_3R_4 - C_1R_2R_3R_5 - C_1R_2R_4R_5 - C_1R_3R_4R_5 - C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}{-\sqrt{C_1}C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3 + C_4 - C_5}} - \sqrt{C_1}C_4\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3 + C_4 - C_5}} + \sqrt{C_1}C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_3 + C_4 - C_5}}$ 

K-LP:  $\frac{R_2R_6}{R_5}$ 

K-HP:  $\frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5}$ K-BP:  $\frac{-C_3R_2R_3R_4R_6-C_5R_2R_4R_5R_6}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_3R_3R_4R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

# 10.80 X-INVALID-WZ-80 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_3C_4C_5R_4R_5R_6s^2 + C_3R_6 + s\left(C_3C_4R_4R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^2\left(C_1C_2C_4R_4R_5 + C_1C_3C_4R_4R_5 - C_1C_4C_5R_4R_5 + C_2C_3C_4R_4R_5\right) + s\left(C_1C_2R_5 + C_1C_3R_5 - C_1C_4R_4 + C_1C_4R_5 - C_1C_5R_5 + C_2C_3R_5\right)}$$

### Parameters:

 $Q: \frac{C_1^{\frac{3}{2}}C_2\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}C_3\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1^{\frac{3}{2}}\sqrt{C_4}C_5\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + \sqrt{C_1}C_2C_3\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}\sqrt{C_4}C_5\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}\sqrt{C_4}\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}\sqrt{C_4}\sqrt{C_4}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1^{\frac{3}{2}}\sqrt{C_4}\sqrt{C_4}\sqrt{R_4}\sqrt{C_4}\sqrt{C_4}\sqrt{C_4}\sqrt{C_4}\sqrt{C_4}\sqrt{C_4}\sqrt{C_4}\sqrt{C_4}\sqrt{C_4}\sqrt{$ 

wo:  $\sqrt{C_1}\sqrt{-\frac{1}{C_1C_2C_4R_4R_5+C_1C_3C_4R_4R_5-C_1C_4C_5R_4R_5+C_2C_3C_4R_4R_5}}$ 

K-LP:  $-\frac{C_3R_6}{C_1}$ 

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$ K-BP:  $\frac{C_3C_4R_4R_6+C_3C_5R_5R_6}{C_1C_2R_5+C_1C_3R_5-C_1C_4R_4+C_1C_4R_5-C_1C_5R_5+C_2C_3R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}}$ 

# **10.81** X-INVALID-WZ-81 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_3C_4C_5R_3R_4R_6s^2 + C_5R_6 + s\left(C_3C_5R_3R_6 + C_4C_5R_4R_6\right)}{C_1 + C_2 + s^2\left(C_1C_2C_4R_3R_4 + C_1C_3C_4R_3R_4 - C_1C_4C_5R_3R_4 + C_2C_3C_4R_3R_4\right) + s\left(C_1C_2R_3 + C_1C_3R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_2C_3R_3 + C_2C_4R_4\right)}$$

## **Parameters:**

 $Q: \underbrace{\frac{C_1C_2\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_3\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1\sqrt{C_4}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1\sqrt{C_4}C_5\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{C_4}\sqrt{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + C_2C_3\sqrt{C_4}\sqrt{R_3}\sqrt{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{C_1C_2+C_1C_3-C_1C_3+C_1C_3-C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_$ 

 $\sqrt{C_1 + C_2} (C_1 C_2 R_3 + C_1 C_3 R_3 + C_1 C_4 R_3 + C_1 C_4 R_4 - C_1 C_5 R_3 + C_2 C_3 R_3 + C_2 C_4 R_4) \sqrt{\frac{1}{C_1 C_2 C_4 R_3 R_4 + C_1 C_3 C_4 R_3 R_4 - C_1 C_4 C_5 R_3 R_4 + C_2 C_3 C_4 R_3 R_4}{C_1 C_4 C_5 R_3 R_4 + C_2 C_3 C_4 R_3 R_4 + C_1 C_3 C_4 R_3 R_4 + C_2 C_3 C_4 R_3 R_4}}$  $\frac{\sqrt{C_1 C_2 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_1 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} - C_1 \sqrt{C_4} C_5 \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_4} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{C_1 C_2 + C_1 C_3 - C_1 C_5}$ 

K-LP:  $\frac{C_5R_6}{C_1+C_2}$ K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$ K-BP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$ K-BP:  $\frac{C_3C_5R_3R_6+C_4C_5R_4R_6}{C_1C_2R_3+C_1C_3R_3+C_1C_4R_3+C_1C_4R_4-C_1C_5R_3+C_2C_3R_3+C_2C_4R_4}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_4}\sqrt{R_3}\sqrt{R_4}}$ 

**10.82** X-INVALID-WZ-82 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_2C_3C_5C_6R_2R_4R_6s^2 + C_3C_5R_4 + s\left(C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_4 - C_1C_2C_5C_6R_2R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

$$\begin{aligned} & \text{Q:} \ \frac{C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}} - C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}}}{C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4} \\ & \text{wo:} \ \sqrt{\frac{1}{C_2C_3R_2R_4 - C_2C_5R_2R_4}} \\ & \text{bandwidth:} \ \frac{(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_2R_4 - C_2C_5R_2R_4}}}{C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}} - C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{1}{C_3-C_5}}} \\ & \text{K-LP:} \ \frac{C_3C_5R_4}{C_1C_6} \\ & \text{R-Constant} \end{aligned}$$

 $\begin{array}{l} \text{K-BP:} \ \frac{C_{1}C_{3}-C_{1}C_{5}}{C_{1}C_{2}C_{6}R_{2}+C_{1}C_{2}C_{6}R_{4}+C_{1}C_{3}C_{6}R_{4}-C_{1}C_{5}C_{6}R_{4}+C_{2}C_{3}C_{6}R_{4}} \\ \text{Qz: None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}$ 

# **10.83** X-INVALID-WZ-83 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_2C_3C_5R_2R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_2R_4R_5 - C_1C_2C_5R_2R_4R_5\right) + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

### Parameters:

$$\begin{array}{l} Q\colon \frac{-C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3-C_5}} + \frac{R_5}{C_3-C_5}}{C_1C_2R_2R_4-C_1C_2R_2R_5-C_1C_2R_4R_5-C_1C_3R_4R_5+C_1C_5R_4R_5-C_2C_3R_4R_5} \\ \text{Wo: } \sqrt{\frac{-R_4+R_5}{C_2C_3R_2R_4R_5-C_2C_5R_2R_4R_5}} \\ \text{bandwidth: } \frac{\sqrt{\frac{-R_4+R_5}{C_2C_3R_2R_4R_5-C_2C_5R_2R_4R_5}}{C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3-C_5}}} + \frac{R_5}{C_3-C_5}} + C_1\sqrt{C_2}C_3\sqrt{R_4}R_5 - C_1C_3R_4R_5 - C_1C_3R_4R_5 - C_1C_3R_4R_5 - C_2C_3R_4R_5} \\ \text{bandwidth: } \frac{\sqrt{\frac{-R_4+R_5}{C_2C_3R_2R_4R_5-C_2C_5R_2R_4R_5}}(C_1C_2R_2R_4-C_1C_2R_2R_5-C_1C_2R_4R_5-C_1C_3R_4R_5+C_1C_5R_4R_5-C_2C_3R_4R_5)}{-C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3-C_5}} + \frac{R_5}{C_3-C_5}} + C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3-C_5}} + \frac{R_5}{C_3-C_5}} \\ \text{K-LP: } \frac{C_3R_4R_6}{C_1R_4-C_1R_5} \\ \text{K-HP: } \frac{C_3C_5R_6}{C_1C_3-C_1C_5} \\ \text{K-BP: } \frac{-C_2C_3R_2R_4R_6-C_3C_5R_4R_5R_6}{C_1C_2R_2R_5-C_1C_2R_4R_5-C_1C_3R_4R_5} + C_1\sqrt{C_2}C_3R_4R_5 \\ \text{Qz: None} \\ \text{Wz: } \frac{1}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_5}} \end{array}$$

# **10.84** X-INVALID-WZ-84 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_2C_3C_5R_2R_5R_6s^2 + C_3R_6 + s\left(C_2C_3R_2R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^2\left(C_1C_2C_3R_2R_5 + C_1C_2C_4R_2R_5 - C_1C_2C_5R_2R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 - C_1C_5R_5 + C_2C_3R_5\right)}$$

$$Q \colon \frac{-C_1 \sqrt{C_2} C_3 \sqrt{R_2} \sqrt{R_5} \sqrt{-\frac{1}{C_3 + C_4 - C_5}} - C_1 \sqrt{C_2} C_4 \sqrt{R_2} \sqrt{R_5} \sqrt{-\frac{1}{C_3 + C_4 - C_5}} + C_1 \sqrt{C_2} C_5 \sqrt{R_2} \sqrt{R_5} \sqrt{-\frac{1}{C_3 + C_4 - C_5}} }{C_1 C_2 R_2 - C_1 C_2 R_5 - C_1 C_3 R_5 - C_1 C_4 R_5 + C_1 C_5 R_5 - C_2 C_3 R_5} \\ W0 \colon \sqrt{-\frac{1}{C_2 C_3 R_2 R_5 + C_2 C_4 R_2 R_5 - C_2 C_5 R_2 R_5}} \\ bandwidth \colon \frac{\sqrt{-\frac{1}{C_2 C_3 R_2 R_5 + C_2 C_4 R_2 R_5 - C_2 C_5 R_2 R_5}} (C_1 C_2 R_2 - C_1 C_2 R_5 - C_1 C_3 R_5 - C_1 C_4 R_5 + C_1 C_5 R_5 - C_2 C_3 R_5)}{-C_1 \sqrt{C_2} C_3 \sqrt{R_2} \sqrt{R_5} \sqrt{-\frac{1}{C_3 + C_4 - C_5}} - C_1 \sqrt{C_2} C_4 \sqrt{R_2} \sqrt{R_5} \sqrt{-\frac{1}{C_3 + C_4 - C_5}} + C_1 \sqrt{C_2} C_5 \sqrt{R_2} \sqrt{R_5} \sqrt{-\frac{1}{C_3 + C_4 - C_5}}} \\ K - LP \colon -\frac{C_3 R_6}{C_1 C_3 + C_1 C_4 - C_1 C_5} \\ K - BP \colon \frac{-C_2 C_3 R_2 R_6 - C_3 C_5 R_5 R_6}{C_1 C_2 R_2 - C_1 C_2 R_5 - C_1 C_3 R_5 - C_1 C_4 R_5 + C_1 C_5 R_5 - C_2 C_3 R_5} \\ Qz \colon None \\ Wz \colon \frac{1}{\sqrt{C_2} \sqrt{C_5} \sqrt{R_2} \sqrt{R_5}} \end{aligned}$$

**10.85** X-INVALID-WZ-85 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_2C_3C_4C_5R_2R_4R_6s^2 + C_3C_5R_6 + s\left(C_2C_3C_5R_2R_6 + C_3C_4C_5R_4R_6\right)}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_2R_4 - C_1C_2C_4C_5R_2R_4\right) + s\left(C_1C_2C_3R_2 + C_1C_2C_4R_4 - C_1C_2C_5R_2 + C_1C_3C_4R_4 - C_1C_4C_5R_4 + C_2C_3C_4R_4\right)}$$

$$\begin{array}{l} Q\colon \frac{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{C_1C_2}{C_3-C_5}+\frac{C_1C_3}{C_3-C_5}+\frac{C_1C_4}{C_3-C_5}-\frac{C_1C_5}{C_3-C_5}+\frac{C_2C_3}{C_3-C_5}}{C_3-C_5}-\sqrt{C_1}\sqrt{C_2}\sqrt{C_4}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{\frac{C_1C_2}{C_3-C_5}+\frac{C_1C_3}{C_3-C_5}+\frac{C_1C_5}{C_3-C_5}+\frac{C_2C_3}{C_3-C_5}}{C_3-C_5}-\frac{C_1C_5}{C_3-C_5}+\frac{C_2C_3}{C_3-C_5}-\frac{C_1C_5}{C_3-C_5}+\frac{C_2C_3}{C_3-C_5}-\frac{C_1C_5}{C_3-C_5}+\frac{C_2C_3}{C_3-C_5}-\frac{C_1C_5}{C_3-C_5}-\frac{C_1C_5}{C_3-C_5}+\frac{C_2C_3}{C_3-C_5}-\frac{C_1C_5}{C_3-C_5}-\frac{C_1$$

# **10.86** X-INVALID-WZ-86 $Z(s) = \left(\frac{1}{C_{1}s}, R_2 + \frac{1}{C_{2}s}, \frac{1}{C_{3}s}, \frac{R_4}{C_4R_4s+1}, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)$

$$H(s) = \frac{C_2C_3C_5C_6R_2R_4R_6s^2 + C_3C_5R_4 + s\left(C_2C_3C_5R_2R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_2R_4 + C_1C_2C_4C_6R_2R_4 - C_1C_2C_5C_6R_2R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

### Parameters:

$$Q\colon \frac{C_{1}\sqrt{C_{2}}C_{3}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}+C_{1}\sqrt{C_{2}}C_{4}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}-C_{1}\sqrt{C_{2}}C_{5}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}{C_{1}C_{2}R_{2}+C_{1}C_{2}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4}}}$$

$$wo: \sqrt{\frac{1}{C_{2}C_{3}R_{2}R_{4}+C_{2}C_{4}R_{2}R_{4}-C_{2}C_{5}R_{2}R_{4}}}$$

$$bandwidth: \frac{(C_{1}C_{2}R_{2}+C_{1}C_{2}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4})\sqrt{\frac{1}{C_{2}C_{3}R_{2}R_{4}+C_{2}C_{4}R_{2}R_{4}-C_{2}C_{5}R_{2}R_{4}}}}{C_{1}\sqrt{C_{2}C_{3}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}+C_{1}\sqrt{C_{2}}C_{4}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}-C_{1}\sqrt{C_{2}}C_{5}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}$$

$$K-LP: \frac{C_{3}C_{5}R_{4}}{C_{1}C_{3}}$$

$$K-HP: \frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}}}{C_{1}C_{2}C_{6}R_{2}+C_{1}C_{2}C_{6}R_{4}+C_{1}C_{3}C_{6}R_{4}+C_{1}C_{5}C_{6}R_{4}R_{6}}}$$

$$Qz: None$$

$$Wz: \frac{1}{\sqrt{C_{2}}\sqrt{C_{6}}\sqrt{R_{2}}\sqrt{R_{6}}}$$

10.87 X-INVALID-WZ-87 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_2C_3C_5R_2R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_2C_3R_2R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_2R_4R_5 + C_1C_2C_4R_2R_4R_5 - C_1C_2C_5R_2R_4R_5\right) + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

$$Q: \frac{-C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5} - C_1\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}}{C_1C_2R_2R_4 - C_1C_2R_2R_5 - C_1C_2R_4R_5 - C_1C_3R_4R_5 - C_1C_4R_4R_5 + C_1C_5R_4R_5 - C_2C_3R_4R_5} } \\ Wo: \sqrt{\frac{-R_4+R_5}{C_2C_3R_2R_4R_5 + C_2C_4R_2R_4R_5 - C_2C_5R_2R_4R_5}}{\sqrt{\frac{-R_4+R_5}{C_2C_3R_2R_4R_5 + C_2C_4R_2R_4R_5 - C_2C_5R_2R_4R_5}}} (C_1C_2R_2R_4 - C_1C_2R_2R_5 - C_1C_2R_4R_5 - C_1C_3R_4R_5 - C_1C_4R_4R_5 + C_1C_5R_4R_5 - C_2C_3R_4R_5} ) } \\ bandwidth: \frac{\sqrt{\frac{-R_4+R_5}{C_2C_3R_2R_4R_5 + C_2C_4R_2R_4R_5 - C_2C_5R_2R_4R_5}}}{-C_1\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}} - C_1\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}} + C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}} } \\ K-LP: -\frac{C_3R_4R_6}{C_1R_4 - C_1R_5}}{C_1C_2R_2R_4 - C_1C_2R_2R_5 - C_1\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}} + C_1\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_3+C_4-C_5}} + \frac{R_5}{C_3+C_4-C_5}} } \\ K-BP: \frac{C_3C_5R_6}{C_1C_2R_4 - C_1C_2R_2R_5 - C_1C_2R_4R_5 - C_1C_3R_4R_5 - C_1C_3R_4R_5 - C_2C_3R_4R_5}}{C_1C_2R_2R_4 - C_1C_2R_2R_5 - C_1C_2R_4R_5 - C_1C_3R_4R_5 - C_2C_3R_4R_5} \\ Wz: \frac{1}{\sqrt{C_2}\sqrt{C_5}\sqrt{R_5}\sqrt{R_5}} \\ \end{aligned}$$

**10.88** X-INVALID-WZ-88 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_2C_3C_5R_2R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_2R_3R_4 - C_1C_2C_5R_2R_3R_4\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 + C_1C_3R_3R_4 - C_1C_5R_3R_4 + C_2C_3R_3R_4\right)}$$

$$Q \colon \frac{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_3-C_5}}-\sqrt{C_1}\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_3-C_5}}}{C_1C_2R_2R_3+C_1C_2R_2R_4+C_1C_2R_3R_4+C_1C_5R_3R_4+C_2C_3R_3R_4} \\ \text{wo: } \sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4-C_1C_2C_5R_2R_3R_4}}\\ \text{bandwidth: } \frac{\sqrt{C_1R_3+C_1R_4+C_2R_4}(C_1C_2R_2R_3+C_1C_2R_2R_4+C_1C_2R_3R_4+C_1C_3R_3R_4-C_1C_5R_3R_4+C_2C_3R_3R_4)\sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4-C_1C_2C_5R_2R_3R_4}}}{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_3-C_5}}}-\sqrt{C_1}\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_3-C_5}}}\\ \text{K-LP: } \frac{C_5R_4R_6}{C_1C_3-C_1C_5}\\ \text{K-HP: } \frac{C_3C_5R_4}{C_1C_3-C_1C_5}\\ \text{K-BP: } \frac{C_2C_5R_2R_4R_6+C_3C_5R_3R_4R_6}{C_1C_2R_2R_4+C_1C_2R_3R_4+C_1C_5R_3R_4+C_2C_3R_3R_4}\\ \text{Qz: None}\\ \text{Wz: } \frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}}$$

# 10.89 X-INVALID-WZ-89 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_2C_3C_5R_2R_3R_6s^2 + C_5R_6 + s\left(C_2C_5R_2R_6 + C_3C_5R_3R_6\right)}{C_1 + C_2 + s^2\left(C_1C_2C_3R_2R_3 + C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3\right) + s\left(C_1C_2R_2 + C_1C_2R_3 + C_1C_3R_3 + C_1C_4R_3 - C_1C_5R_3 + C_2C_3R_3\right)}$$

#### Parameters:

$$Q \colon \frac{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_3+C_4-C_5}} + \sqrt{C_1}\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_3+C_4-C_5}}}{C_1C_2R_2+C_1C_2R_3+C_1C_3R_3+C_1C_5R_3+C_2C_3R_3}$$

$$\text{wo: } \sqrt{C_1+C_2}\sqrt{\frac{1}{C_1C_2C_3R_2R_3+C_1C_2C_4R_2R_3-C_1C_2C_5R_2R_3}}$$

$$\text{bandwidth: } \frac{\sqrt{C_1+C_2}(C_1C_2R_2+C_1C_2R_3+C_1C_2R_3+C_1C_3R_3+C_1C_5R_3+C_2C_3R_3)\sqrt{\frac{1}{C_1C_2C_3R_2R_3+C_1C_2C_5R_2R_3}}}{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_3+C_4-C_5}}} + \sqrt{C_1}\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_3+C_4-C_5}}}}$$

$$\text{K-LP: } \frac{C_5R_6}{C_1+C_2}$$

$$\text{K-HP: } \frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5}$$

$$\text{K-BP: } \frac{C_2C_5R_2R_6+C_3C_5R_3R_6}{C_1C_2R_2+C_1C_2R_3+C_1C_3R_3+C_1C_5R_3+C_2C_3R_3}$$

$$\text{Qz: None}$$

$$\text{Wz: } \frac{1}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}}$$

**10.90** X-INVALID-WZ-90 
$$Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$$

$$H(s) = \frac{C_2C_3C_5R_2R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_2C_5R_2R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_3R_2R_3R_4 + C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_4\right) + s\left(C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_2C_3R_3R_4\right)}$$

$$\begin{array}{c} Q: \frac{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3} + C_1R_4 + C_2R_4}{\sqrt{C_3R_2}C_4 - C_5} + \sqrt{C_1}\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3} + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_3+C_4-C_5}} - \sqrt{C_1}\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3} + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_3+C_4-C_5}} \\ & C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 + C_1C_3R_3R_4 + C_1C_5R_3R_4 + C_2C_3R_3R_4 \\ \text{wo: } \sqrt{C_1R_3} + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4} + C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_4} \\ \text{bandwidth: } \frac{\sqrt{C_1R_3} + C_1R_4 + C_2R_4}\sqrt{C_1C_2C_3R_2R_3R_4 + C_1C_2C_4R_2R_3R_4 - C_1C_5R_3R_4 + C_2C_3R_3R_4} + C_1C_3R_3R_4 + C_1C_3R_3R_4 + C_1C_5R_3R_4 + C_2C_3R_3R_4)\sqrt{\frac{1}{C_1C_2C_3R_2R_3R_4 + C_1C_2C_5R_2R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1N_3} + C_1R_4 + C_2R_4}\sqrt{C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 + C_1C_3R_3R_4 + C_1C_5R_3R_4 + C_2C_3R_3R_4}}{\sqrt{C_1N_3} + C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_3} + C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_3R_4 + C_1$$

```
10.91 X-INVALID-WZ-91 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

$$H(s) = \frac{C_3C_4C_5C_6R_2R_4R_6s^2 + C_3C_5R_2 + s\left(C_3C_4C_5R_2R_4 + C_3C_5C_6R_2R_6\right)}{C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_4C_6R_2R_4 + C_1C_3C_4C_6R_2R_4 + C_1C_4C_5C_6R_2R_4 + C_2C_3C_4C_6R_2R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_4C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_2C_3C_6R_2 + C_3C_4C_6R_4\right)}$$

 $\frac{C_{1}C_{2}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}C_{5}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{C_{4}}\sqrt{C_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{4}C_{5}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{C_{4}}$ 

wo:  $\sqrt{C_1 + C_3} \sqrt{\frac{1}{C_1 C_2 C_4 R_2 R_4 + C_1 C_3 C_4 R_2 R_4 - C_1 C_4 C_5}}$ 

 $\text{bandwidth: } \frac{\sqrt{C_1 + C_3}(C_1C_2R_2 + C_1C_3R_2 + C_1C_4R_4 - C_1C_5R_2 + C_2C_3R_2 + C_3C_4R_4)\sqrt{\frac{1}{C_1C_2C_4R_2R_4 + C_1C_3C_4R_2R_4 + C_1C_3C_4R_4 + C_1C_$ 

 $\begin{array}{l} \text{K-HP: } \frac{C_{1}C_{5}R_{6}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} \\ \text{K-BP: } \frac{C_{3}C_{5}R_{6}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} \\ \text{Qz: None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

# 10.92 X-INVALID-WZ-92 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $H(s) = \frac{C_3C_4C_5R_2R_4R_5R_6s^2 + C_3R_2R_6 + s\left(C_3C_4R_2R_4R_6 + C_3C_5R_2R_5R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_4R_2R_4R_5 + C_1C_3C_4R_2R_4R_5 + C_2C_3C_4R_2R_4R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 - C_1C_5R_2R_5 + C_2C_3R_2R_5 + C_3C_4R_4R_5\right)}$ 

### Parameters:

 $Q: \frac{C_{1}C_{2}\sqrt{C_{4}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{C_{1}R_{2}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{C_{1}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}}{C_{1}C_{5}+C_{2}C_{3}} + \frac{C_{1}R_{5}$ 

wo:  $\sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_2C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5-C_1C_4C_5R_2R_4R_5+C_2C_3C_4R_2R_4R_5}}$ 

 $\sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_2C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_1C_3R_2R_5+C_1C_4R_2R_5+C_1C_4R_2R_5+C_1C_4R_4R_5-C_1C_5R_2R_5+C_3C_4R_4R_5}}(C_1C_2R_2R_5+C_1C_3R_2R_5+C_1C_4R_2R_5+C_1C_4R_4R_5-C_1C_5R_2R_5+C_2C_3R_2R_5+C_3C_4R_4R_5)$  $\frac{\sqrt{C_1C_2C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_1C_3C_4R_2R_4R_5+C_1C_3C_4R_5}{C_1C_2\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_3\sqrt{C_4}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + \frac{C_1R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{C_1R_5}{C_1C_2+C_1C$ 

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}}$ 

# **10.93** X-INVALID-WZ-93 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5C_6R_2R_3R_4R_6s^2 + C_5R_2R_4 + s\left(C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_4 + C_1C_6R$ 

### Parameters:

 $\text{Q:} \ \frac{C_1C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} - C_1C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} \\ - C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4$ 

Wo:  $\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3-C_1C_5R_2R_3+C_2C_3R_2R_3}}$ 

 $\text{bandwidth: } \frac{(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4)\sqrt{\frac{1}{C_1C_2R_2R_3 + C_1C_3R_2R_3 - C_1C_5R_2R_3 + C_2C_3R_2R_3}}{C_1C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_1C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} - C_1C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_2}\sqrt{R_3}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 - C_1C_5$ 

K-LP:  $\frac{C_5 R_2}{C_6}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

**10.94** X-INVALID-WZ-94 
$$Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_3C_5R_2R_3R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_2R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5 + C_2C_3R_2R_3R_4R_5\right) + s\left(-C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5 + C_3R_3R_4R_5\right)}$$

$$\begin{array}{c} \text{Q:} & \frac{-C_1C_2\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} -C_1C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} +C_1C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} -C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} \\ \text{wo:} & \sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3-C_1C_5R_2R_3+C_2C_3R_2R_3}} \\ \text{bandwidth:} & \frac{(C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5-C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3} -C_1C_5R_2R_3+C_2C_3R_2R_3}} \\ \text{bandwidth:} & \frac{(C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5-C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3} -C_1C_5R_2R_3+C_2C_3R_2R_3}} \\ \text{bandwidth:} & \frac{(C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5-C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3} -C_1C_5R_2R_3+C_2C_3R_2R_3}} \\ \text{bandwidth:} & \frac{(C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5-C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3} -C_1C_3R_2R_3+C_2C_3R_2R_3}} \\ \text{bandwidth:} & \frac{(C_1R_2R_3R_4R_5-C_1R_3R_4R_5-C_1R_3R_4R_5-C_1R_3R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5-C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3} -C_1C_5R_2R_3+C_2C_3R_2R_3}} \\ \text{bandwidth:} & \frac{(C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5-C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} -C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} -C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} -$$

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

**10.95** X-INVALID-WZ-95  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_3C_5C_6R_2R_3R_6s^2 + C_5R_2 + s\left(C_3C_5R_2R_3 + C_5C_6R_2R_6\right)}{C_6 + s^2\left(C_1C_2C_6R_2R_3 + C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3 + C_2C_3C_6R_2R_3\right) + s\left(C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2 + C_3C_6R_3\right)}$$

### Parameters:

$$Q: \frac{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2}+C_{3}R_{3}}} \\ we: \sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{5}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}}}{(C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2}+C_{3}R_{3})\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}}} \\ bandwidth: \frac{(C_{1}R_{2}+C_{1}R_{3}+C_{2}R_{2}+C_{3}R_{3})\sqrt{\frac{1}{C_{1}C_{2}R_{2}R_{3}+C_{1}C_{3}R_{2}R_{3}+C_{1}C_{5}R_{2}R_{3}+C_{2}C_{3}R_{2}R_{3}}}{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{1}C_{4}\sqrt{R_{2}}\sqrt{\frac{1}{C_{4}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{4}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{4}\sqrt{R_{2}}\sqrt{\frac{1}{C_{4}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{4}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{4}\sqrt{R_{2}}\sqrt{\frac{1}{C_{4}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{4}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{4}\sqrt{\frac{1}{C_{4}C_{4$$

K-LP:  $\frac{C_5 R_2}{C_6}$  $\begin{array}{l} \text{K-HP:} \ \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP:} \ \frac{C_3C_5R_2R_3+C_5C_6R_2R_6}{C_1C_6R_2+C_1C_6R_3+C_2C_6R_2+C_3C_6R_3} \\ \text{Qz:} \ \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

**10.96** X-INVALID-WZ-96  $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$ 

$$H(s) = \frac{C_3C_5R_2R_3R_5R_6s^2 + R_2R_6 + s\left(C_3R_2R_3R_6 + C_5R_2R_5R_6\right)}{R_5 + s^2\left(C_1C_2R_2R_3R_5 + C_1C_3R_2R_3R_5 + C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5 + C_2C_3R_2R_3R_5\right) + s\left(-C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5 + C_3R_3R_5\right)}$$

### Parameters:

$$Q: \frac{-C_{1}C_{2}\sqrt{R_{3}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} +C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{5}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} -C_{2}C_{3}\sqrt{R_{3}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2$$

K-LP:  $\frac{R_2R_6}{R_5}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

```
10.97 X-INVALID-WZ-97 Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

$$H(s) = \frac{C_3C_5C_6R_2R_3R_4R_6s^2 + C_5R_2R_4 + s\left(C_3C_5R_2R_3R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_2C_6R_2R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_5C_6R_2R_3R_4 + C_2C_3C_6R_2R_3R_4\right) + s\left(C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_2C_6R_2R_4 + C_3C_6R_3R_4\right)}$$

$$Q: \frac{\frac{C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}+C_{3}R_{3}R_{4}} - C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{3}+C_{$$

Wo:  $\sqrt{\frac{1}{C_1C_2R_2R_3+C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3+C_2C_3R_2R_3}}$ 

 $\frac{(C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4 + C_3R_3R_4)\sqrt{\frac{1}{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_5R_2R_3 + C_2C_3R_2R_3}}{C_1C_2\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_5 + C_2C_3}} + C_1C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_5 + C_2C_3}} + C_1C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C_1C_5 + C_2C_3}} + C_2C_3\sqrt{R_2}\sqrt$ 

K-HP:  $\frac{C_{6}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}$  K-BP:  $\frac{C_{3}C_{5}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{4}+C_{5}C_{6}R_{2}R_{4}+R_{6}}{C_{1}C_{6}R_{2}R_{3}+C_{1}C_{6}R_{2}R_{4}+C_{1}C_{6}R_{3}R_{4}+C_{2}C_{6}R_{2}R_{4}+C_{3}C_{6}R_{3}R_{4}}}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

# **10.98** X-INVALID-WZ-98 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$

$$H(s) = \frac{C_3C_5R_2R_3R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_3R_2R_3R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_2R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_5R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5 + C_3R_3R_4R_5\right)}$$

### Parameters:

$$Q: \frac{-C_{1}C_{2}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{4}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{5}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R_{4}R_{5}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}+C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{2}}\sqrt{R_{3}}R$$

 $(C_1R_2R_3R_4 - C_1R_2R_3R_5 - C_1R_2R_4R_5 - C_1R_3R_4R_5 - C_2R_2R_4R_5 - C_3R_3R_4R_5)\sqrt{\frac{1}{C_1C_2R_2R_3 + C_1C_3R_2R_3 + C_1C_5R_2R_3 + C_2C_3R_2R_3}}$ 

 $\frac{\sqrt{C_1C_2\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_4\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}+C_1C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_2}\sqrt{R_$ 

K-LP:  $\frac{R_2R_6}{R_r}$ 

 $\begin{array}{l} \text{K-HP:} \ \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP:} \ \frac{-C_3R_2R_3R_4-C_5R_2R_4R_5R_6}{C_1R_2R_3R_4-C_1R_2R_3R_5-C_1R_2R_4R_5-C_1R_3R_4R_5-C_2R_2R_4R_5-C_3R_3R_4R_5} \\ \text{Qz:} \ \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

# **10.99** X-INVALID-WZ-99 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_5C_6R_1R_2R_4R_6s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6\right)}{-C_1C_5C_6R_2R_3R_4s^2 + C_6R_4 + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4\right)}$$

## Parameters:

Q: 
$$-\frac{i\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}R_4}{\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}$$

wo:  $\frac{i}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}$ bandwidth:  $-\frac{\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}{\sqrt{C_1}C_5R_2R_3R_4}$ 

K-LP:  $\frac{C_5 R_2}{C_6}$ K-HP:  $-\frac{R_1 R_6}{R_3}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.100** X-INVALID-WZ-100 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5C_6R_1R_2R_4R_6s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_5C_6R_1R_4R_5 - C_1C_5C_6R_2R_3R_4 + C_1C_5C_6R_2R_4R_5 + C_1C_5C_6R_3R_4R_5\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_5C_6R_4R_5\right)}$$

 $Q: \frac{\sqrt{C_1}\sqrt{C_5}R_1R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_5}R_2R_3R_4^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_2R_3\sqrt{R_4}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_2R_3\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}}{R_5}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_5}} + \sqrt{C_1}\sqrt{C_5}R_3R_4\frac{\frac{3}{2}$ wo:  $\sqrt{R_4}\sqrt{\frac{1}{C_1C_5R_1R_4R_5-C_1C_5R_2R_3R_4+C_1C_5R_2R_3R_5+C_1C_5R_2R_4R_5+C_1C_5R_3R_4R_5}}$  $\sqrt{R_4}(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_5R_4R_5)\sqrt{\frac{1}{C_1C_5R_1R_4R_5 - C_1C_5R_2R_3R_4 + C_1C_5R_2R_3R_5 + C_1C_5R_2R_4R_5 + C_1C_5R_3R_4R_5}}$ bandwidth:  $\frac{\sqrt{C_1\sqrt{C_5}R_1R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}{\sqrt{C_1\sqrt{C_5}R_2R_3^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_2R_3^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_2R_3^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_2R_3^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_4R_5+R_3R_4R_5}}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}}}}}+\sqrt{C_1\sqrt{C_5}R_3R_4^{\frac{3}{2}}R_5\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5+R_3R_4R_5}}}}}$ 

K-LP:  $\frac{C_5 R_2}{C_6}$ 

K-HP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-BP:  $\frac{C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6}{C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_5C_6R_4R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

# **10.101** X-INVALID-WZ-101 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_1C_5R_1R_2R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_5R_2R_4R_5R_6\right)}{-C_1C_5R_2R_3R_4R_5s^2 + R_4R_5 + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5\right)}$$

#### Parameters:

Q:  $-\frac{i\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}R_4R_5}{\sqrt{C_1}R_1R_4R_5 - \sqrt{C_1}R_2R_3R_4 + \sqrt{C_1}R_2R_3R_5 + \sqrt{C_1}R_2R_4R_5 + \sqrt{C_1}R_3R_4R_5}$ wo:  $\frac{i}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}}$ bandwidth:  $-\frac{\sqrt{C_1}R_1R_4R_5 - \sqrt{C_1}R_2R_3R_4 + \sqrt{C_1}R_2R_3R_5 + \sqrt{C_1}R_2R_4R_5 + \sqrt{C_1}R_3R_4R_5}{\sqrt{C_1}C_5R_2R_3R_4R_5}$ K-LP:  $\frac{R_2R_6}{R_5}$ K-HP:  $-\frac{R_1R_6}{R_3}$ K-BP:  $\frac{C_1R_1R_2R_4R_6+C_5R_2R_4R_5R_6}{C_1R_1R_4R_5-C_1R_2R_3R_4+C_1R_2R_3R_5+C_1R_2R_4R_5+C_1R_3R_4R_5}$  Qz: None Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

# **10.102** X-INVALID-WZ-102 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_5C_6R_1R_2R_6s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_5C_6R_2R_6\right)}{C_6 + s^2\left(C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3\right)}$$

## Parameters:

bandwidth:  $\frac{\left(\sqrt{C_1}R_1 + \sqrt{C_1}R_2 + \sqrt{C_1}R_3\right)\sqrt{\frac{1}{C_1C_4R_2R_3} - C_1C_5R_2R_3}}{C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4 - C_5}} - C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{1}{C_4 - C_5}}}$ Qz: None Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.103** X-INVALID-WZ-103 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_5R_1R_2R_5R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_5R_2R_5R_6\right)}{R_5 + s^2\left(C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5\right)}$$

Q:  $\frac{C_4\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_1R_5-\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_5+\sqrt{C_1}R_3R_5}$ bandwidth:  $\frac{\left(\sqrt{C_1}R_1R_5 - \sqrt{C_1}R_2R_3 + \sqrt{C_1}R_2R_5 + \sqrt{C_1}R_3R_5\right)\sqrt{\frac{1}{C_1C_4R_2R_3 - C_1C_5R_2R_3}}}{C_4\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_4 - C_5}} - C_5\sqrt{R_2}\sqrt{R_3}R_5\sqrt{\frac{1}{C_4 - C_5}}}$ K-LP:  $\frac{R_2R_6}{R_5}$ K-HP:  $\frac{C_5R_1R_6}{C_4R_3-C_5R_3}$ K-BP:  $\frac{C_1R_1R_2R_6+C_5R_2R_5R_6}{C_1R_1R_5-C_1R_2R_3+C_1R_2R_5+C_1R_3R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

# **10.104** X-INVALID-WZ-104 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_1C_4R_1R_2R_4R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_4R_2R_4R_6\right)}{R_5 + s^2\left(C_1C_4R_1R_4R_5 - C_1C_4R_2R_3R_4 + C_1C_4R_2R_3R_5 + C_1C_4R_2R_4R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_4R_4R_5\right)}$$

#### Parameters:

 $Q: \underbrace{\frac{\sqrt{C_1}\sqrt{C_4}R_1R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{C_1R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_3R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_3R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_2R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_5R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_3R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_4R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{2}}\sqrt{\frac{1}{R_4R_5-R_2R_3R_4+R_5R_5}}} + \underbrace{\sqrt{C_1}\sqrt{C_4}R_3R_4R_5^{\frac{3}{$ wo:  $\sqrt{R_5}\sqrt{\frac{1}{C_1C_4R_1R_4R_5-C_1C_4R_2R_3R_4+C_1C_4R_2R_3R_5+C_1C_4R_2R_4R_5+C_1C_4R_3R_4R_5}}$  $\frac{\sqrt{R_{5}}(C_{1}R_{1}R_{5}-C_{1}R_{2}R_{5}+C_{1}R_{3}R_{5}+C_{4}R_{4}R_{5})\sqrt{\frac{1}{C_{1}C_{4}R_{1}R_{4}R_{5}-C_{1}C_{4}R_{2}R_{3}R_{5}+C_{1}C_{4}R_$ 

K-HP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-BP:  $\frac{C_1R_1R_2R_6 + C_4R_2R_4R_6}{C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_4R_4R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$ 

# 10.105 X-INVALID-WZ-105 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_5C_6R_1R_2R_4R_6s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4\right)}$$

#### Parameters:

Q: 
$$\frac{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_1R_4+\sqrt{C_1}R_2R_3+\sqrt{C_1}R_2R_4+\sqrt{C_1}R_3R_4}$$
wo: 
$$\sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}$$

$$(\sqrt{C_1}R_1R_2+\sqrt{C_2}R_2R_2+\sqrt{C_2}R_2R_4+\sqrt{C_2}R_2R_4$$

bandwidth:  $\frac{\left(\sqrt{C_1}R_1R_4 + \sqrt{C_1}R_2R_3 + \sqrt{C_1}R_2R_4 + \sqrt{C_1}R_3R_4\right)\sqrt{\frac{1}{C_1C_4R_2R_3 - C_1C_5R_2R_3}}}{C_4\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4 - C_5}} - C_5\sqrt{R_2}\sqrt{R_3}R_4\sqrt{\frac{1}{C_4 - C_5}}}$ 

 $C_4 \sqrt{R_2} \sqrt{R_3} R_4 \sqrt{\frac{1}{C_4 - C_5}} - C_5 \sqrt{I}$  K-LP:  $\frac{C_5 R_2}{C_6}$  K-HP:  $\frac{C_5 R_1 R_6}{C_4 R_3 - C_5 R_3}$  K-BP:  $\frac{C_1 C_5 R_1 R_2 R_4 + C_5 C_6 R_2 R_4 R_6}{C_1 C_6 R_1 R_4 + C_1 C_6 R_2 R_3 + C_1 C_6 R_2 R_4 + C_1 C_6 R_3 R_4}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.106** X-INVALID-WZ-106 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_5R_1R_2R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_4R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5\right)}$$

 $\text{Q: } \frac{C_4\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}R_1R_4R_5-\sqrt{C_1}R_2R_3R_4+\sqrt{C_1}R_2R_3R_5+\sqrt{C_1}R_2R_4R_5+\sqrt{C_1}R_3R_4R_5}$  $\frac{\left(\sqrt{C_1}R_1R_4R_5-\sqrt{C_1}R_2R_3R_4+\sqrt{C_1}R_2R_3R_5+\sqrt{C_1}R_2R_4R_5+\sqrt{C_1}R_3R_4R_5\right)\sqrt{\frac{1}{C_1C_4R_2R_3-C_1C_5R_2R_3}}}{C_4\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_4-C_5}}-C_5\sqrt{R_2}\sqrt{R_3}R_4R_5\sqrt{\frac{1}{C_4-C_5}}}$ K-LP:  $\frac{R_2R_6}{R_5}$ K-HP:  $\frac{C_5R_1R_6}{C_4R_3-C_5R_3}$  $\begin{array}{l} \text{K-BP:} \ \frac{C_4R_3-C_5R_3}{C_1R_1R_4R_5-C_1R_2R_3R_4+C_1R_2R_3R_5+C_1R_2R_4R_5+C_1R_3R_4R_5} \\ \text{Qz:} \ \text{None} \end{array}$ 

## 10.107 X-INVALID-WZ-107 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_6R_2 + C_1C_6R_4 + c_3C_6R_4 + s^2\left(C_1C_3C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_2R_4R_5\right) + s\left(C_1C_3C_6R_1R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_4R_5 + C_3C_5C_6R_4R_5\right)}$ 

#### Parameters:

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

wo:  $\frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1C_3C_5R_1R_4R_5+C_1C_3C_5R_2R_4R_5}}$ bandwidth:  $\frac{C_1C_3R_1R_4+C_1C_3R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{R_1+R_2}\sqrt{C_1C_3C_5R_1R_4R_5+C_1C_3C_5R_2R_4R_5}}$ K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ K-HP:  $\frac{R_1R_2R_6}{R_1R_5+R_2R_5}$  $\begin{array}{l} \text{K-BP:} \ \frac{C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6}{C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_4R_5 + C_3C_5C_6R_4R_5} \\ \text{Qz: None} \ . \end{array}$ Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.108** X-INVALID-WZ-108  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_3C_6R_1R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 - C_1C_5R_2R_4R_5 - C_1C_6R_2R_4R_6 + C_1C_6R_2R_4R_6 + C_3C_6R_4R_5R_6\right)}$ 

### Parameters:

 $Q: \frac{\sqrt{C_{1}C_{3}\sqrt{C_{6}}R_{1}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}} + \frac{C_{1}R_{2}R_{5}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}} + \frac{C_{1}R_{4}R_{5}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}} + \frac{C_{1}R_{4}R_{5}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}} + \frac{C_{1}R_{4}R_{5}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}} + \frac{C_{1}R_{4}R_{5}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}} + \frac{C$ Wo:  $\sqrt{\frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_3C_6R_1R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6-C_1C_5C_6R_2R_4R_5R_6}}$  $\frac{-C_{1}R_{2}R_{4}+C_{1}R_{2}R_{5}+C_{1}R_{4}R_{5}+C_{3}R_{4}R_{5}}{\sqrt{C_{1}C_{3}\sqrt{C_{6}}R_{1}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}}+\frac{C_{1}R_{4}R_{5}+C_{1}C_{3}R_{2}R_{4}R_{5}-C_{1}C_{5}C_{6}R_{2}R_{4}R_{$ K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

**10.109** X-INVALID-WZ-109 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_5C_6R_2R_6\right)}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_5C_6R_1R_5 + C_1C_3C_5C_6R_2R_5 + C_1C_4C_5C_6R_2R_5\right) + s\left(C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_5C_6R_2 + C_1C_5C_6R_5 + C_3C_5C_6R_5\right)}$$

wo:  $\frac{\sqrt{C_1 + C_3}}{\sqrt{C_1 C_3 C_5 R_1 R_5 + C_1 C_3 C_5 R_2 R_5 + C_1 C_4 C_5 R_2 R_5}}$  bandwidth:  $\frac{C_1 C_3 R_1 + C_1 C_3 R_2 + C_1 C_4 R_2 - C_1 C_5 R_2 + C_1 C_5 R_5 + C_3 C_5 R_5}{\sqrt{C_1 \sqrt{C_5} \sqrt{R_5} \sqrt{C_3 R_1 + C_3 R_2 + C_4 R_2} \sqrt{C_1 C_3 C_5 R_1 R_5 + C_1 C_3 C_5 R_2 R_5 + C_1 C_4 C_5 R_2 R_5}}$  K-LP:  $\frac{C_3 C_5 R_2}{C_1 C_6 + C_3 C_6}$  K-HP:  $\frac{C_3 R_1 R_2 R_6}{C_3 R_1 R_5 + C_3 R_2 R_5 + C_4 R_2 R_5}$  K-BP:  $\frac{C_1 C_3 C_5 R_1 R_2 + C_3 C_5 R_1 R_2 + C_3 C_5 C_6 R_2 R_6}{C_1 C_3 C_6 R_1 + C_1 C_3 C_6 R_2 + C_1 C_5 C_6 R_2 + C_1 C_5 C_6 R_5 + C_3 C_5 C_6 R_5}$  Qz: None Way: 1 \_\_\_\_

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

# **10.110** X-INVALID-WZ-110 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_6R_1R_5R_6 + C_1C_3C_6R_2R_5R_6 + C_1C_4C_6R_2R_5R_6 - C_1C_5C_6R_2R_5R_6\right) + s\left(C_1C_3R_1R_5 + C_1C_3R_2R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5 - C_1C_6R_2R_6 + C_3C_6R_5R_6\right)}$$

#### Parameters:

 $Q: \frac{\sqrt{C_1C_3\sqrt{C_6}R_1\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_1R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \sqrt{C_1}C_3\sqrt{C_6}R_2\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_1}C_4\sqrt{C_6}R_2\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_1}C_4\sqrt{C_6}R_2\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}} + \sqrt{C_1}C_4\sqrt{C_6}R_2\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_1}C$ 

 $\frac{-c_{1}R_{2}+c_{1}R_{5}+c_{3}R_{5}}{\sqrt{c_{1}c_{3}c_{6}R_{1}R_{5}R_{6}+c_{1}c_{3}c_{6}R_{2}R_{5}R_{6}}}(c_{1}c_{3}R_{1}R_{5}+c_{1}c_{3}R_{2}R_{5}+c_{1}c_{4}R_{2}R_{5}-c_{1}c_{5}R_{2}R_{5}+c_{1}c_{4}R_{2}R_{5}-c_{1}c_{5}R_{2}R_{5}+c_{1}c_{4}R_{2}R_{5}-c_{1}c_{5}R_{2}R_{5}+c_{1}c_{4}R_{2}-c_{5}R_{5}}}{\sqrt{c_{1}c_{3}\sqrt{c_{6}}R_{1}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\frac{c_{1}R_{5}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}c_{3}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1}}c_{4}\sqrt{c_{6}}R_{2}\sqrt{R_{5}}\sqrt{R_{6}}\sqrt{-\frac{c_{1}R_{2}}{c_{3}R_{1}+c_{3}R_{2}+c_{4}R_{2}-c_{5}R_{2}}}+\sqrt{c_{1$ 

 $\begin{array}{c} & \begin{array}{c} & \begin{array}{c} & C_1R_5 \\ C_3R_2R_6 \end{array} \\ \text{K-LP:} & -\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5} \\ \text{K-HP:} & \frac{C_3C_3R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2} \\ \text{K-HP:} & \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2} \\ \text{K-BP:} & \frac{C_1C_3R_1R_2R_6+C_3C_5R_2R_5R_6}{C_1C_3R_1R_2R_5-C_1C_5R_2R_5-C_1C_6R_2R_6+C_1C_6R_5R_6+C_3C_6R_5R_6} \\ \text{Qz:} & \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

# **10.111** X-INVALID-WZ-111 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

$$H(s) = \frac{C_1C_3C_4R_1R_2R_4R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_1R_4R_5 + C_1C_3C_4R_2R_4R_5\right) + s\left(C_1C_3R_1R_5 + C_1C_3R_2R_5 - C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 + C_3C_4R_4R_5\right)}$$

### Parameters:

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$ 

# **10.112** X-INVALID-WZ-112 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_4C_5R_1R_2R_4s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_4C_5R_2R_4\right)}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_1R_4 + C_1C_3C_4C_6R_2R_4 - C_1C_4C_5C_6R_2R_4\right) + s\left(C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_4C_6R_2 + C_1C_4C_6R_4 - C_1C_5C_6R_2 + C_3C_4C_6R_4\right)}$$

```
\text{Q:} \ \frac{\sqrt{C_{1}C_{3}\sqrt{C_{4}}R_{1}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}}+\sqrt{C_{1}}C_{3}\sqrt{C_{4}}R_{2}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}}-\sqrt{C_{1}}\sqrt{C_{4}}C_{5}R_{2}\sqrt{R_{4}}\sqrt{C_{1}+C_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}-C_{5}R_{2}}}}{C_{1}C_{3}R_{1}+C_{1}C_{3}R_{2}+C_{1}C_{4}R_{2}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{2}+C_{3}C_{4}R_{4}}
                    wo: \sqrt{C_1 + C_3}\sqrt{\frac{1}{C_1C_3C_4R_1R_4 + C_1C_3C_4R_2R_4 - C_1C_4C_5R_2R_4}}
\sqrt{C_1 + C_3}(C_1C_3R_1 + C_1C_3R_2 + C_1C_4R_2 + C_1C_4R_4 - C_1C_5R_2 + C_3C_4R_4)\sqrt{\frac{1}{C_1C_3C_4R_1R_4 + C_1C_3C_4R_2R_4 - C_1C_4C_5R_2R_4}}
                      \begin{array}{l} \text{K-LP: } \frac{C_3C_5R_2}{C_1C_6+C_3C_6} \\ \text{K-HP: } \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2} \\ \text{K-BP: } \frac{C_3C_5R_1R_2}{C_1C_3C_6R_1+C_1C_3C_6R_2+C_1C_4C_6R_2+C_1C_4C_6R_4-C_1C_5C_6R_2+C_3C_4C_6R_4} \\ \text{Qz: None} \end{array} 
                     Wz: \frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}
10.113 X-INVALID-WZ-113 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                    H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_5C_6R_1R_4R_5 + C_1C_3C_5C_6R_2R_4R_5\right) + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_4R_5 + C_1C_5C_6R_4R_
          Parameters:
              \begin{array}{l} \text{Q:} \ \frac{\sqrt{C_1\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{C_3R_1+C_3R_2+C_4R_2}}}{C_1C_3R_1R_4+C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_5+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5} \\ \text{wo:} \ \frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1C_3C_5R_1R_4R_5+C_1C_3C_5R_2R_4+C_1C_5R_2R_4+C_1}}\\ \text{bandwidth:} \ \frac{C_1C_3R_1R_4+C_1C_3R_2R_4+C_1C_4R_2R_4-C_1C_5R_2R_4+C_1C_5R_2R_5+C_1C_5R_4R_5+C_3C_5R_4R_5}{\sqrt{C_1\sqrt{C_5}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1+C_3R_2+C_4R_2}\sqrt{C_1C_3C_5R_1R_4R_5+C_1C_3C_5R_2R_4}}}\\ \text{K-LP:} \ \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}}{C_3R_1R_2R_6}\\ \text{K-HP:} \ \frac{C_3R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}\\ \text{K-RP:} \ \frac{C_3C_5R_1R_2R_6}{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}\\ \text{C}_1C_3C_5R_1R_2R_4+C_3C_5R_4R_5} \end{array}
                     \text{K-BP: } \frac{C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6}{C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 + C_1C_5C_6R_2R_4 + C_1C_5C_6R_2R_5 + C_1C_5C_6R_4R_5 + C_3C_5C_6R_4R_5} 
                        Qz: None
                      Wz: \frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}
10.114 X-INVALID-WZ-114 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1}\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_3C_6R_1R_4R_5R_6 + C_1C_3C_6R_2R_4R_5R_6 - C_1C_5C_6R_2R_4R_5R_6\right) + s\left(C_1C_3R_1R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_4R_5 - C_1C_5R_2R_4R_5 - C_1C_6R_2R_4R_5 + C_1C_6R_4R_5R_5 + C_1C_6R_5R_5R_5 + C_1C_6R_5R_5R
        Parameters:
                     Q: \frac{\sqrt{C_1C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}\sqrt{-\frac{C_1R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_2R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}{+\sqrt{C_1C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}\sqrt{-\frac{C_1R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_1C_3\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}\sqrt{-\frac{C_1R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}\sqrt{-\frac{C_1R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}}\sqrt{-\frac{C_1R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \sqrt{C_1C_4\sqrt{C_6}R_2\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \sqrt{\frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_3C_6R_1R_4R_5R_6+C_1C_3C_6R_2R_4R_5R_6+C_1C_5C_6R_2R_4R_5R_6}}(C_1C_3R_1R_4R_5+C_1C_3R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_2R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1C_4R_5+C_1
                     \frac{\sqrt{C_1C_3\sqrt{C_6}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{R_6}\sqrt{-\frac{C_1R_2R_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1R_4R_5}{C_3R_1+C_3R_2+C_
                 K-LP: -\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}
K-HP: \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}
                   \begin{array}{l} \text{K-BP:} \ \frac{C_{1}C_{3}R_{1}R_{2}R_{4}R_{6} + C_{3}C_{5}R_{2}R_{4}R_{5}R_{6}}{C_{1}C_{3}R_{1}R_{4}R_{5} + C_{1}C_{3}R_{2}R_{4}R_{5} + C_{1}C_{5}R_{2}R_{4}R_{5} - C_{1}C_{5}R_{2}R_{4}R_{5} - C_{1}C_{6}R_{2}R_{4}R_{6} + C_{1}C_{6}R_{2}R_{5}R_{6} + C_{1}C_{6}R_{4}R_{5}R_{6} + C_{3}C_{6}R_{4}R_{5}R_{6}} \\ \text{Qz: None} \ \\ \end{array} 
                     Wz: \frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}
10.115 X-INVALID-WZ-115 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                            H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{-C_1C_3C_5C_6R_2R_3R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + c_3C_6R_4 + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_4 + C_1C_5C_6R_
        Parameters:
```

Q:  $-\frac{i\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}}{\sqrt{C_1}C_3R_1R_4+\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4-\sqrt{C_1}C_5R_2R_4}}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}$ 

bandwidth:  $\frac{i\sqrt{-C_1R_2-C_1R_4-C_3R_4}\left(\sqrt{C_1}C_3R_1R_4+\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4-\sqrt{C_1}C_5R_2R_4\right)}{2}$ 

 $\sqrt{C_1}C_3C_5R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}$ 

```
K-BP: \frac{C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6}{C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 - C_1C_5C_6R_2R_4}Qz: None
Wz: \frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}
```

**10.116** X-INVALID-WZ-116  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)$ 

 $H(s) = \frac{1}{C_{1}C_{6}R_{2} + C_{1}C_{6}R_{4} + C_{3}C_{6}R_{4} + s^{2}\left(C_{1}C_{3}C_{5}C_{6}R_{1}R_{4}R_{5} - C_{1}C_{3}C_{5}C_{6}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{5}C_{6}R_{2}R_{3}R_{5} + C_{1}C_{3}C_{5}C_{6}R_{2}R_{4}R_{5} + C_{1}C_{3}C_{5}C_{6}R_{2}R_{4}R_{5} + C_{1}C_{3}C_{5}C_{6}R_{2}R_{4}R_{5} + C_{1}C_{3}C_{6}R_{2}R_{4} + C_{1}C_$ 

### **Parameters:**

 $Q: \frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_1R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4+C_1C_3R_4+C_1C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \sqrt{C_1}\sqrt{C$ wo:  $\sqrt{C_1R_2 + C_1R_4 + C_3R_4}\sqrt{\frac{1}{C_1C_3C_5R_1R_4R_5 - C_1C_3C_5R_2R_3R_4 + C_1C_3C_5R_2R_3R_5 + C_1C_3C_5R_2R_4R_5 + C_1C_3C_5R_3R_4R_5}$  $\begin{array}{l} \text{K-LP:} \quad \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4} \\ \text{K-HP:} \quad \frac{R_1R_2R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} -\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}R_2R_3R_4 \\ \text{K-HP:} \quad \frac{C_3C_5R_2R_4}{R_1R_2R_4+C_3C_6R_4} \\ \text{K-HP:} \quad \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP:} \quad \frac{C_1C_3C_5R_1R_2R_4+C_3C_5C_6R_2R_4R_6}{C_1C_3C_6R_2R_4+C_1C_3C_6R_2R_4+C_1C_5C_6R_2R_4+C_1C_5C_6R_2R_5+C_1C_5C_6R_4R_5+C_3C_5C_6R_4R_5} \\ \text{Qz:} \quad \text{None} \\ \text{When } & 1 \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.117** X-INVALID-WZ-117  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{-C_1C_3C_5R_2R_3R_4R_5s^2 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + c_3R_4R_5 + s\left(C_1C_3R_1R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_2R_4R_5\right)}$ 

#### Parameters:

Q:  $-\frac{\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{C_1}R_2R_4 - C_1R_2R_5 - C_1R_4R_5 - C_3R_4R_5}{\sqrt{C_1}C_3R_1R_4R_5 - \sqrt{C_1}C_3R_2R_3R_4 + \sqrt{C_1}C_3R_2R_3R_5 + \sqrt{C_1}C_3R_2R_4R_5 + \sqrt{C_1}C_3R_3R_4R_5 - \sqrt{C_1}C_5R_2R_4R_5}$  wo:  $\frac{\sqrt{C_1R_2R_4 - C_1R_2R_5 - C_1R_4R_5 - C_3R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $-\frac{\sqrt{C_1C_3R_1R_4R_5 - \sqrt{C_1}C_3R_2R_3R_4 + \sqrt{C_1}C_3R_2R_3R_5 + \sqrt{C_1}C_3R_2R_4R_5 + \sqrt{C_1}C_3R_3R_4R_5 - \sqrt{C_1}C_5R_2R_4R_5}}{\sqrt{C_1C_3C_5R_2R_3R_4R_5}}$ K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ K-HP:  $-\frac{R_1R_6}{R_3}$ K-BP:  $\frac{C_1C_3R_1R_2R_4R_6+C_3C_5R_2R_4R_5R_6}{C_1C_3R_1R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_5+C_1C_3R_2R_4R_5+C_1C_3R_3R_4R_5-C_1C_5R_2R_4R_5}$  Qz: None Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

**10.118** X-INVALID-WZ-118  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_5C_6R_2R_6\right)}{C_1C_6 + C_3C_6 + s^2\left(C_1C_3C_4C_6R_2R_3 - C_1C_3C_5C_6R_2R_3\right) + s\left(C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2\right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_1+\sqrt{C_1}C_3R_2+\sqrt{C_1}C_3R_3+\sqrt{C_1}C_4R_2-\sqrt{C_1}C_5R_2}$ wo:  $\sqrt{C_1 + C_3} \sqrt{\frac{1}{C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}}$ bandwidth:  $\frac{\sqrt{C_1 + C_3} \left(\sqrt{C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}\right)}{\sqrt{C_3 C_4 \sqrt{R_2} \sqrt{R_3} \sqrt{C_1 + C_3}} - \sqrt{C_3 C_4 \sqrt{R_2} \sqrt{R_3} \sqrt{C_1 + C_3}}\right) \sqrt{\frac{1}{C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}}}$  $\text{K-BP:} \frac{C_1C_3C_5R_1R_2 + C_3C_5C_6R_2R_6}{C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

```
10.119 X-INVALID-WZ-119 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
```

$$H(s) = \frac{C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_2R_3R_5 - C_1C_3C_5R_2R_3R_5\right) + s\left(C_1C_3R_1R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5\right)}$$

```
Q: \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_4-C_5}+\frac{C_1R_5}{C_4-C_5}+\frac{C_3R_5}{C_4-C_5}}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_4-C_5}+\frac{C_1R_5}{C_4-C_5}+\frac{C_3R_5}{C_4-C_5}}}{\sqrt{C_1}C_3R_1R_5-\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_5+\sqrt{C_1}C_3R_3R_5+\sqrt{C_1}C_4R_2R_5-\sqrt{C_1}C_5R_2R_5}}
 \text{bandwidth: } \frac{\sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_3C_4R_2R_3R_5-C_1C_3C_5R_2R_3R_5}} \left(\sqrt{C_1}C_3R_1R_5-\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_5+\sqrt{C_1}C_3R_3R_5+\sqrt{C_1}C_4R_2R_5-\sqrt{C_1}C_5R_2R_5\right)}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_4-C_5}+\frac{C_1R_5}{C_4-C_5}+\frac{C_3R_5}{C_4-C_5}-\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{-\frac{C_1R_2}{C_4-C_5}+\frac{C_3R_5}{C_4-C_5}}}
K-BP: \frac{C_1C_3R_1R_2R_6+C_3C_5R_2R_5R_6}{C_1C_3R_1R_5-C_1C_3R_2R_3+C_1C_3R_2R_5+C_1C_3R_3R_5+C_1C_4R_2R_5-C_1C_5R_2R_5}{Qz: None}
 Wz: \frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}
```

# **10.120** X-INVALID-WZ-120 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, R_5, R_6\right)$

 $H(s) = \frac{C_1C_3C_4R_1R_2R_4R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_4R_2R_4R_6\right)}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_3C_4R_1R_4R_5 - C_1C_3C_4R_2R_3R_4 + C_1C_3C_4R_2R_3R_5 + C_1C_3C_4R_2R_4R_5\right) + s\left(C_1C_3R_1R_5 - C_1C_3R_2R_5 + C_1C_3R_2R_5 + C_1C_3R_2R_5 + C_1C_4R_2R_4 + C_1C_4R_2R_5 + C_1C_4R_4R_5 + C_3C_4R_4R_5\right)}$ 

#### Parameters:

```
O: \frac{\sqrt{C_1}\sqrt{C_3}\sqrt{C_4}R_1R_4R_5\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{\sqrt{C_1}\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - \sqrt{C_1}\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5}} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_5} + \frac{C_1R_5}{R_1R_4R_5-R_
        \frac{\text{bandwidth:}}{\sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_1R_4R_5\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_2R_3R_4\sqrt{-\frac{C_1R_2}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}} + \sqrt{C_1\sqrt{C_3}\sqrt{C_4}R_3R_4+R_2R_3R_5+R_3R_4R_5}}} - \sqrt{C_1\sqrt
```

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$ 

# **10.121** X-INVALID-WZ-121 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_3C_4C_6R_2R_3R_4 - C_1C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4\right)}$ 

$$Q \colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_3R_1R_4+\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4} + \sqrt{C_1}C_4R_2R_4-\sqrt{C_1}C_5R_2R_4} \\ wo: \sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_1C_3}C_4R_2R_3R_4-C_1C_3C_5R_2R_3R_4}} \\ bandwidth: \frac{\sqrt{C_1R_2+C_1R_4+C_3R_4}\left(\sqrt{C_1}C_3R_1R_4+\sqrt{C_1}C_3R_2R_3+\sqrt{C_1}C_3R_2R_4+\sqrt{C_1}C_3R_3R_4+\sqrt{C_1}C_4R_2R_4-\sqrt{C_1}C_5R_2R_4}\right)\sqrt{\frac{1}{C_1C_3C_4R_2R_3R_4-C_1C_3C_5R_2R_3R_4}}}{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2+C_1R_4+C_3R_4}\sqrt{\frac{1}{C_4-C_5}}} \\ K-LP \colon \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4}}{C_4R_3-C_5R_3} \\ K-BP \colon \frac{C_1S_1R_6}{C_4R_3-C_5R_3} \\ K-BP \colon \frac{C_1C_3C_5R_1R_2R_4+C_3C_5C_6R_2R_4R_6}{C_4R_3-C_5C_6R_2R_4+C_1C_3C_6R_2R_4+C_1C_3C_6R_2R_4-C_1C_5C_6R_2R_4}} \\ Wz: \frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}} \\ \end{aligned}$$

```
10.122 X-INVALID-WZ-122 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
```

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_3C_4R_2R_3R_4R_5 - C_1C_3C_5R_2R_3R_4R_5\right) + s\left(C_1C_3R_1R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_3R_2R_4R_5 - C_1C_3R_2R_4R_5\right)}$ 

#### Parameters:

 $Q \colon \frac{\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_4-C_5}} + \frac{C_1R_4R_5}{C_4-C_5} + \frac{C_3R_4R_5}{C_4-C_5}}{C_4-C_5} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_4-C_5}} + \frac{C_1R_4R_5}{C_4-C_5} + \frac{C_3R_4R_5}{C_4-C_5}}{\frac{C_4-C_5}{C_4-C_5}} \times \frac{C_3R_4R_5}{C_4-C_5} - \frac{C_3R_4R_5}{C_4-C_5} - \sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_4-C_5}} + \frac{C_1R_4R_5}{C_4-C_5} + \frac{C_3R_4R_5}{C_4-C_5}}{\frac{C_1C_3}{C_3}R_2R_3R_4 + \sqrt{C_1}C_3R_2R_3R_5 + \sqrt{C_1}C_3R_2R_4R_5 + \sqrt{C_1}C_3R_3R_4R_5 - \sqrt{C_1}C_5R_2R_4R_5}}{\sqrt{C_1C_3}R_2R_3R_4R_5 - C_1C_3C_5R_2R_3R_4R_5}} \\ \text{wo: } \frac{\sqrt{-\frac{C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5}}{\sqrt{C_1C_3}C_4R_2R_3R_4R_5 - C_1C_3C_5R_2R_3R_4R_5}}{\sqrt{C_1C_3}C_5R_2R_3R_4R_5}} \\ \sqrt{\frac{-\frac{C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5}{C_1C_3C_5R_2R_3R_4R_5}}{\sqrt{C_1C_3}R_1R_4R_5 - \sqrt{C_1}C_3R_2R_3R_4 + \sqrt{C_1}C_3R_2R_3R_5 + \sqrt{C_1}C_3R_2R_4R_5 + \sqrt{C_1}C_3R_2R_4R_5}}}} \\ \text{bandwidth: } \frac{\sqrt{\frac{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5}{C_1C_3C_5R_2R_3R_4R_5}}(\sqrt{C_1C_3R_1R_4R_5 - \sqrt{C_1}C_3R_2R_3R_4 + \sqrt{C_1}C_3R_2R_4R_5 +$ 

# **10.123** X-INVALID-WZ-123 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, R_5, R_6\right)$

 $H(s) = \frac{C_1C_3R_1R_2R_3R_4R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6\right)}{R_4R_5 + s^2\left(C_1C_3R_1R_3R_4R_5 + C_1C_3R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_3}\sqrt{R_3}R_4R_5\sqrt{R_1+R_2}}{C_1R_1R_4R_5-C_1R_2R_3R_4+C_1R_2R_3R_5+C_1R_2R_4R_5+C_1R_3R_4R_5+C_3R_3R_4R_5}$  wo:  $\frac{1}{\sqrt{C_1C_3R_1R_3+C_1C_3R_2R_3}}$  bandwidth:  $\frac{C_1R_1R_4R_5-C_1R_2R_3R_4+C_1R_2R_3R_5+C_1R_2R_4R_5+C_1R_3R_4R_5+C_3R_3R_4R_5}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_3}R_4R_5\sqrt{R_1+R_2}\sqrt{C_1C_3}R_1R_3+C_1C_3R_2R_3}}$  K-LP:  $\frac{R_2R_6}{R_5}$  K-HP:  $\frac{R_1R_2R_6}{R_1R_5+R_2R_5}$  K-BP:  $\frac{C_1R_1R_2R_4R_6+C_3R_2R_3R_4R_6}{C_1R_1R_4R_5-C_1R_2R_3R_4+C_1R_2R_3R_5+C_1R_2R_4R_6+C_3R_2R_3R_4R_6}$  Qz: None  $Wz: \frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_3}\sqrt{R_1}\sqrt{R_3}}$ 

**10.124** X-INVALID-WZ-124  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4\right)}{C_6R_4 + s^2\left(C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_3C_6R_3R_4\right)}$ 

#### Parameters:

 $Q \colon \frac{\sqrt{C_1}C_3R_1\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} }{C_1R_1}R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4 } \\ \text{wo: } \sqrt{\frac{1}{C_1C_3R_1R_3+C_1C_3R_2R_3-C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{(C_1R_1R_4+C_1R_2R_3+C_1R_2R_4+C_1R_3R_4+C_3R_3R_4)\sqrt{\frac{1}{C_1C_3R_1R_3+C_1C_3R_2R_3-C_1C_5R_2R_3}}}{\sqrt{C_1}C_3R_1\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}}} \\ \text{K-LP: } \frac{C_5R_2}{C_6} \\ \text{K-HP: } \frac{C_3C_5R_1}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2}}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2} \\ \text{K-BP: } \frac{C_1C_5R_1R_2}{C_1C_6R_1R_4+C_1C_6R_2R_3+C_1C_6R_3R_4+C_3C_6R_3R_4}}{C_1C_6R_2R_4+C_1C_6R_3R_4+C_3C_6R_3R_4}} \\ \text{Wz: } \frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}} \\ \text{Wz: } \frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}} \\ \\$ 

**10.125** X-INVALID-WZ-125 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_1C_3R_1R_2R_3R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_3R_2R_3R_6\right)}{R_5 + s^2\left(C_1C_3R_1R_3R_5 + C_1C_3R_2R_3R_5 + C_1C_4R_2R_3R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_3R_3R_5\right)}$$

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}$ 

# **10.126** X-INVALID-WZ-126 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_3s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_3C_5R_2R_3\right)}{C_6 + s^2\left(C_1C_3C_6R_1R_3 + C_1C_3C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_3C_6R_3\right)}$$

## Parameters:

$$Q: \frac{\sqrt{C_{1}C_{3}R_{1}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}} + \sqrt{C_{1}C_{3}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}} + \sqrt{C_{1}C_{4}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}}}} - \sqrt{C_{1}C_{5}R_{2}\sqrt{R_{3}}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}}}} - \sqrt{$$

 $\frac{(C_1R_1 + C_1R_2 + C_1R_3 + C_3R_3)\sqrt{\frac{1}{C_1C_3R_1R_3 + C_1C_3R_2R_3 + C_1C_5R_2R_3}}}{\sqrt{C_1C_3R_1\sqrt{R_3}}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_4R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_3R_2\sqrt{R_3}\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}}} + \sqrt{C_1}C_3R_2\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}}} + \sqrt{C_1}C_3R_2\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}}} + \sqrt{C_1}C_3R_2\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}}}$ 

K-HP:  $\frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2}$  K-BP:  $\frac{C_1C_5R_1R_2+C_3C_5R_2R_3}{C_1C_6R_1+C_1C_6R_2+C_1C_6R_3+C_3C_6R_3}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}$ 

# 10.127 X-INVALID-WZ-127 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$

$$H(s) = \frac{C_1C_3R_1R_2R_3R_4R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6\right)}{R_4R_5 + s^2\left(C_1C_3R_1R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5\right)}$$

### Parameters:

K-LP:  $\frac{R_2 R_6}{R_5}$ 

K-HP:  $\frac{C_3R_1R_2R_6}{C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5}$  K-BP:  $\frac{C_1R_1R_2R_4R_6 + C_3R_2R_3R_4R_6}{C_1R_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_3R_3R_4R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}$ 

# **10.128** X-INVALID-WZ-128 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_2R_3R_4s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_3C_5R_2R_3R_4\right)}{C_6R_4 + s^2\left(C_1C_3C_6R_1R_3R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_3C_6R_3R_4\right)}$$

```
\text{Q:} \frac{\sqrt{C_{1}}C_{3}R_{1}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}} + \sqrt{C_{1}}C_{3}R_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}} + \sqrt{C_{1}}C_{4}R_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}} - \sqrt{C_{1}}C_{5}R_{2}\sqrt{R_{3}}R_{4}\sqrt{\frac{1}{C_{3}R_{1}+C_{3}R_{2}+C_{4}R_{2}-C_{5}R_{2}}} - C_{1}R_{1}R_{4}+C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{3}R_{3}R_{4}
             Wo: \sqrt{\frac{1}{C_1C_3R_1R_3+C_1C_3R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}}
              \text{bandwidth: } \frac{(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_3R_3R_4)\sqrt{\frac{1}{C_1C_3R_1R_3 + C_1C_3R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2}R_3}}{\sqrt{C_1C_3R_1\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} + \sqrt{C_1}C_4R_2\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}}} + \sqrt{C_1}C_4R_2\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}} - \sqrt{C_1}C_5R_2\sqrt{R_3}R_4\sqrt{\frac{1}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2}}}}
           K-HP: \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2+C_4C_6R_2-C_5C_6R_2} K-BP: \frac{C_1C_5R_1R_2R_4+C_3C_5R_2R_3R_4}{C_1C_6R_1R_4+C_1C_6R_2R_3+C_1C_6R_2R_4+C_1C_6R_3R_4+C_3C_6R_3R_4} Qz: None
             Wz: \frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}
10.129 X-INVALID-WZ-129 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                                                                      H(s) = \frac{C_1C_4C_5R_1R_4R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_4C_5R_4R_6\right)}{C_1 + C_2 + s^2\left(C_1C_2C_4R_1R_4 + C_1C_2C_4R_3R_4 - C_1C_4C_5R_3R_4\right) + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_4R_3 + C_1C_4R_4 - C_1C_5R_3 + C_2C_4R_4\right)}
     Parameters:
              Q: \frac{\sqrt{C_1C_2\sqrt{C_4}R_1\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} + \sqrt{C_1C_2\sqrt{C_4}R_3\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_1\sqrt{C_4}C_5R_3\sqrt{R_4}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - C_1C_2R_1+C_1C_2R_3+C_1C_4R_4-C_1C_5R_3+C_2C_4R_4}
             \text{wo: } \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 C_4 R_1 R_4 + C_1 C_2 C_4 R_3 R_4 - C_1 C_4 C_5 R_3 R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1 + C_2} \left(C_1 C_2 R_1 + C_1 C_2 R_3 + C_1 C_4 R_3 + C_1 C_4 R_4 - C_1 C_5 R_3 + C_2 C_4 R_4\right) \sqrt{\frac{1}{C_1 C_2 C_4 R_1 R_4 + C_1 C_2 C_4 R_3 R_4 - C_1 C_4 C_5 R_3 R_4}}}{\sqrt{C_1 C_2} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \sqrt{C_1 C_2} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_1} \sqrt{C_4 C_5 R_3} \sqrt{R_4} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} \\ - \sqrt{C_1 C_2} \sqrt{\frac{1}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - \sqrt{C_1} \sqrt{C_2 C_4 R_3 C_5 R_3} - \sqrt{C_1} \sqrt{C_2 C_4 R_3 C_5 R_3} \\ - \sqrt{C_1 C_2} \sqrt{C_1 C_2} \sqrt{C_1 C_2} \sqrt{C_1 C_2} \sqrt{C_1 C_2} \sqrt{C_1 C_2} \sqrt{C_2 R_1 + C_2 R_3 - C_5 R_3} \\ - \sqrt{C_1 C_2} \sqrt{C_
          K-LP: \frac{C_5R_6}{C_1+C_2}

K-HP: \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}

K-BP: \frac{C_1C_5R_1R_6+C_4C_5R_4R_6}{C_1C_2R_1+C_1C_2R_3+C_1C_4R_3+C_1C_4R_4-C_1C_5R_3+C_2C_4R_4}

Qz: None
             Wz: \frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}
10.130 X-INVALID-WZ-130 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                         H(s) = \frac{C_1C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_2C_3C_6R_1R_4s^2 + C_1C_6 + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}
     Parameters:
              Qz: None
             Wz: \frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}
```

**10.131** X-INVALID-WZ-131  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_3C_5R_4R_5R_6\right)}{C_1C_2C_3R_1R_4R_5s^2 - C_1R_4 + C_1R_5 + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$ 

#### Parameters:

Q:  $\frac{C_{1}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{-R_{4}+R_{5}}}{C_{1}C_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}-C_{1}C_{5}\sqrt{R_{4}}\sqrt{R_{5}}+C_{2}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}}$  wo:  $\frac{\sqrt{-R_{4}+R_{5}}}{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}}$  bandwidth:  $\frac{C_{1}C_{2}\sqrt{R_{4}}\sqrt{R_{5}}+C_{1}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}-C_{1}C_{5}\sqrt{R_{4}}\sqrt{R_{5}}+C_{2}C_{3}\sqrt{R_{4}}\sqrt{R_{5}}}{C_{1}C_{2}C_{3}R_{1}\sqrt{R_{4}}\sqrt{R_{5}}}$  K-LP:  $-\frac{C_{3}R_{4}R_{6}}{C_{1}R_{4}-C_{1}R_{5}}$ 

K-HP:  $\frac{C_5R_6}{C_2}$ K-BP:  $\frac{C_1C_3R_1R_6+C_3C_5R_5R_6}{C_1C_2R_5+C_1C_3R_5-C_1C_5R_5+C_2C_3R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

# **10.132** X-INVALID-WZ-132 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_5R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_3C_5R_5R_6\right)}{C_1C_2C_3R_1R_5s^2 - C_1 + s\left(C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 - C_1C_5R_5 + C_2C_3R_5\right)}$$

## Parameters:

Q:  $\frac{iC_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}}{C_1C_2\sqrt{R_5} + C_1C_3\sqrt{R_5} + C_1C_4\sqrt{R_5} - C_1C_5\sqrt{R_5} + C_2C_3\sqrt{R_5}}$ 

wo:  $\frac{i}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_5}}$  bandwidth:  $\frac{C_1C_2\sqrt{R_5}+C_1C_3\sqrt{R_5}+C_1C_4\sqrt{R_5}-C_1C_5\sqrt{R_5}+C_2C_3\sqrt{R_5}}{C_1C_2C_3R_1\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_6}{C_1}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_1C_2R_5+C_1C_3R_1R_6+C_3C_5R_5R_6} \\ \text{Qz: None}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

## **10.133** X-INVALID-WZ-133 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_3C_4C_5R_4R_6\right)}{C_1C_2C_3C_4R_1R_4s^2 + C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s\left(C_1C_2C_3R_1 + C_1C_2C_4R_4 + C_1C_3C_4R_4 - C_1C_4C_5R_4 + C_2C_3C_4R_4\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{C_1C_2C_3R_1+C_1C_2C_4R_4+C_1C_3C_4R_4-C_1C_4C_5R_4+C_2C_3C_4R_4}$ wo:  $\frac{\sqrt{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$ bandwidth:  $\frac{C_1C_2C_3R_1+C_1C_2C_4R_4+C_1C_3C_4R_4-C_1C_4C_5R_4+C_2C_3C_4R_4}{C_1C_2C_3C_4R_1R_4}$ K-LP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_1 C_3 C_5 R_1 R_6 + C_3 C_4 C_5 R_4 R_6}{C_1 C_2 C_3 R_1 + C_1 C_2 C_4 R_4 + C_1 C_3 C_4 R_4 - C_1 C_4 C_5 R_4 + C_2 C_3 C_4 R_4}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$ 

# 10.134 X-INVALID-WZ-134 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_2C_3C_6R_1R_4s^2 + C_1C_6 + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

## Parameters:

Q:  $\frac{C_{1}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}}{C_{1}C_{2}\sqrt{R_{4}}+C_{1}C_{3}\sqrt{R_{4}}+C_{1}C_{4}\sqrt{R_{4}}-C_{1}C_{5}\sqrt{R_{4}}+C_{2}C_{3}\sqrt{R_{4}}}$  wo:  $\frac{1}{\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{4}}}$  bandwidth:  $\frac{C_{1}C_{2}\sqrt{R_{4}}+C_{1}C_{3}\sqrt{R_{4}}+C_{1}C_{4}\sqrt{R_{4}}-C_{1}C_{5}\sqrt{R_{4}}+C_{2}C_{3}\sqrt{R_{4}}}{C_{1}C_{2}C_{3}R_{1}\sqrt{R_{4}}}$ 

K-LP:  $\frac{C_3C_5R_4}{C_1C_6}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_{12}}{C_{1}C_{2}C_{6}+C_{1}C_{3}C_{5}R_{1}+C_{3}C_{5}C_{6}R_{6}}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.135** X-INVALID-WZ-135 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_3C_5R_4R_5R_6\right)}{C_1C_2C_3R_1R_4R_5s^2 - C_1R_4 + C_1R_5 + s\left(C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

Q:  $\frac{C_1\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{-R_4+R_5}}{C_1C_2\sqrt{R_4}\sqrt{R_5}+C_1C_3\sqrt{R_4}\sqrt{R_5}+C_1C_4\sqrt{R_4}\sqrt{R_5}-C_1C_5\sqrt{R_4}\sqrt{R_5}+C_2C_3\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-R_4+R_5}}{\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_1C_2\sqrt{R_4}\sqrt{R_5}+C_1C_3\sqrt{R_4}\sqrt{R_5}+C_1C_4\sqrt{R_4}\sqrt{R_5}-C_1C_5\sqrt{R_4}\sqrt{R_5}+C_2C_3\sqrt{R_4}\sqrt{R_5}}{C_1C_2C_3R_1\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_4R_6}{C_1R_4-C_1R_5}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_1C_3R_1R_6+C_3C_5R_5R_6}{C_1C_2R_5+C_1C_3R_5+C_1C_4R_5-C_1C_5R_5+C_2C_3R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

# **10.136** X-INVALID-WZ-136 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_3R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_3 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

### Parameters:

$$Q: \frac{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + C_{1}C_{2}\sqrt{C_{3}}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} - C_{1}\sqrt{C_{3}}C_{5}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}}{C_{1}C_{2}R_{4}+C_{1}C_{3}R_{3}+C_{1}C_{3}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4}}$$

$$Wo: \sqrt{\frac{1}{C_{2}C_{3}R_{1}R_{4}+C_{2}C_{3}R_{3}R_{4}-C_{3}C_{5}R_{3}R_{4}}}$$

$$bandwidth: \frac{(C_{1}C_{2}R_{4}+C_{1}C_{3}R_{3}+C_{1}C_{3}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4})\sqrt{\frac{1}{C_{2}C_{3}R_{1}R_{4}+C_{2}C_{3}R_{3}R_{4}-C_{3}C_{5}R_{3}R_{4}}}}{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}+C_{1}C_{2}\sqrt{C_{3}}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}}}$$

$$K_{\bullet}I.P. \frac{C_{3}C_{5}R_{4}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}+C_{1}C_{2}\sqrt{C_{3}}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}}$$

 $\begin{array}{l} \text{K-LP: } \frac{C_3C_5R_4}{C_1C_6} \\ \text{K-HP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3} \\ \text{K-BP: } \frac{C_1C_3C_5R_1R_4+C_3C_5C_6R_4R_6}{C_1C_2C_6R_4+C_1C_3C_6R_3+C_1C_3C_6R_4-C_1C_5C_6R_4+C_2C_3C_6R_4} \\ \text{Qz: None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

# 10.137 X-INVALID-WZ-137 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_3R_3R_4R_5 - C_1C_3C_5R_3R_4R_5\right) + s\left(C_1C_2R_4R_5 - C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

#### **Parameters:**

$$Q: \underbrace{\frac{C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3-C_5R_3} + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3-C_5R_3} - C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3-C_5R_3} + \frac{R_5}{C_2R_1+C_2R_3-C$$

wo:  $\sqrt{\frac{-R_4 + R_5}{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 - C_3 C_5 R_3 R_4 R_5}}$ 

 $\begin{array}{l} & \frac{-R_4 + R_5}{\sqrt{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 - C_3 C_5 R_3 R_4 R_5}} (C_1 C_2 R_4 R_5 - C_1 C_3 R_3 R_4 + C_1 C_3 R_3 R_5 + C_1 C_3 R_4 R_5 - C_1 C_5 R_4 R_5 + C_2 C_3 R_4 R_5) \\ & \frac{-R_4 + R_5}{C_1 C_2 \sqrt{C_3} R_1 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + C_1 C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 - C_5 R_3}}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 - C_5 R_3}}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 - C_5 R_3}}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 - C_5 R_3}}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} - C_1 \sqrt{C_3} C_5 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_3 - C_5 R_3}}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3}} + \frac{R_5}{C_2 R_1 + C_2 R_3 - C_5 R_3} + \frac{R_5}{C_2 R_1$ 

 $\begin{array}{l} \text{K-LP:} \ -\frac{C_3R_4R_6}{C_1R_4-C_1R_5} \\ \text{K-HP:} \ \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3} \\ \text{K-BP:} \ \frac{C_5R_1R_6}{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_2C_3R_4R_5} \\ \text{K-BP:} \ \frac{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_2C_3R_4R_5}{C_1C_2R_4R_5-C_1C_3R_3R_5+C_1C_3R_4R_5+C_2C_3R_4R_5} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

**10.138** X-INVALID-WZ-138 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_5R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_3C_5R_5R_6\right)}{-C_1 + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_3R_3R_5 + C_1C_3C_4R_3R_5 - C_1C_3C_5R_3R_5\right) + s\left(C_1C_2R_5 - C_1C_3R_3 + C_1C_3R_5 + C_1C_4R_5 - C_1C_5R_5 + C_2C_3R_5\right)}$$

 $\frac{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+C_{1}C_{2}\sqrt{C_{3}}R_{3}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+C_{1}\sqrt{C_{3}}C_{4}R_{3}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}R_{3}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+C_{1}C_{2}R_{3}+C_{1}C$ Wo:  $\sqrt{-\frac{1}{C_2C_3R_1R_5+C_2C_3R_3R_5+C_3C_4R_3R_5-C_3C_5R_3R_5}}$ K-HP:  $\frac{C_1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}$  K-BP:  $\frac{C_1C_3R_1R_6+C_3C_5R_5R_6}{C_1C_2R_5-C_1C_3R_3+C_1C_3R_5+C_1C_4R_5-C_1C_5R_5+C_2C_3R_5}$  Qz: None Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

# **10.139** X-INVALID-WZ-139 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_1C_3C_4C_5R_1R_4R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_3C_4C_5R_4R_6\right)}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_1R_4 + C_1C_2C_3C_4R_3R_4 - C_1C_3C_4C_5R_3R_4\right) + s\left(C_1C_2C_3R_1 + C_1C_2C_3R_3 + C_1C_2C_4R_4 + C_1C_3C_4R_3 + C_1C_3C_4R_4 - C_1C_3C_5R_3 - C_1C_4C_5R_4 + C_2C_3C_4R_4\right)}$ 

### Parameters:

 $Q: \frac{\sqrt{C_1C_2\sqrt{C_3}\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{C_1C_2}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_1C_3}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_1C_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_1C_4}{C_2R_1+C_2R_3-C_5R_3} + \frac{C_1C_3}{C_2R_1+C_2R_3-C_5R_3} + \frac{$ wo:  $\sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_4R_1R_4+C_1C_2C_3C_4R_3R_4-C_1C_3C_4C_5R_3R_4}}$  $\sqrt{\frac{c_1c_2+c_1c_3+c_1c_4-c_1c_5+c_2c_3}{c_1c_2c_3c_4R_1R_4+c_1c_2c_3c_4R_3R_4-c_1c_3c_4c_5R_3R_4}}(C_1C_2C_3R_1+C_1C_2C_3R_3+C_1C_2C_4R_4+C_1C_3C_4R_3+C_1C_3C_4R_4-C_1C_3C_5R_3-C_1C_4C_5R_4+C_2C_3C_4R_4)$  $\frac{\sqrt{\frac{C_1C_2C_3C_4R_1R_4+c_1C_2C_3C_4R_3R_4-c_1C_3C_4C_5R_3R_4}{C_2C_3C_4R_1R_4+c_1C_2C_3C_4R_3R_4-c_1C_3C_4C_5R_3R_4}}{\sqrt{C_1C_2\sqrt{C_3}\sqrt{C_4}R_1\sqrt{R_4}\sqrt{\frac{C_1C_2}{C_2R_1+C_2R_3-C_5R_3}+\frac{C_1C_3}{C_2R_1+C_2R_3-C_5R_3}+\frac{C_1$ 

K-LP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$ K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}$ 

K-BP:  $\frac{C_1C_3C_5R_1R_6+C_3C_4C_5R_4R_6}{C_1C_2C_3R_1+C_1C_2C_3R_3+C_1C_2C_4R_4+C_1C_3C_4R_3+C_1C_3C_4R_4-C_1C_3C_5R_3-C_1C_4C_5R_4+C_2C_3C_4R_4}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}}$ 

# **10.140** X-INVALID-WZ-140 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_1C_3C_5C_6R_1R_4R_6s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_3C_5C_6R_4R_6\right)}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_3R_4 + C_1C_3C_4C_6R_3R_4 - C_1C_3C_5C_6R_3R_4\right) + s\left(C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_3C_$ 

### Parameters:

 $\text{Q:} \ \frac{ C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + C_{1}C_{2}\sqrt{C_{3}}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + C_{1}\sqrt{C_{3}}C_{4}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} - C_{1}\sqrt{C_{3}}C_{5}R_{3}\sqrt{R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} \\ - C_{1}C_{2}R_{4}+C_{1}C_{3}R_{3}+C_{1}C_{3}R_{4}+C_{1}C_{4}R_{4}-C_{1}C_{5}R_{4}+C_{2}C_{3}R_{4} \\ - C_{1}C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3} \\ - C_{1}C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}+C_{4}R_{3}-C_{5}R_{3} \\ - C_{1}C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}+C_{4}R_{3}-C_{5}R_{3} \\ - C_{1}C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3}+C_{4}R_{3} \\ - C_{1}C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}+$ Wo:  $\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_3R_4+C_3C_4R_3R_4-C_3C_5R_3R_4}}$ 

 $\text{bandwidth: } \frac{(C_1C_2R_4 + C_1C_3R_3 + C_1C_3R_4 + C_1C_4R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_3R_4 + C_3C_4R_3R_4 - C_3C_5R_3R_4}}{C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_1C_2\sqrt{C_3}R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} - C_1\sqrt{C_3}C_5R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_2R_3 + C_4R_3 - C_5R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_2R_3 + C_4R_3 - C_5R_3}}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_3}C_4R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_3}C_4R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_3}C_4R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_3}C_4R_3}} + C_1\sqrt{C_3}C_4R_3\sqrt{\frac{1}{C_3}C_4R_3}} + C_1\sqrt{C_3}C_$ 

 $\begin{array}{l} \text{K-LP: } \frac{C_3C_5R_4}{C_1C_6} \\ \text{K-HP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} \\ \text{K-BP: } \frac{C_5R_1R_6}{C_1C_2C_6R_4+C_1C_3C_6R_3+C_1C_3C_6R_4+C_1C_4C_6R_4-C_1C_5C_6R_4+C_2C_3C_6R_4} \\ \text{Qz: None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.141** X-INVALID-WZ-141 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_3C_5R_1R_4R_5R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_3C_5R_4R_5R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_3R_3R_4R_5 + C_1C_3C_5R_3R_4R_5\right) + s\left(C_1C_2R_4R_5 - C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 - C_1C_5R_4R_5 + C_2C_3R_4R_5\right)}$$

 $Q: \frac{C_1C_2\sqrt{C_3}R_1\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \frac{R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5R_5-C_1C_5R_5-C_1C_5R_5-C_1C_5R_5-C_1C_5R_5-C_1C_5R_5-C_1C_5R_5-C$  $\frac{-R_4 + R_5}{\sqrt{C_2 C_3 R_1 R_4 R_5 + C_2 C_3 R_3 R_4 R_5 + C_3 C_4 R_3 R_4 R_5 - C_3 C_5 R_3 R_4 R_5}} (C_1 C_2 R_4 R_5 - C_1 C_3 R_3 R_4 + C_1 C_3 R_3 R_5 + C_1 C_3 R_4 R_5 + C_1 C_5 R_4 R_5 + C_2 C_3 R_4 R_5) \\ \frac{-R_4 + R_5}{\sqrt{C_2 C_3 R_1 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 C_2 \sqrt{C_3} R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_2 R_1 + C_2 R_3 + C_4 R_3 - C_5 R_3}}} + C_1 \sqrt{C_3} C_4 R_3 \sqrt{R_4} \sqrt$ 

 $\begin{array}{l} \text{K-LP:} -\frac{C_3R_4R_6}{C_1R_4-C_1R_5} \\ \text{K-HP:} \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} \\ \text{K-BP:} \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} \\ \text{K-BP:} \frac{C_1C_3R_1R_4R_6+C_3C_5R_4R_5R_6}{C_1C_2R_4R_5-C_1C_3R_3R_4+C_1C_3R_3R_5+C_1C_3R_4R_5+C_1C_4R_4R_5-C_1C_5R_4R_5+C_2C_3R_4R_5} \\ \text{Qz: None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

# **10.142** X-INVALID-WZ-142 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1C_2C_3R_1R_3R_4s^2 + C_1R_3 + C_1R_4 + C_2R_4 + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_3R_3R_4 - C_1C_5R_3R_4 + C_2C_3R_3R_4\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}}{C_{1}C_{2}R_{1}\sqrt{R_{4}}+C_{1}C_{2}R_{3}\sqrt{R_{4}}+C_{1}C_{3}R_{3}\sqrt{R_{4}}-C_{1}C_{5}R_{3}\sqrt{R_{4}}+C_{2}C_{3}R_{3}\sqrt{R_{4}}}$  wo:  $\frac{\sqrt{C_{1}R_{3}+C_{1}R_{4}+C_{2}R_{4}}}{\sqrt{C_{1}}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}}}$  bandwidth:  $\frac{C_{1}C_{2}R_{1}\sqrt{R_{4}}+C_{1}C_{2}R_{3}\sqrt{R_{4}}+C_{1}C_{3}R_{3}\sqrt{R_{4}}-C_{1}C_{5}R_{3}\sqrt{R_{4}}+C_{2}C_{3}R_{3}\sqrt{R_{4}}}{C_{1}C_{2}C_{3}R_{1}R_{3}\sqrt{R_{4}}}}$ 

K-BP:  $\frac{C_1C_5R_1R_6+C_3C_5R_3R_6}{C_1C_2R_1+C_1C_2R_3+C_1C_3R_3-C_1C_5R_3+C_2C_3R_3}$  Qz: None Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}$ 

# **10.143** X-INVALID-WZ-143 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$

$$H(s) = \frac{C_1C_3C_5R_1R_3R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_3C_5R_3R_6\right)}{C_1C_2C_3R_1R_3s^2 + C_1 + C_2 + s\left(C_1C_2R_1 + C_1C_2R_3 + C_1C_3R_3 + C_1C_4R_3 - C_1C_5R_3 + C_2C_3R_3\right)}$$

#### **Parameters:**

wo:  $\frac{\sqrt{C_1+C_2}R_1+C_1C_2R_3+C_1C_3R_3}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}$  bandwidth:  $\frac{C_1C_2R_1+C_1C_2R_3+C_1C_3R_3+C_1C_4R_3-C_1C_5R_3+C_2C_3R_3}{C_1C_2C_3R_1R_3}$ 

K-LP:  $\frac{C_5 R_6}{C_1 + C_2}$ K-HP:  $\frac{C_5 R_6}{C_2}$ 

 $\begin{array}{l} \text{K-BP:} \; \frac{C_2}{C_1C_2R_1+C_1C_2R_3+C_1C_3R_3+C_1C_4R_3-C_1C_5R_3+C_2C_3R_3} \\ \text{Qz:} \; \; \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}$ 

**10.144** X-INVALID-WZ-144  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_3R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_3C_5R_3R_4R_6\right)}{C_1C_2C_3R_1R_3R_4s^2 + C_1R_3 + C_1R_4 + c_2R_4 + s\left(C_1C_2R_1R_4 + C_1C_2R_3R_4 + C_1C_3R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4 + C_2C_3R_3R_4\right)}$$

```
Q: \frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{C_1R_3}+C_1R_4+C_2R_4}{C_1C_2R_1\sqrt{R_4}+C_1C_2R_3\sqrt{R_4}+C_1C_3R_3\sqrt{R_4}+C_1C_4R_3\sqrt{R_4}-C_1C_5R_3\sqrt{R_4}+C_2C_3R_3\sqrt{R_4}} wo: \frac{\sqrt{C_1R_3}+C_1R_4+C_2R_4}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}} bandwidth: \frac{C_1C_2R_1\sqrt{R_4}+C_1C_2R_3\sqrt{R_4}+C_1C_3R_3\sqrt{R_4}+C_1C_4R_3\sqrt{R_4}-C_1C_5R_3\sqrt{R_4}+C_2C_3R_3\sqrt{R_4}}{C_1C_2C_3R_1R_3\sqrt{R_4}}
        K-LP: \frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4}
K-HP: \frac{C_5R_6}{C_2}
        K-BP: \frac{C_1C_5R_1R_6+C_3C_5R_3R_6}{C_1C_2R_1+C_1C_2R_3+C_1C_3R_3+C_1C_4R_3-C_1C_5R_3+C_2C_3R_3} Qz: None
        Wz: \frac{1}{\sqrt{C_1}\sqrt{C_3}\sqrt{R_1}\sqrt{R_3}}
10.145 X-INVALID-WZ-145 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                  H(s) = \frac{C_1C_2C_5R_1R_2R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6\right)}{-C_1C_2C_5R_2R_3R_4s^2 + C_1R_3 + C_1R_4 + c_2R_4 + s\left(C_1C_2R_1R_4 + C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4\right)}
   Parameters:
        Q: -\frac{i\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3}+C_1R_4+C_2R_4}{\sqrt{C_1}C_2R_1R_4+\sqrt{C_1}C_2R_2R_3+\sqrt{C_1}C_2R_2R_4+\sqrt{C_1}C_2R_3R_4-\sqrt{C_1}C_5R_3R_4} wo: \frac{\sqrt{-C_1}R_3-C_1R_4-C_2R_4}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}}
        bandwidth: \frac{i\sqrt{-C_1R_3-C_1R_4-C_2R_4}\left(\sqrt{C_1C_2R_1R_4+\sqrt{C_1C_2R_2R_3+\sqrt{C_1C_2R_2R_4+\sqrt{C_1C_2R_3R_4-\sqrt{C_1C_5R_3R_4}}}\right)}{\sqrt{C_1C_2C_5R_2R_3R_4\sqrt{C_1R_3+C_1R_4+C_2R_4}}}
        K-LP: \frac{C_5 R_4 R_6}{C_1 R_3 + C_1 R_4 + C_2 R_4}
K-HP: -\frac{R_1 R_6}{R_3}
       K-BP: \frac{C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6}{C_1C_2R_1R_4 + C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4}Qz: None
        Wz: \frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}
10.146 X-INVALID-WZ-146 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, R_4, R_5 + \frac{1}{C_5 s}, R_6\right)
                   H(s) = \frac{C_1C_2C_5R_1R_2R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_5R_1R_4R_5 - C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_2R_4R_5\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_2R_4 + C_1C_2R_3R_4 - C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5 + C_2C_5R_4R_5\right)}
   Parameters:
        Q: \frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_1R_4R_5\sqrt{C_1R_3} + C_1R_4 + C_2R_4}{\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{-\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_3} + C_1R_4 + C_2R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{-\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_3R_4\sqrt{C_1R_3} + C_1R_4 + C_2R_4}\sqrt{\frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}}{-\sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_3R_4 + C_1C_3R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_4 + C_1C_5R_3R_5 + C_1C_5R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_3} + C_1R_4 + C_2R_4\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_3} + C_1R_4 + C_2R_4\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_3} + C_1R_4 + C_2R_4\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_3} + C_1R_4 + C_2R_4\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_3} + C_1R_4 + C_2R_4\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_3} + C_1R_4 + C_2R_4\sqrt{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_3} + C_1R_4R_5\sqrt{C_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_3} + C_1R_4R_5\sqrt{C_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_5}R_2R_4R_5\sqrt{C_1R_4R_5 - R_2R_4R_5 + R_3R_4R_5}} \\ + \sqrt{C_1}\sqrt{C_2}\sqrt{C_1R_4R_5 - R_2R_4R_5
        wo: \sqrt{C_1R_3 + C_1R_4 + C_2R_4}\sqrt{\frac{1}{C_1C_2C_5R_1R_4R_5 - C_1C_2C_5R_2R_3R_4 + C_1C_2C_5R_2R_3R_5 + C_1C_2C_5R_2R_4R_5 + C_1C_2C_5R_3R_4R_5}}
                                                                                                                                                                                                                                                                                                                                    \begin{array}{l} \text{K-LP: } \frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4} \\ \text{K-HP: } \frac{R_1R_2R_4R_6}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_3R_4R_5} \\ \text{K-BP: } \frac{C_1C_5R_1R_4R_6+C_2C_5R_2R_4R_6}{C_1C_5R_1R_4R_6+C_2C_5R_2R_4R_6} \\ \text{K-BP: } \frac{C_1C_2R_1R_4+C_1C_2R_2R_3+C_1C_2R_2R_4+C_1C_2R_3R_4-C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5}{C_1C_2R_3R_4-C_1C_5R_3R_4+C_1C_5R_3R_5+C_1C_5R_4R_5+C_2C_5R_4R_5} \\ \text{Qz: None} \end{array} 
        Wz: \frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}
10.147 X-INVALID-WZ-147 Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)
                                                                                                                                                                                                    H(s) = \frac{C_1C_2C_5R_1R_2R_6s^2 + C_5R_6 + s\left(C_1C_5R_1R_6 + C_2C_5R_2R_6\right)}{C_1 + C_2 + s^2\left(C_1C_2C_4R_2R_3 - C_1C_2C_5R_2R_3\right) + s\left(C_1C_2R_1 + C_1C_2R_2 + C_1C_2R_3 + C_1C_4R_3 - C_1C_5R_3\right)}
   Parameters:
         Q \colon \frac{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{C_1+C_2}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_2R_1+\sqrt{C_1}C_2R_2+\sqrt{C_1}C_2R_3+\sqrt{C_1}C_4R_3-\sqrt{C_1}C_5R_3}
```

wo:  $\sqrt{C_1 + C_2} \sqrt{\frac{1}{C_1 C_2 C_4 R_2 R_3 - C_1 C_2 C_5 R_2 R_3}}$ 

K-LP:  $\frac{C_5 R_6}{C_1 + C_2}$ 

bandwidth:  $\frac{\sqrt{C_1 + C_2} \left(\sqrt{C_1} C_2 R_1 + \sqrt{C_1} C_2 R_2 + \sqrt{C_1} C_2 R_3 + \sqrt{C_1} C_4 R_3 - \sqrt{C_1} C_5 R_3\right) \sqrt{\frac{1}{C_1 C_2 C_4 R_2 R_3 - C_1 C_2 C_5 R_2 R_3}}}{\sqrt{C_2} C_4 \sqrt{R_2} \sqrt{R_3} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_4 - C_5}} - \sqrt{C_2} C_5 \sqrt{R_2} \sqrt{R_3} \sqrt{C_1 + C_2} \sqrt{\frac{1}{C_4 - C_5}}}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

# **10.148** X-INVALID-WZ-148 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_1C_2C_5R_1R_2R_4R_6s^2 + C_5R_4R_6 + s\left(C_1C_5R_1R_4R_6 + C_2C_5R_2R_4R_6\right)}{C_1R_3 + C_1R_4 + C_2R_4 + s^2\left(C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_4\right) + s\left(C_1C_2R_1R_4 + C_1C_2R_2R_3 + C_1C_2R_2R_4 + C_1C_2R_3R_4 + C_1C_4R_3R_4 - C_1C_5R_3R_4\right)}$ 

#### Parameters:

$$Q\colon \frac{\sqrt{C_2}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_4-C_5}}-\sqrt{C_2}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_3+C_1R_4+C_2R_4}\sqrt{\frac{1}{C_4-C_5}}}{\sqrt{C_1}C_2R_1R_4+\sqrt{C_1}C_2R_2R_3+\sqrt{C_1}C_2R_2R_4+\sqrt{C_1}C_2R_3R_4+\sqrt{C_1}C_4R_3R_4-\sqrt{C_1}C_5R_3R_4}}$$

wo:  $\sqrt{C_1R_3 + C_1R_4 + C_2R_4} \sqrt{\frac{1}{C_1C_2C_4R_2R_3R_4 - C_1C_2C_5R_2R_3R_4}}$ 

bandwidth:  $\frac{\sqrt{C_1 R_3 + C_1 R_4 + C_2 R_4} \left(\sqrt{C_1 C_2 R_1 R_4 + \sqrt{C_1 C_2 R_2 R_3 + \sqrt{C_1 C_2 R_2 R_4 + \sqrt{C_1 C_2 R_3 R_4 + \sqrt{C_1 C_2 C_4 R_2 R_3 R_4 - C_1 C_2 C_5 R_2 R_3 R_4}}}{\sqrt{C_2 C_4 \sqrt{R_2} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 R_3 + C_1 R_4 + C_2 R_4} \sqrt{\frac{1}{C_4 - C_5}} - \sqrt{C_2 C_5 \sqrt{R_2} \sqrt{R_3} \sqrt{R_4} \sqrt{C_1 R_3 + C_1 R_4 + C_2 R_4} \sqrt{\frac{1}{C_4 - C_5}}}}}$ 

 $\begin{array}{l} \text{K-LP: } \frac{C_5R_4R_6}{C_1R_3+C_1R_4+C_2R_4} \\ \text{K-HP: } \frac{C_5R_1R_6}{C_4R_3-C_5R_3} \end{array}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_4R_3-C_5R_3}{C_1C_2R_1R_4+C_1C_2R_2R_3+C_1C_2R_2R_4+C_1C_2R_3R_4+C_1C_4R_3R_4-C_1C_5R_3R_4} \\ \text{Qz: None} \ . \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

## **10.149** X-INVALID-WZ-149 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

$$H(s) = \frac{C_1C_2C_3R_1R_2R_4R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_3R_2R_4R_5\right) + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_2C_3R_4R_5\right)}$$

#### Parameters:

Q:  $-\frac{C_{1}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{1}+R_{2}}\sqrt{-R_{4}+R_{5}}}{C_{1}C_{2}R_{2}R_{4}-C_{1}C_{2}R_{2}R_{5}-C_{1}C_{2}R_{4}R_{5}-C_{1}C_{3}R_{4}R_{5}-C_{2}C_{3}R_{4}R_{5}}$ wo:  $\frac{\sqrt{-R_{4}+R_{5}}}{\sqrt{C_{2}C_{3}R_{1}}R_{4}R_{5}+C_{2}C_{3}R_{2}R_{4}R_{5}}}$ bandwidth:  $-\frac{C_{1}C_{2}R_{2}R_{4}-C_{1}C_{2}R_{2}R_{5}-C_{1}C_{2}R_{4}R_{5}-C_{1}C_{3}R_{4}R_{5}-C_{2}C_{3}R_{4}R_{5}}{C_{1}\sqrt{C_{2}}\sqrt{C_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{R_{1}+R_{2}}\sqrt{C_{2}C_{3}R_{1}R_{4}R_{5}+C_{2}C_{3}R_{2}R_{4}R_{5}}}$ K-LP:  $-\frac{C_{3}R_{4}R_{6}}{C_{1}R_{4}-C_{1}R_{5}}$ K-HP:  $\frac{R_{1}R_{2}R_{6}}{R_{1}R_{5}+R_{2}R_{5}}$ K-RP:  $-C_{1}C_{3}R_{1}R_{4}R_{6}-C_{2}C_{3}R_{2}R_{4}R_{6}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_1C_2R_2R_4-C_1C_2R_2R_5-C_1C_2R_4R_6-C_2C_3R_2R_4R_6}{C_1C_2R_2R_4-C_1C_2R_2R_5-C_1C_2R_4R_5-C_1C_3R_4R_5-C_2C_3R_4R_5} \\ \text{Qz: None} \ \ . \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

# **10.150** X-INVALID-WZ-150 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4\right)}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_2R_4 - C_1C_2C_5C_6R_2R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$$

#### Parameters:

$$\text{Q: } \frac{C_1\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} + C_1\sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} - C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2-C_5R_2}} }{C_1C_2R_2+C_1C_2R_4+C_1C_3R_4-C_1C_5R_4+C_2C_3R_4}$$

 $\text{wo: } \sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_2R_4 - C_2C_5R_2R_4}} \\ \text{bandwidth: } \frac{(C_1C_2R_2 + C_1C_2R_4 + C_1C_3R_4 - C_1C_5R_4 + C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_1R_4 + C_2C_3R_2R_4 - C_2C_5R_2R_4}}}{C_1\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}} + C_1\sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}} - C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1 + C_3R_2 - C_5R_2}}}}$ 

 $\begin{array}{l} \text{K-LP: } \frac{C_3C_5R_4}{C_1C_6} \\ \text{K-HP: } \frac{C_3C_5R_1R_2}{C_3C_6R_1+C_3C_6R_2-C_5C_6R_2} \\ \text{K-BP: } \frac{C_3C_5R_1R_2}{C_1C_2C_6R_2+C_1C_2C_6R_4+C_1C_3C_6R_4-C_1C_5C_6R_4+C_2C_3C_6R_4} \\ \text{Out. None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

**10.151** X-INVALID-WZ-151 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5, R_6\right)$$

$$H(s) = \frac{C_1C_2C_3R_1R_2R_6s^2 + C_3R_6 + s\left(C_1C_3R_1R_6 + C_2C_3R_2R_6\right)}{-C_1 + s^2\left(C_1C_2C_3R_1R_5 + C_1C_2C_3R_2R_5 + C_1C_2C_4R_2R_5\right) + s\left(-C_1C_2R_2 + C_1C_2R_5 + C_1C_3R_5 + C_1C_4R_5 + C_2C_3R_5\right)}$$

K-HP:  $\frac{C_1}{C_3R_1R_2R_6}$ K-BP:  $\frac{-C_1C_3R_1R_2R_6}{C_1C_2R_2-C_1C_2R_5-C_1C_3R_5-C_1C_4R_5-C_2C_3R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

## 10.152 X-INVALID-WZ-152 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1}\right)$

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6\right)}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_6R_1R_6 + C_1C_2C_3C_6R_2R_6 + C_1C_2C_5C_6R_2R_6\right) + s\left(C_1C_2C_3R_1 + C_1C_2C_3R_2 + C_1C_2C_5R_2 + C_1C_2C_6R_6 + C_1C_3C_6R_6 + C_1C_3C_$ 

## Parameters:

 $O: \frac{\sqrt{C_1}\sqrt{C_2}C_3\sqrt{C_6}R_1\sqrt{R_6}\sqrt{\frac{C_1C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1C_3}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_1C_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} - \frac{C_1C_5}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_2C_3}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \sqrt{C_1}\sqrt{C_2}C_3\sqrt{C_6}R_2\sqrt{R_6}\sqrt{\frac{C_1C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}} + \frac{C_1C_3}{C_3R_1+C_3R_2+C_4R_2-C_5R_2} + \frac{C_1$ 

Wo:  $\sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_6R_1R_6+C_1C_2C_3C_6R_2R_6+C_1C_2C_4C_6R_2R_6-C_1C_2C_5C_6R_2R_6}}$ 

 $\frac{1}{\sqrt{C_1\sqrt{C_2}C_3\sqrt{C_6}R_1\sqrt{R_6}\sqrt{\frac{C_1C_2}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+\frac{C_1C_3}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1C_4}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}+\frac{C_1C_5}{C_3R_1+C$  $\begin{array}{c} \text{K-LP:} & \frac{C_1C_3}{C_3C_5R_6} + \frac{C_1C_3}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2} + \frac{C_1C_3}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2} + \frac{C_1C_4}{C_3R_1 + C_3R_2 + C_4R_2 - C_5R_2} \\ \text{K-HP:} & \frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3} \\ \text{K-BP:} & \frac{C_3C_5R_1R_2}{C_3C_6R_1 + C_3C_6R_2 + C_4C_6R_2 - C_5C_6R_2} \\ \text{K-BP:} & \frac{C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6}{C_1C_2C_3R_2 + C_1C_2C_5R_2 + C_1C_2C_6R_6 + C_1C_3C_6R_6 + C_1C_4C_6R_6 - C_1C_5C_6R_6 + C_2C_3C_6R_6} \\ \text{Qz:} & \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

## **10.153** X-INVALID-WZ-153 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, R_5 + \frac{1}{C_5 s}, R_6\right)$

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6\right)}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_5R_1R_5 + C_1C_2C_3C_5R_2R_5 + c_1C_2C_4C_5R_2R_5\right) + s\left(C_1C_2C_3R_1 + C_1C_2C_3R_2 + C_1C_2C_5R_2 + C_1C_2C_5R_5 + C_1C_3C_5R_5 + C_1C_4C_5R_5 + C_2C_3C_5R_5\right)}$ 

## Parameters:

 $\begin{array}{l} \text{K-BP:} \ \frac{C_3R_1R_5+C_3R_2R_5+C_4R_2R_5}{C_1C_2C_3R_1+C_1C_2C_3R_2+C_1C_2C_5R_1R_6+C_2C_3C_5R_2R_6} \\ \text{Qz: None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

## 10.154 X-INVALID-WZ-154 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, R_5, R_6\right)$

$$H(s) = \frac{C_1C_2C_3R_1R_2R_4R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 + C_1C_2C_3R_2R_4R_5 + C_1C_2C_4R_2R_4R_5\right) + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 + C_1C_3R_4R_5 + C_1C_4R_4R_5 + C_2C_3R_4R_5\right)}$$

## Parameters:

```
 \begin{array}{c} \cdot \quad C_1C_2R_2R_4 - C_1C_2\overline{R_2R_5 - C_1}C_2R_4R_5 - C_1C_3R_4R_5 - C_1C_4R_4R_5 - C_2C_3R_4R_5 \\ \text{Wo:} \quad \frac{\sqrt{-R_4 + R_5}}{\sqrt{C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_4R_2R_4R_5}} \\ \text{bandwidth:} \quad - \frac{C_1C_2R_2R_4 - C_1C_2R_2R_5 - C_1C_2R_4R_5 - C_1C_3R_4R_5 - C_1C_4R_4R_5 - C_2C_3R_4R_5}{C_1\sqrt{C_2}\sqrt{R_4}\sqrt{R_5}\sqrt{C_3R_1 + C_3R_2 + C_4R_2}\sqrt{C_2C_3R_1R_4R_5 + C_2C_3R_2R_4R_5 + C_2C_4R_2R_5}} \\ \text{K-LP:} \quad - \frac{C_3R_4R_6}{C_1R_4 - C_1R_5} \\ \text{K-HP:} \quad \frac{C_3R_1R_2R_6}{C_3R_1R_5 + C_3R_2R_5 + C_4R_2R_5} \\ \text{K-BP:} \quad \frac{-C_1C_3R_4R_6 - C_2C_3R_2R_4R_6}{C_1C_2R_2R_5 - C_1C_2R_4R_5 - C_1C_3R_4R_5 - C_2C_3R_4R_5} \\ \text{Qz:} \quad \text{None} \\ \text{Wz:} \quad - \quad \quad 1 \end{array}
                 Wz: \frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}
```

# 10.155 X-INVALID-WZ-155 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_4s^2 + C_3C_5R_4 + s\left(C_1C_3C_5R_1R_4 + C_2C_3C_5R_2R_4\right)}{C_1C_6 + s^2\left(C_1C_2C_3C_6R_1R_4 + C_1C_2C_3C_6R_2R_4 + C_1C_2C_4C_6R_2R_4 - C_1C_2C_5C_6R_2R_4\right) + s\left(C_1C_2C_6R_2 + C_1C_2C_6R_4 + C_1C_3C_6R_4 + C_1C_4C_6R_4 - C_1C_5C_6R_4 + C_2C_3C_6R_4\right)}$ 

### Parameters:

```
\frac{C_1\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_4R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}-C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_4R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_3R_4}+C_1\sqrt{C_2}C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R_4+C_1C_3R
   \frac{(C_1C_2R_2+C_1C_2R_4+C_1C_3R_4+C_1C_5R_4+C_2C_3R_4)\sqrt{\frac{1}{C_2C_3R_1R_4+C_2C_3R_2R_4+C_2C_4R_2R_4-C_2C_5R_2}}}{C_1\sqrt{C_2}C_3R_1\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_3R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}+C_1\sqrt{C_2}C_4R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}-C_1\sqrt{C_2}C_5R_2\sqrt{R_4}\sqrt{\frac{1}{C_3R_1+C_3R_2+C_4R_2-C_5R_2}}}
 \begin{array}{l} \text{K-HP:} \ \frac{C_{3}C_{5}R_{1}R_{2}}{C_{3}C_{6}R_{1} + C_{3}C_{6}R_{2} + C_{4}C_{6}R_{2} - C_{5}C_{6}R_{2}} \\ \text{K-BP:} \ \frac{C_{1}C_{3}C_{5}R_{1}R_{4} + C_{2}C_{3}C_{5}R_{2}R_{4}}{C_{1}C_{2}C_{6}R_{2} + C_{1}C_{2}C_{6}R_{4} + C_{1}C_{3}C_{6}R_{4} + C_{1}C_{4}C_{6}R_{4} - C_{1}C_{5}C_{6}R_{4} + C_{2}C_{3}C_{6}R_{4}} \end{array} 
       Qz: None
   Wz: \frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}
```

## **10.156** X-INVALID-WZ-156 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, R_4, R_5, R_6\right)$

 $H(s) = \frac{C_1C_2C_3R_1R_2R_4R_6s^2 + C_3R_4R_6 + s\left(C_1C_3R_1R_4R_6 + C_2C_3R_2R_4R_6\right)}{-C_1R_4 + C_1R_5 + s^2\left(C_1C_2C_3R_1R_4R_5 - C_1C_2C_3R_2R_3R_4 + C_1C_2C_3R_2R_4R_5 + C_1C_2C_3R_2R_4R_5\right) + s\left(-C_1C_2R_2R_4 + C_1C_2R_2R_5 + C_1C_2R_4R_5 - C_1C_3R_3R_4 + C_1C_3R_3R_5 + C_1C_3R_4R_5 + C_2C_3R_4R_5\right)}$ 

#### Parameters:

 $Q: \frac{-C_1\sqrt{C_2}\sqrt{C_3}R_1R_4R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}}{-R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} - C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5 + C_1\sqrt{C_2}\sqrt{C_3}R_3R_5 + C_1\sqrt{C_2}\sqrt{C_3}R_3R_5 + C_1\sqrt{C_2}\sqrt{C_3}R_3R_5 + C_1\sqrt{C_2}\sqrt{C_3}R_3R_5 + C_1\sqrt{C_2}\sqrt{C_3}R_3R_5 + C_1\sqrt{C_2}\sqrt{C_3}R_3R_5 + C_1\sqrt{$  $\frac{\text{bandwidth:}}{-C_1\sqrt{C_2}\sqrt{C_3}R_1R_4R_5\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_4\sqrt{-\frac{R_4}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5}} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} + C_1\sqrt{C_2}\sqrt{C_3}R_2R_3R_5+R_2R_4R_5+R_3R_4R$  $\begin{array}{l} \text{K-HP:} \ \frac{C_1R_4-C_1R_5}{R_1R_4R_5-R_2R_3R_4+R_2R_3R_5+R_2R_4R_5+R_3R_4R_5} \\ \text{K-BP:} \ \frac{-C_1C_3R_1R_4R_6-C_2C_3R_2R_4R_6}{C_1C_2R_2R_4-C_1C_2R_2R_5-C_1C_2R_4R_5+C_1C_3R_3R_4-C_1C_3R_3R_5-C_1C_3R_4R_5-C_2C_3R_4R_5} \\ \text{Qz:} \ \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

**10.157** X-INVALID-WZ-157  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6\right)$ 

 $H(s) = \frac{C_1C_2C_3C_5R_1R_2R_6s^2 + C_3C_5R_6 + s\left(C_1C_3C_5R_1R_6 + C_2C_3C_5R_2R_6\right)}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 + s^2\left(C_1C_2C_3C_4R_2R_3 - C_1C_2C_3C_5R_2R_3\right) + s\left(C_1C_2C_3R_1 + C_1C_2C_3R_2 + C_1C_2C_3R_3 + C_1C_2C_4R_2 - C_1C_2C_5R_2 + C_1C_3C_4R_3 - C_1C_3C_5R_3\right)}$ 

### Parameters:

 $Q \colon \frac{\sqrt{C_2}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{C_1C_2}{C_4-C_5}} + \frac{C_1C_3}{C_4-C_5} + \frac{C_1C_4}{C_4-C_5} + \frac{C_1C_5}{C_4-C_5} + \frac{C_2C_3}{C_4-C_5}}{\sqrt{C_1}C_2C_3R_1 + \sqrt{C_1}C_2} - \sqrt{C_2}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{C_1C_2}{C_4-C_5}} + \frac{C_1C_3}{C_4-C_5} + \frac{C_1C_5}{C_4-C_5} + \frac{C_2C_3}{C_4-C_5}}{\sqrt{C_1}C_2C_3R_3 + \sqrt{C_1}C_2C_3R_3} + \sqrt{C_1}C_2C_4R_2 - \sqrt{C_1}C_2C_5R_2 + \sqrt{C_1}C_3C_4R_3 - \sqrt{C_1}C_3C_5R_3}$  $\frac{\sqrt{\frac{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}{C_1C_2C_3C_3C_4R_2R_3-C_1C_2C_3C_5R_2R_3}} \left(\sqrt{C_1}C_2C_3R_1+\sqrt{C_1}C_2C_3R_2+\sqrt{C_1}C_2C_3R_3+\sqrt{C_1}C_2C_4R_2-\sqrt{C_1}C_2C_5R_2+\sqrt{C_1}C_3C_4R_3-\sqrt{C_1}C_3C_5R_3}\right)}{\sqrt{C_2}\sqrt{C_3}C_4\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{C_1C_2}{C_4-C_5}+\frac{C_1C_3}{C_4-C_5}+\frac{C_1C_4}{C_4-C_5}-\frac{C_1C_5}{C_4-C_5}+\frac{C_2C_3}{C_4-C_5}-\sqrt{C_2}\sqrt{C_3}C_5\sqrt{R_2}\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{C_1C_2}{C_4-C_5}+\frac{C_1C_4}{C_4-C_5}+\frac{C_1C_5}{C_4-C_5}+\frac{C_2C_3}{C_4-C_5}}$  K-LP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$ K-HP:  $\frac{C_5R_1R_6}{C_4R_3-C_5R_3}$ 

K-BP:  $\frac{C_1C_3C_5R_1R_6+C_2C_3C_5R_2R_6}{C_1C_2C_3R_1+C_1C_2C_3R_2+C_1C_2C_3R_3+C_1C_2C_4R_2-C_1C_2C_5R_2+C_1C_3C_4R_3-C_1C_3C_5R_3}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_2}\sqrt{R_1}\sqrt{R_2}}$ 

## **10.158** X-INVALID-WZ-158 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_5C_6R_1R_2R_4R_6s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_2C_6R_2R_4\right)}$$

## Parameters:

$$\text{Q: } \frac{\sqrt{C_{1}}C_{2}R_{1}\sqrt{R_{2}}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{R_{2}}R_{3}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}R_{3}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}}{C_{1}R_{1}R_{4}+C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}}$$

 $\text{wo: } \sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 - C_1C_5R_2R_3}} \\ \text{bandwidth: } \frac{(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 - C_1C_5R_2R_3}}}{\sqrt{C_1C_2R_1\sqrt{R_2}R_4}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + \sqrt{C_1}C_2\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} \\$ 

K-LP:  $\frac{C_5 R_2}{C_6}$ 

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}$ K-BP:  $\frac{C_1C_5R_1R_2R_4+C_5C_6R_2R_4R_6}{C_1C_6R_1R_4+C_1C_6R_2R_3+C_1C_6R_2R_4+C_1C_6R_3R_4+C_2C_6R_2R_4}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

## **10.159** X-INVALID-WZ-159 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_1C_5R_1R_2R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_2R_1R_2R_4R_5 + C_1C_2R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5\right)}$$

#### Parameters:

$$Q: \frac{\sqrt{C_1}C_2R_1\sqrt{R_2}R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} + \sqrt{C_1}C_2\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{\frac{1}{C_2R_1+C_2R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{\frac{1}{C_2R_1+C_2$$

bandwidth:  $\frac{(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 - C_1C_5R_2R_3}}}{\sqrt{C_1C_2R_1\sqrt{R_2}}R_4R_5\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} + \sqrt{C_1C_2\sqrt{R_2}}R_3R_4R_5\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}} - \sqrt{C_1C_5\sqrt{R_2}}R_3R_4R_5\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}}$ 

K-LP:  $\frac{R_2R_6}{R_5}$ 

 $\begin{array}{l} \text{K-HP:} \ \frac{R_5}{C_2R_1+C_2R_3-C_5R_3} \\ \text{K-BP:} \ \frac{C_1R_1R_2R_4R_6+C_5R_2R_4R_5R_6}{C_1R_1R_4R_5-C_1R_2R_3R_4+C_1R_2R_3R_5+C_1R_2R_4R_5+C_1R_3R_4R_5+C_2R_2R_4R_5} \\ \text{Qz:} \ \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

**10.160** X-INVALID-WZ-160 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_5C_6R_1R_2R_6s^2 + C_5R_2 + s\left(C_1C_5R_1R_2 + C_5C_6R_2R_6\right)}{C_6 + s^2\left(C_1C_2C_6R_1R_2 + C_1C_2C_6R_2R_3 + C_1C_4C_6R_2R_3 - C_1C_5C_6R_2R_3\right) + s\left(C_1C_6R_1 + C_1C_6R_2 + C_1C_6R_3 + C_2C_6R_2\right)}$$

#### Parameters:

$$Q: \underbrace{\frac{\sqrt{C_1}C_2R_1\sqrt{R_2}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1}C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1}C_4\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_1}C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ - C_1R_1+C_1R_2+C_1R_3+C_2R_2$$

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}$ 

 $(C_1R_1 + C_1R_2 + C_1R_3 + C_2R_2)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}$ 

 $\frac{\sqrt{C_1C_2R_1\sqrt{R_2}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_2\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_4\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}$ 

K-LP:  $\frac{C_5R_2}{C_6}$ 

Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.161** X-INVALID-WZ-161 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$$

$$H(s) = \frac{C_1C_5R_1R_2R_5R_6s^2 + R_2R_6 + s\left(C_1R_1R_2R_6 + C_5R_2R_5R_6\right)}{R_5 + s^2\left(C_1C_2R_1R_2R_5 + C_1C_2R_2R_3R_5 + C_1C_4R_2R_3R_5 - C_1C_5R_2R_3R_5\right) + s\left(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5\right)}$$

## Parameters:

 $\text{Q:} \ \frac{\sqrt{C_{1}}C_{2}R_{1}\sqrt{R_{2}}R_{5}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{R_{2}}R_{3}R_{5}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}R_{3}R_{5}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}R_{3}R_{5}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-C_{1}R_{1}R_{5}-C_{1}R_{2}R_{3}+C_{1}R_{2}R_{5}+C_{1}R_{2}R_{5}+C_{1}R_{3}R_{5}+C_{2}R_{2}R_{5}}$ 

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}}$ 

 $(C_1R_1R_5 - C_1R_2R_3 + C_1R_2R_5 + C_1R_3R_5 + C_2R_2R_5)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}$ 

 $\frac{\sqrt{C_1C_2R_1\sqrt{R_2}R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_2\sqrt{R_2}R_3R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_4\sqrt{R_2}R_3R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\frac{1}{\sqrt{C_1C_2\sqrt{R_2}R_3R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}+\sqrt{C_1C_4\sqrt{R_2}R_3R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}$ 

K-LP:  $\frac{R_2R_6}{R_5}$ 

K-HP:  $\frac{\kappa_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}$ K-BP:  $\frac{C_1R_1R_2R_6+C_5R_2R_5R_6}{C_1R_1R_5-C_1R_2R_3+C_1R_2R_5+C_1R_3R_5+C_2R_2R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

## 10.162 X-INVALID-WZ-162 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_1C_5C_6R_1R_2R_4R_6s^2 + C_5R_2R_4 + s\left(C_1C_5R_1R_2R_4 + C_5C_6R_2R_4R_6\right)}{C_6R_4 + s^2\left(C_1C_2C_6R_1R_2R_4 + C_1C_2C_6R_2R_3R_4 + C_1C_4C_6R_2R_3R_4 - C_1C_5C_6R_2R_3R_4\right) + s\left(C_1C_6R_1R_4 + C_1C_6R_2R_3 + C_1C_6R_2R_4 + C_1C_6R_3R_4 + C_2C_6R_2R_4\right)}$$

### Parameters:

$$\text{Q:} \frac{\sqrt{C_{1}}C_{2}R_{1}\sqrt{R_{2}}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{R_{2}}R_{3}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}R_{3}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}R_{3}R_{4}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-C_{1}R_{1}R_{4}+C_{1}R_{2}R_{3}+C_{1}R_{2}R_{4}+C_{1}R_{2}R_{4}+C_{1}R_{3}R_{4}+C_{2}R_{2}R_{4}}$$

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}$ 

 $(C_1R_1R_4 + C_1R_2R_3 + C_1R_2R_4 + C_1R_3R_4 + C_2R_2R_4)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2}R_3}$ 

K-LP:  $\frac{C_5 R_2}{C_6}$ 

K-HP:  $\frac{C_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} \\ \text{K-BP: } \frac{C_1C_5R_1R_6}{C_1C_6R_1R_4+C_1C_6R_2R_3+C_1C_6R_2R_4+C_5C_6R_2R_4R_6} \\ \text{Qz: None}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

## **10.163** X-INVALID-WZ-163 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

$$H(s) = \frac{C_1C_5R_1R_2R_4R_5R_6s^2 + R_2R_4R_6 + s\left(C_1R_1R_2R_4R_6 + C_5R_2R_4R_5R_6\right)}{R_4R_5 + s^2\left(C_1C_2R_1R_2R_4R_5 + C_1C_2R_2R_3R_4R_5 + C_1C_4R_2R_3R_4R_5 - C_1C_5R_2R_3R_4R_5\right) + s\left(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5\right)}$$

#### Parameters:

$$Q: \underbrace{\frac{\sqrt{C_{1}C_{2}R_{1}\sqrt{R_{2}}R_{4}R_{5}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{R_{2}}R_{3}R_{4}R_{5}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{4}\sqrt{R_{2}}R_{3}R_{4}R_{5}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}}C_{5}\sqrt{R_{2}}R_{3}R_{4}R_{5}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}-C_{1}R_{1}R_{4}R_{5}-C_{1}R_{2}R_{3}R_{4}+C_{1}R_{2}R_{3}R_{5}+C_{1}R_{2}R_{4}R_{5}+C_{1}R_{3}R_{4}R_{5}+C_{2}R_{2}R_{4}R_{5}}$$

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_2+C_1C_2R_2R_3+C_1C_4R_2R_3-C_1C_5R_2R_3}}$ 

 $(C_1R_1R_4R_5 - C_1R_2R_3R_4 + C_1R_2R_3R_5 + C_1R_2R_4R_5 + C_1R_3R_4R_5 + C_2R_2R_4R_5)\sqrt{\frac{1}{C_1C_2R_1R_2 + C_1C_2R_2R_3 + C_1C_4R_2R_3 - C_1C_5R_2R_3}}$ 

 $\frac{\sqrt{C_1C_2R_1\sqrt{R_2}R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_2\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_4\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_2\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}-\sqrt{C_1C_5\sqrt{R_2}R_3R_4R_5\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}$ 

K-HP:  $\frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}$  K-BP:  $\frac{C_1R_1R_2R_4R_6+C_5R_2R_4R_5R_6}{C_1R_1R_4R_5-C_1R_2R_3R_4+C_1R_2R_3R_5+C_1R_2R_4R_5+C_1R_3R_4R_5+C_2R_2R_4R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

**10.164** X-INVALID-WZ-164 
$$Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4\right)}$$

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{C_1R_2}+C_1R_4+C_3R_4}{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}$  wo:  $\frac{\sqrt{C_1R_2}+C_1R_4+C_3R_4}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$  bandwidth:  $\frac{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}{C_1C_2C_3R_1R_2\sqrt{R_4}}$ 

K-LP:  $\frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_2}{C_1C_2C_6R_2 + C_1C_3C_6R_1 + C_1C_3C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

**10.165** X-INVALID-WZ-165  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{C_1C_2C_3R_1R_2R_4R_5s^2 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 - C_1C_5R_2R_4R_5 + C_2C_3R_2R_4R_5\right)}$$

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-C_1}R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_2R_2\sqrt{R_4}\sqrt{R_5}+C_1C_3R_1\sqrt{R_4}\sqrt{R_5}+C_1C_3R_2\sqrt{R_4}\sqrt{R_5}-C_1C_5R_2\sqrt{R_4}\sqrt{R_5}+C_2C_3R_2\sqrt{R_4}\sqrt{R_5}}$ wo:  $\frac{\sqrt{-C_1}R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$ bandwidth:  $\frac{C_1C_2R_2\sqrt{R_4}\sqrt{R_5}+C_1C_3R_1\sqrt{R_4}\sqrt{R_5}+C_1C_3R_2\sqrt{R_4}\sqrt{R_5}-C_1C_5R_2\sqrt{R_4}\sqrt{R_5}+C_2C_3R_2\sqrt{R_4}\sqrt{R_5}}{C_1C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_1C_3R_1R_2R_6+C_3C_5R_2R_5R_6}{C_1C_2R_2R_5+C_1C_3R_1R_5+C_1C_3R_2R_5-C_1C_5R_2R_5+C_2C_3R_2R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

**10.166** X-INVALID-WZ-166  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

$$H(s) = \frac{C_1C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_5C_6R_2R_6\right)}{C_1C_2C_3C_6R_1R_2s^2 + C_1C_6 + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{C_1+C_3}}{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}$  wo:  $\frac{\sqrt{C_1+C_3}}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}}$  bandwidth:  $\frac{C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2}{C_1C_2C_3R_1R_2}$ 

K-LP:  $\frac{C_3C_5R_2}{C_1C_6+C_3C_6}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

10.167 X-INVALID-WZ-167  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

$$H(s) = \frac{C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6\right)}{C_1C_2C_3R_1R_2R_5s^2 - C_1R_2 + C_1R_5 + C_3R_5 + s\left(C_1C_2R_2R_5 + C_1C_3R_1R_5 + C_1C_3R_2R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5 + C_2C_3R_2R_5\right)}$$

## Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-C_1R_2+C_1R_5+C_3R_5}}{C_1C_2R_2\sqrt{R_5}+C_1C_3R_1\sqrt{R_5}+C_1C_3R_2\sqrt{R_5}+C_1C_4R_2\sqrt{R_5}-C_1C_5R_2\sqrt{R_5}+C_2C_3R_2\sqrt{R_5}}$ 

```
bandwidth: \frac{C_1C_2R_2\sqrt{R_5} + C_1C_3R_1\sqrt{R_5} + C_1C_3R_2\sqrt{R_5} + C_1C_4R_2\sqrt{R_5} - C_1C_5R_2\sqrt{R_5} + C_2C_3R_2\sqrt{R_5}}{C_1C_2C_3R_1R_2\sqrt{R_5}}
K-LP: -\frac{C_3R_2R_6}{C_1R_2-C_1R_5-C_3R_5}
K-HP: \frac{C_5R_6}{C_2}
```

K-BP:  $\frac{C_1C_3R_1R_2R_6+C_3C_5R_2R_5R_6}{C_1C_2R_2R_5+C_1C_3R_1R_5+C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_5R_2R_5+C_2C_3R_2R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

**10.168** X-INVALID-WZ-168  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_2C_3C_6R_1R_2R_4s^2 + C_1C_6R_2 + C_1C_6R_4 + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4\right)}$ 

## Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{C_1R_2}+C_1R_4+C_3R_4}{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}+C_1C_4R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}$  wo:  $\frac{\sqrt{C_1R_2}+C_1R_4+C_3R_4}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}}$  bandwidth:  $\frac{C_1C_2R_2\sqrt{R_4}+C_1C_3R_1\sqrt{R_4}+C_1C_3R_2\sqrt{R_4}+C_1C_4R_2\sqrt{R_4}-C_1C_5R_2\sqrt{R_4}+C_2C_3R_2\sqrt{R_4}}{C_1C_2C_3R_1R_2\sqrt{R_4}}$ 

 $\begin{array}{l} \text{K-LP: } \frac{C_3C_5R_2R_4}{C_1C_6R_2+C_1C_6R_4+C_3C_6R_4} \\ \text{K-HP: } \frac{C_5R_6}{C_2} \end{array}$ 

 $\begin{array}{l} \text{K-BP:} \; \frac{C_2}{C_1C_2C_6R_2 + C_1C_3C_6R_1 + C_1C_3C_6R_2 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2} \\ \text{Qz:} \; \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}$ 

10.169 X-INVALID-WZ-169  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$ 

 $H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{C_1C_2C_3R_1R_2R_4R_5s^2 - C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + c\left(C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 + C_1C_3R_2R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_4R_5 + C_2C_3R_2R_4R_5\right)}$ 

#### Parameters:

Q:  $\frac{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5}+C_3R_4R_5}{C_1C_2R_2\sqrt{R_4}\sqrt{R_5}+C_1C_3R_1\sqrt{R_4}\sqrt{R_5}+C_1C_3R_2\sqrt{R_4}\sqrt{R_5}+C_1C_4R_2\sqrt{R_4}\sqrt{R_5}-C_1C_5R_2\sqrt{R_4}\sqrt{R_5}+C_2C_3R_2\sqrt{R_4}\sqrt{R_5}}$  wo:  $\frac{\sqrt{-C_1}R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{\sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}$  bandwidth:  $\frac{C_1C_2R_2\sqrt{R_4}\sqrt{R_5}+C_1C_3R_1\sqrt{R_4}\sqrt{R_5}+C_1C_3R_2\sqrt{R_4}\sqrt{R_5}+C_1C_4R_2\sqrt{R_4}\sqrt{R_5}-C_1C_5R_2\sqrt{R_4}\sqrt{R_5}+C_2C_3R_2\sqrt{R_4}\sqrt{R_5}}{C_1C_2C_3R_1R_2\sqrt{R_4}\sqrt{R_5}}$ 

K-LP:  $-\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}$ K-HP:  $\frac{C_5R_6}{C_2}$ 

K-BP:  $\frac{C_1C_3R_1R_2R_6+C_3C_5R_2R_5R_6}{C_1C_2R_2R_5+C_1C_3R_1R_5+C_1C_3R_2R_5+C_1C_4R_2R_5-C_1C_5R_2R_5+C_2C_3R_2R_5}$  Qz: None

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

**10.170** X-INVALID-WZ-170  $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_3C_5C_6R_2R_3R_4\right) + s\left(C_1C_2C_6R_2R_4 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_3C_6R_3R_$ 

## Parameters:

 $\frac{\sqrt{C_{1}}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{C_{3}}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-\sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{5}R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{2}R_{3}-C_{1}R_{4}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{3}}}-C_{1}\sqrt{C_{3}}C_{5}\sqrt{R_{3}}R_{4$ 

 $\text{wo: } \sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{C_1R_2 + C_1R_4 + C_3R_4}(C_1C_2R_2R_4 + C_1C_3R_1R_4 + C_1C_3R_2R_3 + C_1C_3R_2R_4 + C_1C_5R_2R_4 + C_2C_3R_2R_4)\sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 - C_1C_3C_5R_2R_3R_4}}} {\sqrt{C_1C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}} + \sqrt{C_1C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_3}} - \sqrt{C_1}\sqrt{C_3}\sqrt{C_3}\sqrt{R_2}R_3\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}} \sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} - \sqrt{C_1}\sqrt{C_3}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} - \sqrt{C_1}\sqrt{C_3}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{C_3}\sqrt{R_2}\sqrt{R_4}\sqrt{C_1R_2 + C_1R_4 + C_3R_4}}\sqrt{\frac{1}{C_2R_1 + C_2R_3 - C_5R_3}}} - \sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_1}\sqrt{C_2}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_1}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{C_2}\sqrt{$ 

 $\begin{array}{l} \text{K-LP: } \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4} \\ \text{K-HP: } \frac{C_5R_1R_6}{C_2R_1 + C_2R_3 - C_5R_3} \end{array}$ 

K-BP:  $\frac{C_1C_3C_5R_1R_2R_4+C_3C_5C_6R_2R_4R_6}{C_1C_2C_6R_2R_4+C_1C_3C_6R_1R_4+C_1C_3C_6R_2R_3+C_1C_3C_6R_2R_4+C_1C_3C_6R_3R_4-C_1C_5C_6R_2R_4+C_2C_3C_6R_2R_4}$  Qz: None

```
Wz: \frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}
```

Wz:  $\frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}$ 

 $\text{K-BP: } \frac{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3}{C_1C_3R_1R_2 - C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6} \\ \frac{C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6}{C_1C_2R_2R_5 + C_1C_3R_1R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5 + C_2C_3R_2R_5} \\ \frac{C_1C_2R_2R_5 + C_1C_3R_1R_5 - C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_3R_5 + C_1C_4R_2R_5 - C_1C_5R_2R_5 + C_2C_3R_2R_5}{C_1C_3R_3R_3R_5 + C_1C_3R_3R_5 + C_1C_3R_5 + C_1C_3$ 

```
10.171 X-INVALID-WZ-171 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
   H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_3C_3R_2R_3R_4R_5\right) + s\left(C_1C_2R_2R_4R_5 + C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C
       Parameters:
                 Q: \frac{\sqrt{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{C_{1}R_{2}R_{4}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{2}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{4}R_{5}}{C_{2}R_{1}+C_{2}R_{3}-C_{5}R_{3}} +
                                                  \sqrt{\frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_2C_3R_1R_2R_4R_5+C_1C_2C_3R_2R_3R_4R_5-C_1C_3C_5R_2R_3R_4R_5}}
                \frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{\sqrt{C_1C_2C_3R_1R_2R_4R_5+C_1C_3C_3R_2R_3R_4+C_1C_3R_2R_3R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_3R_2R_4R_5+C_1C_
               K-LP: -\frac{C_3R_2R_4R_6}{C_1R_2R_4-C_1R_2R_5-C_1R_4R_5-C_3R_4R_5}

K-HP: \frac{C_5R_1R_6}{C_2R_1+C_2R_3-C_5R_3}
               \begin{array}{c} \text{K-BP:} \ \frac{C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6}{C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_3R_4R_5 - C_1C_5R_2R_4R_5 + C_2C_3R_2R_4R_5} \\ \text{Qz:} \ \text{None} \end{array} 
                 Wz: \frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}
10.172 X-INVALID-WZ-172 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                 H(s) = \frac{C_1C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_2 + s\left(C_1C_3C_5R_1R_2 + C_3C_5C_6R_2R_6\right)}{C_1C_6 + C_3C_6 + s^2\left(C_1C_2C_3C_6R_1R_2 + C_1C_2C_3C_6R_2R_3 + C_1C_3C_6R_2R_3 - C_1C_3C_5C_6R_2R_3\right) + s\left(C_1C_2C_6R_2 + C_1C_3C_6R_2 + C_1C_3C_6R_3 + C_1C_4C_6R_2 - C_1C_5C_6R_2 + C_2C_3C_6R_2\right)}
        Parameters:
                   Q: \frac{\sqrt{C_1}C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1}C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} + \sqrt{C_1}\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} - \sqrt{C_1}\sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}} \\ - C_1C_2R_2+C_1C_3R_1+C_1C_3R_2+C_1C_3R_3+C_1C_4R_2-C_1C_5R_2+C_2C_3R_2
               wo: \sqrt{C_1 + C_3} \sqrt{\frac{1}{C_1 C_2 C_3 R_1 R_2 + C_1 C_2 C_3 R_2 R_3 + C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}
                                                                                                                                                                                                                                                                             \sqrt{C_1 + C_3} (C_1 C_2 R_2 + C_1 C_3 R_1 + C_1 C_3 R_2 + C_1 C_3 R_3 + C_1 C_4 R_2 - C_1 \underbrace{C_5 R_2 + C_2 C_3 R_2}_{C_1 C_2 C_3 R_1 R_2 + C_1 C_2 C_3 R_2 R_3 + C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}_{C_1 C_2 C_3 R_1 R_2 + C_1 C_2 C_3 R_2 + C_1 C_3 C_4 R_2 R_3 - C_1 C_3 C_5 R_2 R_3}
              \frac{\sqrt{C_1C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1C_2\sqrt{C_3}\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1\sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}-\sqrt{C_1\sqrt{C_3}C_5\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}+\sqrt{C_1\sqrt{C_3}C_4\sqrt{R_2}R_3\sqrt{C_1+C_3}\sqrt{\frac{1}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}}}
              \begin{array}{l} \text{K-LP: } \frac{C_3C_5R_2}{C_1C_6+C_3C_6} \\ \text{K-HP: } \frac{C_3R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} + \sqrt{C_1C_2\sqrt{C_3\sqrt{R_2R_3\sqrt{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}} \\ \text{K-BP: } \frac{C_5R_1R_6}{C_2R_1+C_2R_3+C_4R_3-C_5R_3} \\ \text{Qz: None} \end{array} 
                Wz: \frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}
10.173 X-INVALID-WZ-173 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C_1C_3C_5R_1R_2R_5R_6s^2 + C_3R_2R_6 + s\left(C_1C_3R_1R_2R_6 + C_3C_5R_2R_5R_6\right)
                                                                               H(s) = \frac{1}{-C_1R_2 + C_1R_5 + C_3R_5 + s^2\left(C_1C_2C_3R_1R_2R_5 + C_1C_3C_4R_2R_3R_5 + C_1C_3C_5R_2R_3R_5\right) + s\left(C_1C_2R_2R_5 + C_1C_3R_2R_3 + C_1C_3R_2R_5 + C_1C_3R_2R_
        Parameters:
                 Q: \frac{\sqrt{C_{1}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{-\frac{C_{1}R_{2}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}} + \frac{C_{1}R_{5}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}} + \frac{C_{3}R_{5}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}} + \frac{C_{1}R_{5}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}} + \frac{C_{1}R_{5}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \sqrt{\frac{-C_1R_2+C_1R_5+C_3R_5}{C_1C_2C_3R_1R_2R_5+C_1C_2C_3R_2R_3R_5+C_1C_3C_4R_2R_3R_5-C_1C_3C_5R_2R_3R_5}}(C_1C_2R_2R_5+C_1C_3R_1R_5-C_1C_3R_2R_3+C_1C_3R_2R_5+C_1C_3R_3R_5+C_1C_4R_2R_5-C_1C_5R_2R_5+C_2C_3R_2R_5)
                 \frac{\sqrt{C_1C_2C_3R_1R_2R_5+C_1C_2C_3R_2R_3R_5+C_1C_3C_4R_2R_3-C_1C_3C_4R_2R_3-C_1C_3C_4R_2R_3-C_1C_3C_4R_2R_3-C_1C_3C_4R_2R_3-C_1C_3C_4R_2R_3-C_1C_3C_4R_2R_3-C_1C_3C_4R_2R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_1C_3C_4R_3-C_
```

```
10.174 X-INVALID-WZ-174 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C_1C_3C_5C_6R_1R_2R_4R_6s^2 + C_3C_5R_2R_4 + s\left(C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6\right)
H(s) = \frac{1}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4 + s^2\left(C_1C_2C_3C_6R_1R_2R_4 + C_1C_3C_6R_2R_3R_4 + C_1C_3C_6R_3R_4 + C_
                                           \frac{\sqrt{C_{1}}C_{2}\sqrt{C_{3}}R_{1}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}C_{2}\sqrt{C_{3}}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{3}}C_{4}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{3}}C_{4}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{3}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{2}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{2}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{2}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{2}}C_{5}\sqrt{R_{2}}R_{3}\sqrt{R_{4}}\sqrt{C_{1}R_{2}+C_{1}R_{4}+C_{3}R_{4}}\sqrt{\frac{1}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}}+\sqrt{C_{1}}\sqrt{C_{2}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}+C_{1}C_{3}R_{4}
                     \text{wo: } \sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{\frac{1}{C_1C_2C_3R_1R_2R_4 + C_1C_2C_3R_2R_3R_4 + C_1C_3C_5R_2R_3R_4}}{\sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{C_1R_2 + C_1R_4 + C_3R_4} \sqrt{C_1R_2 + C_1R_4 + C_3R_2R_4 + C_1C_3R_2R_4 + C_1C
                     \begin{array}{lll} \text{K-LP:} & \frac{C_3C_5R_2R_4}{C_1C_6R_2 + C_1C_6R_4 + C_3C_6R_4} \\ \text{K-HP:} & \frac{C_5R_1R_6}{C_2R_1 + C_2R_3 + C_4R_3 - C_5R_3} \end{array} 
                      \begin{array}{l} \text{K-BP:} \ \frac{C_1C_3C_5R_1R_2R_4 + C_3C_5C_6R_2R_4R_6}{C_1C_2C_6R_2R_4 + C_1C_3C_6R_1R_4 + C_1C_3C_6R_2R_3 + C_1C_3C_6R_2R_4 + C_1C_3C_6R_3R_4 + C_1C_4C_6R_2R_4 - C_1C_5C_6R_2R_4 + C_2C_3C_6R_2R_4} \\ \text{Qz: None} \end{array} 
                      Wz: \frac{1}{\sqrt{C_1}\sqrt{C_6}\sqrt{R_1}\sqrt{R_6}}
10.175 X-INVALID-WZ-175 Z(s) = \left(R_1 + \frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
H(s) = \frac{C_1C_3C_5R_1R_2R_4R_5R_6s^2 + C_3R_2R_4R_6 + s\left(C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6\right)}{-C_1R_2R_4 + C_1R_2R_5 + C_1R_4R_5 + C_3R_4R_5 + s^2\left(C_1C_2C_3R_1R_2R_4R_5 + C_1C_3C_3R_2R_3R_4R_5 + C_1C_3C_3R_2R_3R_4R_5 + C_1C_3R_2R_3R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_3R_3R_4R_5
       Parameters:
                     Q: \frac{\sqrt{C_1C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \sqrt{\frac{-C_1R_2R_4+C_1R_2R_5+C_1R_4R_5+C_3R_4R_5}{C_1C_2C_3R_1R_2R_4R_5+C_1C_2C_3R_2R_3R_4R_5+C_1C_3C_4R_2R_3R_4R_5}}(C_1C_2R_2R_4R_5+C_1C_3R_1R_4R_5-C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R_3R_4+C_1C_3R_2R
                     \frac{\sqrt{C_1C_2\sqrt{C_3}R_1\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{C_1R_2R_4}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}}+\frac{C_1R_2R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_2R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_4R_3-C_5R_3}+\frac{C_1R_4R_5}{C_2R_1+C_2R_3+C_
                 K-LP: -\frac{C_{3}R_{2}R_{4}-C_{1}}{C_{1}R_{2}R_{4}-C_{1}R_{2}R_{5}-C_{1}R_{4}R_{5}-C_{3}R_{4}R_{5}}
K-HP: \frac{C_{5}R_{1}R_{6}}{C_{2}R_{1}+C_{2}R_{3}+C_{4}R_{3}-C_{5}R_{3}}
                    \begin{array}{l} \text{K-BP:} \ \frac{C_1C_3R_1R_2R_4R_6 + C_3C_5R_2R_4R_5R_6}{C_1C_2R_2R_4R_5 + C_1C_3R_1R_4R_5 - C_1C_3R_2R_3R_4 + C_1C_3R_2R_3R_5 + C_1C_3R_2R_4R_5 + C_1C_3R_3R_4R_5 + C_1C_4R_2R_4R_5 - C_1C_5R_2R_4R_5 + C_2C_3R_2R_4R_5} \\ \text{Qz: None} \ \ \\ \end{array} 
                     Wz: \frac{1}{\sqrt{C_1}\sqrt{C_5}\sqrt{R_1}\sqrt{R_5}}
10.176 X-INVALID-WZ-176 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                 H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_3C_6R_1R_2R_4R_5 - C_1C_5C_6R_1R_2R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_5 + C_1C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5\right)}
```

$$Q \colon \frac{-\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}\sqrt{-\frac{R_2R_4}{C_3-C_5} + \frac{R_2R_5}{C_3-C_5} + \frac{R_4R_5}{C_3-C_5}} + \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}}\sqrt{-\frac{R_2R_4}{C_3-C_5} + \frac{R_2R_5}{C_3-C_5} + \frac{R_4R_5}{C_3-C_5}}}{\frac{C_1R_1R_2R_4 - C_1R_1R_2}{C_5C_1C_5R_1R_2R_4R_5}} \\ \text{wo: } \sqrt{\frac{-R_2R_4 + R_2R_5 + R_4R_5}{C_1C_3R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5}} \\ \text{bandwidth: } \frac{\sqrt{\frac{-R_2R_4 + R_2R_5 + R_4R_5}{C_1C_3R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5}} (C_1R_1R_2R_4 - C_1R_1R_2R_5 - C_1R_1R_4R_5 - C_3R_1R_4R_5 - C_3R_2R_4R_5 + C_5R_2R_4R_5)}{\frac{-\sqrt{C_1C_3R_1R_2R_4R_5 - C_1C_5R_1R_2R_4R_5}}{C_3C_5R_1R_2R_4R_5 - C_1C_5R_1R_2R_4}} + \frac{R_2R_5}{C_3-C_5} + \frac{R_4R_5}{C_3-C_5} + \frac{R_4R_5}{C_3-C_5} + \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_3-C_5} + \frac{R_2R_5}{C_3-C_5} + \frac{R_4R_5}{C_3-C_5}}} \\ \text{K-LP: } -\frac{C_3R_1R_2R_4}{C_6R_2R_4 - C_6R_2R_5 - C_6R_4R_5}} \\ \text{K-HP: } \frac{C_3C_5R_6}{C_1C_3 - C_1C_5} \\ \frac{C_3C_5R_6}{C_1C_3 - C_1C_5} \\ \text{K-BP: } \frac{-C_3C_5R_1R_2R_4R_5 - C_3C_6R_1R_2R_4R_6}{C_1C_6R_1R_2R_5 - C_1C_6R_1R_4R_5 - C_3C_6R_1R_4R_5 - C_3C_6R_2R_4R_5 + C_5C_6R_2R_4R_5}} \\ \text{Wz: } \frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}} \\ \text{Wz: } \frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}} \\ \\ \text{To prove the sum of the sum$$

**10.177** X-INVALID-WZ-177 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_5R_6s^2 + C_3R_1R_2 + s\left(C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^2\left(C_1C_3C_6R_1R_2R_5 + C_1C_4C_6R_1R_2R_5 - C_1C_5C_6R_1R_2R_5\right) + s\left(-C_1C_6R_1R_2 + C_1C_6R_1R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_4C_6R_2R_5 - C_5C_6R_2R_5\right)}$$

$$Q \colon \frac{-\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}}\sqrt{-\frac{R_{2}}{C_{3}+C_{4}-C_{5}}} + \frac{R_{5}}{C_{3}+C_{4}-C_{5}}}{C_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}} + \sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}}\sqrt{-\frac{R_{2}}{C_{3}+C_{4}-C_{5}}} + \frac{R_{5}}{C_{3}+C_{4}-C_{5}}}}{C_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}+C_{5}R_{2}R_{5}}}$$

$$\text{wo: } \sqrt{\frac{-R_{2}+R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{5}}}{\sqrt{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{5}}}}} (C_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}+C_{5}R_{2}R_{5}})$$

$$\text{bandwidth: } \frac{\sqrt{\frac{-R_{2}+R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{5}}}}{\sqrt{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{5}}} (C_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}+C_{5}R_{2}R_{5}})$$

$$\text{bandwidth: } \frac{\sqrt{\frac{-R_{2}+R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{5}}}}{\sqrt{C_{1}C_{3}R_{1}R_{2}R_{5}+C_{1}C_{5}R_{1}R_{2}R_{5}}} (C_{1}R_{1}R_{2}-C_{1}R_{1}R_{5}-C_{3}R_{1}R_{5}-C_{3}R_{2}R_{5}-C_{4}R_{2}R_{5}+C_{5}R_{2}R_{5}})$$

$$\text{K-LP: } -\frac{C_{3}R_{1}R_{2}}{C_{6}R_{2}-C_{6}R_{5}}}$$

$$\text{K-HP: } \frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}}}{C_{1}C_{6}R_{1}R_{2}-C_{3}C_{6}R_{1}R_{2}R_{5}-C_{3}C_{6}R_{1}R_{2}R_{6}}}$$

$$\text{Cz: None}$$

$$\text{Wz: } \frac{1}{\sqrt{C_{5}\sqrt{C_{6}\sqrt{R_{5}\sqrt{R_{6}}}}}$$

## 10.178 X-INVALID-WZ-178 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$

$$H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_3C_6R_1R_2R_4R_5 + C_1C_6C_6R_1R_2R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_4R_5 + C_3C_6R_1R_4R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_2R_4R_5 + C_3C_6R_2R_4R_5\right)}$$

#### Parameters:

```
 Q: \frac{-\sqrt{C_1}C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_3+C_4-C_5}} + \frac{R_4R_5}{C_3+C_4-C_5} + \frac{R_4R_5}{C_3+C_4-C_5}}{C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5-C_4R_2R_4R_5} + \frac{R_4R_5}{C_3+C_4-C_5} + \frac{R_4R_5}{C_4-C_5} + \frac{R_4R_5}{C_3+C_4-C_5} +
```

10.179 X-INVALID-WZ-179  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_3C_6R_1R_2R_3R_4 - C_1C_5C_6R_1R_2R_3R_4\right) + s\left(C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 - C_5C_6R_2R_3R_4\right)}$ 

### Parameters:

$$Q: \frac{\sqrt{C_{1}C_{3}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}} - \sqrt{C_{1}C_{5}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}-C_{5}}}}{C_{1}R_{1}R_{2}R_{3}+C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{2}R_{3}R_{4}}-C_{5}R_{2}R_{3}R_{4}} \\ wo: \sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}} \\ bandwidth: \frac{\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}(C_{1}R_{1}R_{2}R_{3}+C_{1}R_{1}R_{2}R_{4}+C_{1}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{2}R_{3}R_{4}-C_{5}R_{2}R_{3}R_{4})\sqrt{\frac{1}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}}} \\ k-LP: \frac{C_{5}R_{1}R_{2}R_{4}}{C_{6}R_{1}R_{4}+C_{6}R_{2}R_{3}+C_{6}R_{2}R_{4}+C_{6}R_{3}R_{4}}}{C_{1}C_{3}C_{5}C_{6}R_{1}R_{2}R_{4}+C_{5}C_{6}R_{1}R_{2}R_{4}R_{6}}} \\ K-BP: \frac{C_{3}C_{5}R_{6}}{C_{1}C_{3}-C_{1}C_{5}}}{C_{1}C_{6}R_{1}R_{2}R_{4}+C_{1}C_{6}R_{1}R_{3}R_{4}+C_{3}C_{6}R_{1}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}}} \\ Wz: \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}}} \\ Wz: \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}}} \\ Wz: \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}}} \\ \\ Wz: \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}}} \\ \\ \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}}} \\ \\ \\ \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}}} \\ \\ \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}}} \\ \\ \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{3}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}}} \\ \\ \frac{1}{\sqrt{C_{3}}\sqrt{C_{6}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}\sqrt{R_{6}}$$

```
10.180 X-INVALID-WZ-180 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)
                                                                  H(s) = \frac{1}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s^2\left(C_1C_3R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4 + C_1R_1R_2R_3R_4 + C_1R_1R_2R_3R_
        Parameters:
                                                                                  \frac{\sqrt{\frac{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}C_{5}R_{1}R_{2}R_{3}R_{4}R_{5}}}(C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{5}-C_{1}R_{1}R_{2}R_{4}R_{5}-C_{1}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{2}R_{3}R_{4}R_{5}+C_{5}R_{2}R_{3}R_{4}R_{5}})}{-\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{3}-C_{5}}-\frac{R_{2}R_{3}R_{4}}{C_{3}-C_{5}}+\frac{R_{2}R_{4}R_{5}}{C_{3}-C_{5}}+\frac{R_{2}R_{4}R_{5}}{C_{3}-C_{5}}+\frac{R_{3}R_{4}R_{5}}{C_{3}-C_{5}}+\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{3}-C_{5}}-\frac{R_{2}R_{3}R_{4}}{C_{3}-C_{5}}+\frac{R_{2}R_{4}R_{5}}{C_{3}-C_{5}}+\frac{R_{3}R_{4}R_{5}}{C_{3}-C_{5}}}{R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}R_{3}R_{4}R_{5}-C_{3}R_{1}
                 \begin{array}{l} \text{K-BP:} \ \frac{-C_3R_1R_2R_3R_4R_6-C_5R_1R_2R_4R_5R_6}{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_1R_1R_3R_4R_5-C_3R_1R_3R_4R_5-C_3R_2R_3R_4R_5+C_5R_2R_3R_4R_5} \\ \text{Qz: None} \end{array} 
                Wz: \frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}
10.181 X-INVALID-WZ-181 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                    H(s) = \frac{C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_5C_6R_1R_2R_6\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_1C_3C_6R_1R_2R_3 + C_1C_4C_6R_1R_2R_3 - C_1C_5C_6R_1R_2R_3\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_3 + C_3C_6R_1R_3 + C_3C_6R_2R_3 + C_4C_6R_2R_3 - C_5C_6R_2R_3\right)}
      Parameters:
                 \text{Q: } \frac{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}-\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}{C_{1}R_{1}R_{2}+C_{1}R_{1}R_{3}+C_{3}R_{1}R_{3}+C_{3}R_{2}R_{3}+C_{4}R_{2}R_{3}-C_{5}R_{2}R_{3}}
               \text{wo: } \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_1 C_3 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3}} \\ \text{bandwidth: } \frac{\sqrt{R_1 + R_2 + R_3} (C_1 R_1 R_2 + C_1 R_1 R_3 + C_3 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3) \sqrt{\frac{1}{C_1 C_3 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3}}}{\sqrt{C_1 C_3} \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}} + \sqrt{C_1} C_4 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}} - \sqrt{C_1} C_5 \sqrt{R_1} \sqrt{R_2} \sqrt{R_3} \sqrt{R_1 + R_2 + R_3}} \sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\
               K-LP: \frac{C_5R_1R_2}{C_6R_1+C_6R_2+C_6R_3}
K-HP: \frac{C_3C_5R_6}{C_1C_3+C_1C_4-C_1C_5}
            Wz: \frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}
10.182 X-INVALID-WZ-182 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)
                                                                                                                                        H(s) = \frac{C_3C_5R_1R_2R_3R_5R_6s^2 + R_1R_2R_6 + s\left(C_3R_1R_2R_3R_6 + C_5R_1R_2R_5R_6\right)}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_1C_3R_1R_2R_3R_5 + C_1C_4R_1R_2R_3R_5 - C_1C_5R_1R_2R_3R_5\right) + s\left(-C_1R_1R_2R_3 + C_1R_1R_2R_5 + C_1R_1R_3R_5 + C_3R_1R_3R_5 + C_3R_2R_3R_5 + C_4R_2R_3R_5 - C_5R_2R_3R_5\right)}
        Parameters:
                 Q: \frac{-\sqrt{C_{1}}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{5}}{C_{3}+C_{4}-C_{5}}} - \frac{R_{2}R_{3}}{C_{3}+C_{4}-C_{5}} + \frac{R_{2}R_{5}}{C_{3}+C_{4}-C_{5}} - \sqrt{C_{1}}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{5}}{C_{3}+C_{4}-C_{5}}} + \frac{R_{2}R_{5}}{C_{3}+C_{4}-C_{5}}} + \sqrt{C_{1}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{5}}{C_{3}+C_{4}-C_{5}}} + \frac{R_{2}R_{3}}{C_{3}+C_{4}-C_{5}}} + \frac{R_{2}R_{3}}{C_{3}+C_{4}-C_{5}} + \frac{
```

 $Q: \frac{-\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}}\sqrt{\frac{R_1R_5}{C_3+C_4-C_5} - \frac{R_2R_3}{C_3+C_4-C_5} + \frac{R_2R_5}{C_3+C_4-C_5} - \frac{R_2R_3}{C_3+C_4-C_5} - \frac{R_2R_3}{C_3+C_4-C_5} + \frac{R_2R_5}{C_3+C_4-C_5} + \frac{$ 

```
10.183 X-INVALID-WZ-183 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                         H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6\right)}{C_6R_1R_4 + C_6R_2R_3 + C_6R_2R_4 + C_6R_3R_4 + s^2\left(C_1C_3C_6R_1R_2R_3R_4 + C_1C_5C_6R_1R_2R_3R_4\right) + s\left(C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_3C_6R_3R_3R_4 + C_
        Parameters:
                                          \frac{\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}+\sqrt{C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}-\sqrt{C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{3}+C_{4}-C_{5}}}}{C_{1}R_{1}R_{2}R_{3}+C_{1}R_{1}R_{2}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{3}R_{1}R_{3}R_{4}+C_{4}R_{2}R_{3}R_{4}-C_{5}R_{2}R_{3}R_{4}}
                    \text{wo: } \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_3R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4}} \\ \text{bandwidth: } \frac{\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4)}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}} - \sqrt{C_1C_5\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} + \sqrt{C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{C_3 + C_4 - C_5}}}} \\ \text{bandwidth: } \frac{1}{\sqrt{C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R
                    \text{K-BP: } \frac{C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6}{C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_4C_6R_2R_3R_4 - C_5C_6R_2R_3R_4} \\ \text{Qz: None} \\ \underline{ }
                    Wz: \frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}
10.184 X-INVALID-WZ-184 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, R_2, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)
H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + s^2\left(C_1C_3R_1R_2R_3R_4R_5 + C_1C_5R_1R_2R_3R_4R_5\right) + s\left(-C_1R_1R_2R_3R_4 + C_1R_1R_2R_3R_4 + C_1R_1R_2R_3R_4R_5 + C_3R_1R_3R_4R_5 + C_3R_2R_3R_4R_5 + C_4R_2R_3R_4R_5 - C_5R_2R_3R_4\right)}
        Parameters:
                   Q: \frac{-\sqrt{C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{3}+C_{4}-C_{5}} - \frac{R_{2}R_{3}R_{4}}{C_{3}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{3}+C_{4}-C_{5}} - \frac{R_{2}R_{3}R_{4}}{C_{3}+C_{4}-C_{5}} - \frac{R_{2}R_{3}R_{5}}{C_{3}+C_{4}-C_{5}} - \frac{R_{2}R_{3}R_{4}}{C_{3}+C_{4}-C_{5}} - \frac{R_{2}R_{3}R_{5}}{C_{3}+C_{4}-C_{5}} - \frac{R_{2}R_{3}R_{5}}{C_{3}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{3}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{3}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{3}+C_{4}-C_{5}} - \frac{R_{2}R_{3}R_{4}}{C_{3}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{3}+C_{4}-C_{5}} + \frac{R_{2}R_{3}R_{5}}{C_{3}
                   Wo: \sqrt{\frac{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{C_1C_3R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4R_5}}
                  \frac{\sqrt{\frac{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}}{C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}C_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{4}-C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{1}R_{1}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{1}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3}R_{4}R_{5}-C_{2}R_{2}R_{3
                K-LP: \frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}
K-HP: \frac{C_3C_5R_6}{C_1C_3 + C_1C_4 - C_1C_5}
                   \begin{array}{l} \text{K-BP:} \ \frac{-C_3R_1R_2R_3R_4-C_5R_1R_2R_4R_5R_6}{C_1R_1R_2R_3R_4-C_1R_1R_2R_3R_5-C_1R_1R_2R_4R_5-C_3R_1R_3R_4R_5-C_3R_2R_3R_4R_5-C_4R_2R_3R_4R_5+C_5R_2R_3R_4R_5} \\ \text{Qz: None} \end{array} 
                   Wz: \frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}
10.185 X-INVALID-WZ-185 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                          H(s) = \frac{C_3C_5C_6R_1R_4R_5R_6s^2 + C_3R_1R_4 + s\left(C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 - C_1C_5C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 - C_5C_6R_4R_5\right)}
          Parameters:
                    Q: \frac{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} -C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}
                   Wo: \sqrt{\frac{-R_4+R_5}{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5-C_1C_5R_1R_4R_5+C_2C_3R_1R_4R_5}}
                   \frac{-\frac{-R_4 + R_5}{\sqrt{C_1 C_2 R_1 R_4 R_5 + C_1 C_3 R_1 R_4 R_5 - C_1 C_5 R_1 R_4 R_5 - C_2 R_4 R_5 - C_3 R_4 R_5 + C_5 R_4 R_5)}{-C_1 C_2 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} - C_1 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{R_4}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}{C_1 C_3 - C_1 C_5 + C_2 C_3}}} - C_2 C_3 \sqrt{R_1} \sqrt{R_4} \sqrt{R_5} \sqrt{-\frac{
```

 $\begin{array}{lll} \text{K-HP:} & \frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} \\ \text{K-BP:} & \frac{-C_3C_5R_1R_4R_5-C_3C_6R_1R_4R_6}{C_1C_6R_1R_4-C_1C_6R_1R_5-C_2C_6R_4R_5-C_3C_6R_4R_5+C_5C_6R_4R_5} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

**10.186** X-INVALID-WZ-186 
$$Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$$

$$H(s) = \frac{C_3C_5C_6R_1R_5R_6s^2 + C_3R_1 + s\left(C_3C_5R_1R_5 + C_3C_6R_1R_6\right)}{-C_6 + s^2\left(C_1C_2C_6R_1R_5 + C_1C_3C_6R_1R_5 + C_1C_4C_6R_1R_5 - C_1C_5C_6R_1R_5 + C_2C_3C_6R_1R_5\right) + s\left(-C_1C_6R_1 + C_2C_6R_5 + C_3C_6R_5 + C_4C_6R_5 - C_5C_6R_5\right)}$$

 $-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{5}}\sqrt{-\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_$ Wo:  $\sqrt{-\frac{1}{C_1C_2R_1R_5+C_1C_3R_1R_5+C_1C_4R_1R_5-C_1C_5R_1R_5+C_2C_3R_1R_5}}$ 

 $\text{bandwidth: } \frac{\sqrt{-\frac{1}{C_1C_2R_1R_5+C_1C_3R_1R_5+C_1C_5R_1R_5+C_2C_3R_1R_5}}(C_1R_1-C_2R_5-C_3R_5-C_4R_5+C_5R_5)}{-C_1C_2\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_1C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}+C_1C_4\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}+C_1C_5\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}+C_1C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}+C_1C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_5}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{R_1}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{R_1}\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-C_2C_3\sqrt{-\frac{1}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}}-C_2C_3\sqrt{-\frac{1}{C_$ 

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}$ K-BP:  $\frac{-C_3C_5R_1R_5-C_3C_6R_1R_6}{C_1C_6R_1-C_2C_6R_5-C_3C_6R_5-C_4C_6R_5+C_5C_6R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

## **10.187** X-INVALID-WZ-187 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_4C_5C_6R_1R_4R_6s^2 + C_3C_5R_1 + s\left(C_3C_4C_5R_1R_4 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_1C_2C_4C_6R_1R_4 + C_1C_3C_4C_6R_1R_4 + C_2C_3C_4C_6R_1R_4\right) + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_4C_6R_4 + C_3C_4C_6R_4 + C_3C_4C_6R_4\right)}$ 

### Parameters:

 $O: \frac{C_1C_2\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{C_2}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + \frac{C_3}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{C_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} - \frac{C_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + C_1C_3\sqrt{C_4}\sqrt{R_1}\sqrt{R_4}\sqrt{\frac{C_2}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + \frac{C_3}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{C_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{C_4}{C_$ 

wo:  $\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_1 C_2 C_4 R_1 R_4 + C_1 C_3 C_4 R_1 R_4 - C_1 C_4 C_5 R_1 R_4 + C_2 C_3 C_4 R_1 R_4}$ 

 $\sqrt{\frac{C_2 + C_3 + C_4 - C_5}{C_1 C_2 C_4 R_1 R_4 + C_1 C_3 C_4 R_1 R_4 - C_1 C_4 C_5 R_1 R_4 + C_2 C_3 C_4 R_1 R_4}} (C_1 C_2 R_1 + C_1 C_3 R_1 + C_1 C_4 R_1 - C_1 C_5 R_1 + C_2 C_3 R_1 + C_2 C_4 R_4 + C_1 C_5 R_1 + C_2 C_3 R_1 + C_2 C_4 R_4 + C_1 C_5 R_1 + C_2 C_3 R_1 + C_2 C_4 R_1 R_4 + C_1 C_5 R_1 + C_2 C_3 R_1 + C_2 C_$  $\frac{\sqrt{\frac{C_1C_2C_4R_1R_4+C_1C_3$ 

K-LP:  $\frac{C_3C_5R_1}{C_2C_6+C_3C_6+C_4C_6-C_5C_6}$ K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$ 

 $\begin{array}{l} \text{K-BP:} \ \frac{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}{C_{1}C_{2}C_{6}R_{1}+C_{1}C_{3}C_{6}R_{1}+C_{1}C_{5}C_{6}R_{1}+C_{2}C_{3}C_{6}R_{1}+C_{2}C_{3}C_{6}R_{1}+C_{2}C_{4}C_{6}R_{4}+C_{3}C_{4}C_{6}R_{4}-C_{4}C_{5}C_{6}R_{4}} \\ \text{Qz:} \ \ \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_4}\sqrt{C_6}\sqrt{R_4}\sqrt{R_6}}$ 

## **10.188** X-INVALID-WZ-188 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5C_6R_1R_4R_5R_6s^2 + C_3R_1R_4 + s\left(C_3C_5R_1R_4R_5 + C_3C_6R_1R_4R_6\right)}{-C_6R_4 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_4R_5 + C_1C_3C_6R_1R_4R_5 + C_1C_5C_6R_1R_4R_5 + C_2C_3C_6R_1R_4R_5\right) + s\left(-C_1C_6R_1R_4 + C_1C_6R_1R_5 + C_2C_6R_4R_5 + C_3C_6R_4R_5 + C_3C_6R_4R_5$ 

## Parameters:

 $Q: \frac{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - C_{1}C_{4}\sqrt{R_{1}}\sqrt{$ Wo:  $\sqrt{\frac{-R_4+R_5}{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_1C_4R_1R_4R_5-C_1C_5R_1R_4R_5+C_2C_3R_1R_4R_5}}$ 

 $\sqrt{\frac{-R_4+R_5}{C_1C_2R_1R_4R_5+C_1C_3R_1R_4R_5+C_1C_4R_1R_4R_5-C_1C_5R_1R_4R_5+C_2C_3R_1R_4R_5}}(C_1R_1R_4-C_1R_1R_5-C_2R_4R_5-C_3R_4R_5-C_4R_4R_5+C_5R_4R_5)$  $\frac{\sqrt{C_1C_2R_1R_4R_5+C_1C_3}R_4}{-C_1C_2\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_4\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_4\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_4\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_2}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_2}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{R_2}\sqrt{-\frac{R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + C_1C_5\sqrt{R_1}\sqrt{R_1$ 

 $\begin{array}{c} & C_{1}C_{2}V_{R_{1}}V_{R_{4}}V_{R_{5}}V_{}^{-}\overline{c_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}^{+}+\overline{c_{1}C_{2}+C_{1}C_{1}}C_{5}\\ K_{-}LP: & -\frac{C_{3}R_{1}R_{4}}{C_{6}R_{4}-C_{6}R_{5}}\\ K_{-}HP: & \frac{C_{3}C_{5}R_{6}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}^{-}\\ K_{-}BP: & \frac{C_{3}C_{5}R_{1}}{C_{1}C_{6}R_{1}R_{4}-C_{1}C_{6}R_{1}R_{5}-C_{2}C_{6}R_{4}R_{5}-C_{3}C_{6}R_{1}R_{4}R_{6}}^{-}\\ Qz: & None \\ & W & \stackrel{1}{\longrightarrow} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

```
10.189 X-INVALID-WZ-189 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
```

$$H(s) = \frac{C_3C_5C_6R_1R_3R_4R_6s^2 + C_5R_1R_4 + s\left(C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_2C_3C_6R_1R_3R_4\right) + s\left(C_1C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_3C_6R_3R_4\right)}$$

 $\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{3}+R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R$ 

wo:  $\sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 + C_1 C_3 R_1 R_3 R_4 - C_1 C_5 R_1 R_3 R_4 + C_2 C_3 R_1 R_3 R_4}}$ 

 $\text{bandwidth: } \frac{\sqrt{R_3 + R_4}(C_1 R_1 R_3 + C_1 R_1 R_4 + C_2 R_1 R_4 + C_2 R_3 R_4 + C_3 R_3 R_4 - C_5 R_3 R_4) \sqrt{\frac{1}{C_1 C_2 R_1 R_3 R_4 + C_1 C_5 R_1 R_3 R_4 + C_2 C_3 R_1 R_3 R_4}}{C_1 C_2 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_1 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} - C_1 C_5 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4}} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4}} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4}} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4}} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4}} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4}} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_3} \sqrt{R_4} \sqrt{R_3 + R_4}} \sqrt{\frac{1}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3}} + C_2 C_3 \sqrt{R_1} \sqrt{R_1} \sqrt{R_2} \sqrt{R_1} \sqrt{R_2} \sqrt{R_1} \sqrt{R_2} \sqrt{R_1} \sqrt{R_2} \sqrt$ 

K-HP:  $\frac{C_3R_5 + C_3R_6}{C_1C_2 + C_1C_3 - C_1C_5 + C_2C_3}$ K-BP:  $\frac{C_3C_5R_1}{C_1C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 - C_5C_6R_3R_4}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

## **10.190** X-INVALID-WZ-190 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6\right)$

 $H(s) = \frac{C_3C_5R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_6 + C_5R_1R_4R_5R_6\right)}{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_1C_2R_1R_3R_4R_5 + C_1C_3R_1R_3R_4R_5 + C_2C_3R_1R_3R_4R_5\right) + s\left(-C_1R_1R_3R_4 + C_1R_1R_3R_5 + C_1R_1R_4R_5 + C_2R_3R_4R_5 + C_3R_3R_4R_5 - C_5R_3R_4R_5\right)}$ 

### Parameters:

 $Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_4}{C_1C_2$ 

Wo:  $\sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_1C_2R_1R_3R_4R_5+C_1C_3R_1R_3R_4R_5-C_1C_5R_1R_3R_4R_5+C_2C_3R_1R_3R_4R_5}}$ 

 $\frac{-R_3R_4+R_3R_5+R_4R_5}{\sqrt{C_1C_2R_1R_3R_4R_5+C_1C_3R_1R_3R_4R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5-C_2R_3R_4R_5-C_3R_3R_4R_5+C_5R_3R_4R_5)}} -C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_$ 

K-LP:  $-\frac{R_1R_4R_6}{R_3R_4-R_3R_5-R_4R_5}$ 

K-HP:  $\frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}$ K-BP:  $\frac{-C_3R_1R_3R_4R_6-C_5R_1R_4R_5R_6}{C_1R_1R_3R_4-C_1R_1R_3R_5-C_1R_1R_4R_5-C_2R_1R_4R_5-C_2R_3R_4R_5-C_3R_3R_4R_5+C_5R_3R_4R_5}$ Qz: None

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

## 10.191 X-INVALID-WZ-191 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$

 $H(s) = \frac{C_3C_5C_6R_1R_3R_6s^2 + C_5R_1 + s\left(C_3C_5R_1R_3 + C_5C_6R_1R_6\right)}{C_6 + s^2\left(C_1C_2C_6R_1R_3 + C_1C_3C_6R_1R_3 + C_1C_5C_6R_1R_3 + C_2C_3C_6R_1R_3\right) + s\left(C_1C_6R_1 + C_2C_6R_1 + C_2C_6R_3 + C_3C_6R_3 + C_4C_6R_3 - C_5C_6R_3\right)}$ 

### Parameters:

 $Q: \underbrace{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}+C_{2}R_{1}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R$ 

Wo:  $\sqrt{\frac{1}{C_1C_2R_1R_3+C_1C_3R_1R_3+C_1C_4R_1R_3-C_1C_5R_1R_3+C_2C_3R_1R_3}}$ 

 $\text{bandwidth: } \frac{(C_1R_1 + C_2R_3 + C_3R_3 + C_4R_3 - C_5R_3)\sqrt{\frac{1}{C_1C_2R_1R_3 + C_1C_3R_1R_3 + C_1C_5R_1R_3 + C_2C_3R_1R_3}}{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{\frac{1}{C_1C_2 + C_1C_3 + C$ 

K-LP:  $\frac{C_5 R_1}{C_6}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

```
10.192 X-INVALID-WZ-192 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)
```

$$H(s) = \frac{C_3C_5R_1R_3R_5R_6s^2 + R_1R_6 + s\left(C_3R_1R_3R_6 + C_5R_1R_5R_6\right)}{-R_3 + R_5 + s^2\left(C_1C_2R_1R_3R_5 + C_1C_3R_1R_3R_5 + C_1C_4R_1R_3R_5 - C_1C_5R_1R_3R_5 + C_2C_3R_1R_3R_5\right) + s\left(-C_1R_1R_3 + C_1R_1R_5 + C_2R_1R_5 + C_2R_3R_5 + C_3R_3R_5 + C_4R_3R_5 - C_5R_3R_5\right)}$$

 $-\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}}-C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{4}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C$ 

 $\sqrt{\frac{-R_3+R_5}{C_1C_2R_1R_3R_5+C_1C_3R_1R_3R_5+C_1C_4R_1R_3R_5-C_1C_5R_1R_3R_5+C_2C_3R_1R_3R_5}}(C_1R_1R_3-C_1R_1R_5-C_2R_1R_5-C_2R_3R_5-C_3R_3R_5-C_4R_3R_5+C_5R_3R_5)$  $\frac{\sqrt{-C_1C_2N_1N_3N_5+C_1C_3N_1N_3N_1N_5+C_1C_3N_1N_3N_1N_5+C_1C_3N_1N_3N_1N_5+C_1C_3N_1N_3N_1N_5+C_1C_3N_1N_3N_1N_5+C_1C_3N_$ 

 $\begin{array}{l} \text{K-HP:} \ \, \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \\ \text{K-BP:} \ \, \frac{-C_3R_1R_3R_6-C_5R_1R_5R_6}{C_1R_1R_3-C_1R_1R_5-C_2R_1R_5-C_2R_3R_5-C_3R_3R_5-C_4R_3R_5+C_5R_3R_5} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

**10.193** X-INVALID-WZ-193  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_3R_4R_6s^2 + C_5R_1R_4 + s\left(C_3C_5R_1R_3R_4 + C_5C_6R_1R_4R_6\right)}{C_6R_3 + C_6R_4 + s^2\left(C_1C_2C_6R_1R_3R_4 + C_1C_3C_6R_1R_3R_4 + C_1C_5C_6R_1R_3R_4 + C_2C_3C_6R_1R_3R_4 + C_2C_6R_1R_3 + C_1C_6R_1R_4 + C_2C_6R_1R_4 + C_2C_6R_3R_4 + C_3C_6R_3R_4 + C_3C$ 

### Parameters:

 $Q: \frac{{{C_1}{C_2}\sqrt {{R_1}}\sqrt {{R_3}}\sqrt {{R_4}}\sqrt {{R_3} + {R_4}}\sqrt {\frac{1}{{{C_1}{C_2} + {C_1}{C_3} + {C_1}{C_4} - {C_1}{C_5} + {C_2}{C_3}}}} + {{C_1}{C_3}\sqrt {{R_1}}\sqrt {{R_3}}\sqrt {{R_4}}\sqrt {{R_3} + {R_4}}\sqrt {\frac{1}{{{C_1}{C_2} + {C_1}{C_3} + {C_1}{C_4} - {C_1}{C_5} + {C_2}{C_3}}}} + {{C_2}\sqrt {{R_1}}\sqrt {{R_3}}\sqrt {{R_4}}\sqrt {{R_3} + {R_4}}\sqrt {\frac{1}{{{C_1}{C_2} + {C_1}{C_3} + {C_1}{C_4} - {C_1}{C_5} + {C_2}{C_3}}}} - {{C_1}{C_3}\sqrt {{R_1}}\sqrt {{R_3}}\sqrt {{R_4}}\sqrt {{R_3} + {R_4}}\sqrt {\frac{1}{{{C_1}{C_2} + {C_1}{C_3} + {C_1}{C_4} - {C_1}{C_5} + {C_2}{C_3}}}} + {{C_2}\sqrt {{R_1}}\sqrt {{R_3}}\sqrt {{R_4}}\sqrt {{R_3} + {R_4}}\sqrt {\frac{1}{{{C_1}{C_2} + {C_1}{C_3} + {C_1}{C_4} - {C_1}{C_5} + {C_2}{C_3}}}} - {{C_1}\sqrt {{C_1$ 

 $\frac{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_3+R_4}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_$ 

 $\begin{array}{l} \text{K-HP:} \ \frac{C_{6}R_{3}+C_{6}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} \\ \text{K-BP:} \ \frac{C_{3}C_{5}R_{6}}{C_{1}C_{6}R_{1}R_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} \\ \text{Qz:} \ \text{None} \end{array}$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}$ 

**10.194** X-INVALID-WZ-194  $Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \frac{R_4}{C_4R_4s+1}, \frac{R_5}{C_5R_5s+1}, R_6\right)$ 

 $C_3C_5R_1R_3R_4R_5R_6s^2 + R_1R_4R_6 + s\left(C_3R_1R_3R_4R_6 + C_5R_1R_4R_5R_6\right)$ 

 $\overline{-R_3R_4 + R_3R_5 + R_4R_5 + s^2\left(C_1C_2R_1R_3R_4R_5 + C_1C_3R_1R_3R_4R_5 + C_1C_4R_1R_3R_4R_5 + C_2C_3R_1R_3R_4R_5 + C_1R_1R_3R_4 + C_1R_$ 

## Parameters:

 $O: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_3R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}{+\frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3+C$ 

Wo:  $\sqrt{\frac{-R_3R_4+R_3R_5+R_4R_5}{C_1C_2R_1R_3R_4R_5+C_1C_3R_1R_3R_4R_5+C_1C_4R_1R_3R_4R_5-C_1C_5R_1R_3R_4R_5+C_2C_3R_1R_3R_4R_5}$ 

 $\frac{R_{3}R_{4}}{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} - C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} - C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} - C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} - C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{3}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + \frac{R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

```
10.195 X-INVALID-WZ-195 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                   H(s) = \frac{C_2C_3C_5C_6R_1R_2R_6s^2 + C_3C_5R_1 + s\left(C_2C_3C_5R_1R_2 + C_3C_5C_6R_1R_6\right)}{C_2C_6 + C_3C_6 + C_4C_6 - C_5C_6 + s^2\left(C_1C_2C_3C_6R_1R_2 + C_1C_2C_4C_6R_1R_2\right) + s\left(C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_4C_6R_2 - C_2C_5C_6R_2\right)}
            Parameters:
                        Q: \frac{\sqrt{C_{1}}\sqrt{C_{2}}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{C_{2}}{C_{3}+C_{4}-C_{5}}} + \frac{C_{3}}{C_{3}+C_{4}-C_{5}} + \frac{C_{4}}{C_{3}+C_{4}-C_{5}}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}}{C_{1}\sqrt{C_{2}}C_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{C_{2}}{C_{3}+C_{4}-C_{5}}} + \frac{C_{4}}{C_{3}+C_{4}-C_{5}}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}} - \sqrt{C_{1}}\sqrt{C_{2}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{C_{2}}{C_{3}+C_{4}-C_{5}}} + \frac{C_{3}}{C_{3}+C_{4}-C_{5}}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}}{C_{1}\sqrt{C_{2}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{C_{2}}{C_{3}+C_{4}-C_{5}}}} - \frac{C_{3}}{C_{3}+C_{4}-C_{5}}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}}{C_{1}\sqrt{C_{2}}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{\frac{C_{2}}{C_{3}+C_{4}-C_{5}}}} - \frac{C_{3}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}{C_{3}+C_{4}-C_{5}}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}{C_{3}+C_{4}-C_{5}}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}{C_{3}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_{5}}{C_{5}-C_{5}}{C_{5}+C_{4}-C_{5}} - \frac{C_{5}}{C_{3}+C_{4}-C_
                        \text{bandwidth: } \frac{\frac{C_2 + C_3 + C_4 - C_5}{\sqrt{C_1 C_2 C_3 R_1 R_2 + C_1 C_2 C_4 R_1 R_2 - C_1 C_2 C_5 R_1 R_2}}}{\sqrt{C_1 C_2 C_3 R_1 R_2 + C_1 C_2 C_4 R_1 R_2 - C_1 C_2 C_5 R_1 R_2}} (C_1 C_2 R_1 + C_1 C_3 R_1 + C_1 C_4 R_1 - C_1 C_5 R_1 + C_2 C_3 R_2 + C_2 C_4 R_2 - C_2 C_5 R_2}) \\ \frac{C_2}{\sqrt{C_1 C_2 C_3 \sqrt{R_1} \sqrt{R_2} \sqrt{\frac{C_2}{C_3 + C_4 - C_5} + \frac{C_3}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_3}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_3}{C_3 + C_4 - C_5} + \frac{C_4}{C_3 + C_4 - C_5} + \frac{C_5}{C_3 
                        \begin{array}{l} \text{K-BP: } \frac{C_1C_3C_5R_1R_2 + C_3C_5C_6R_1R_6}{C_1C_2C_6R_1 + C_1C_3C_6R_1 + C_1C_4C_6R_1 - C_1C_5C_6R_1 + C_2C_3C_6R_1 + C_2C_3C_6R_2 + C_2C_4C_6R_2 - C_2C_5C_6R_2} \\ \text{Qz: None} \end{array} 
                        Wz: \frac{1}{\sqrt{C_2}\sqrt{C_6}\sqrt{R_2}\sqrt{R_6}}
10.196 X-INVALID-WZ-196 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, R_4, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)
                 H(s) = \frac{C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s\left(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6\right)}{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5\right) + s\left(-C_1C_6R_1R_2R_4 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_4R_5 + C_1C_6
            Parameters:
                        Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{R_
                       wo: \sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5-C_1C_5R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          \sqrt{\frac{-R_2R_4+R_2R_5+R_4R_5}{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_2C_3R_1R_2R_4R_5}}(C_1R_1R_2R_4-C_1R_1R_2R_5-C_1R_1R_4R_5-C_2R_2R_4R_5-C_3R_1R_4R_5-C_3R_2R_4R_5+C_5R_2R_4R_5)
                       \frac{\sqrt{C_1C_2R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5+C_1C_3R_1R_2R_4R_5}{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}} + \frac{R_2R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3} + \frac{R_2R_5}{C_1C_2+C_1C_3-C_
                       \begin{aligned} \text{K-LP:} & - \frac{C_3 R_1 R_2 R_4}{C_6 R_2 R_4 - C_6 R_2 R_5 - C_6 R_4 R_5} \\ \text{K-HP:} & \frac{C_3 C_5 R_6}{C_1 C_2 + C_1 C_3 - C_1 C_5 + C_2 C_3} \end{aligned} 
                        \text{K-BP: } \frac{-C_3C_5R_1R_2R_4R_5 - C_3C_6R_1R_2R_4R_6}{C_1C_6R_1R_2R_4 - C_1C_6R_1R_2R_5 - C_1C_6R_1R_4R_5 - C_2C_6R_2R_4R_5 - C_3C_6R_1R_4R_5 - C_3C_6R_2R_4R_5 - C_3C_6R_2
                       Wz: \frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}
```

10.197 X-INVALID-WZ-197  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

 $H(s) = \frac{C_3C_5C_6R_1R_2R_5R_6s^2 + C_3R_1R_2 + s\left(C_3C_5R_1R_2R_5 + C_3C_6R_1R_2R_6\right)}{-C_6R_2 + C_6R_5 + s^2\left(C_1C_2C_6R_1R_2R_5 + C_1C_3C_6R_1R_2R_5 + C_1C_5C_6R_1R_2R_5 + C_2C_3C_6R_1R_2R_5\right) + s\left(-C_1C_6R_1R_2 + C_1C_6R_1R_5 + C_2C_6R_2R_5 + C_3C_6R_1R_5 + C_3C_6R_2R_5 + C_3C_6R_2R_5\right)}$ 

## Parameters:

Wz:  $\frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}$ 

 $Q: \frac{-c_{1}c_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{-c_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}} - c_{1}c_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{-c_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}} - c_{1}c_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{-c_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}} - c_{1}c_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{-c_{1}c_{2}+c_{1}c_{3}+c_{1}c_{4}-c_{1}c_{5}+c_{2}c_{3}} - c_{1}c_{4}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{5}}\sqrt{-c_{1}c$ 

```
C_3C_5C_6R_1R_2R_4R_5R_6s^2 + C_3R_1R_2R_4 + s(C_3C_5R_1R_2R_4R_5 + C_3C_6R_1R_2R_4R_6)
                                                                   \overline{-C_6R_2R_4 + C_6R_2R_5 + C_6R_4R_5 + s^2\left(C_1C_2C_6R_1R_2R_4R_5 + C_1C_3C_6R_1R_2R_4R_5 + C_1C_4C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5 + C_2C_3C_6R_1R_2R_4R_5 + C_1C_6R_1R_2R_4 + C_1C_6R_
           Parameters:
                                                     -C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}-C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{-\frac{R_{2}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}
                                                                                                                                  -\frac{R_2R_4}{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + \frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_4}\sqrt{R_5}\sqrt{-\frac{R_2R_4}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3} + \frac{R_4R_5}{C_1C_2+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3+C_1C_3
                          K-LP: -\frac{C_3R_1R_2R_4}{C_6R_2R_4-C_6R_2R_5-C_6R_4R_5}
                          K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}
                           \begin{array}{c} -C_3C_5R_1R_2R_4R_5 - C_3C_6R_1R_2R_4R_6 \\ \hline C_1C_6R_1R_2R_4 - C_1C_6R_1R_2R_5 - C_1C_6R_1R_4R_5 - C_2C_6R_2R_4R_5 - C_3C_6R_1R_4R_5 - C_3C_6R_2R_4R_5 - C_3C_6R_2R_4R_5 - C_4C_6R_2R_4R_5 - C_4C_6R_2R_4R
                            Wz: \frac{1}{\sqrt{C_5}\sqrt{C_6}\sqrt{R_5}\sqrt{R_6}}
10.199 X-INVALID-WZ-199 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{1}{C_5s}, R_6 + \frac{1}{C_6s}\right)
H(s) = \frac{C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s\left(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_3R_4 + C_5C_6R_1R_2R
           Parameters:
                                                 : \frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{
                          wo: \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} (C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 - C_5R_2R_3R_4) \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4 + C_3R_2R_3R_4 + C_3R_3R_3R_4 + C_3R_3R_3R_
                          \frac{1}{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}+C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}
                          K-LP: \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4}
                         K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}
                        \text{K-BP:} \begin{array}{l} \frac{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}{C_{3}C_{5}R_{1}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{1}R_{2}R_{4}R_{6}} \\ \text{K-BP:} \\ \frac{C_{3}C_{5}R_{1}R_{2}R_{3}+C_{1}C_{6}R_{1}R_{2}R_{4}+C_{1}C_{6}R_{1}R_{3}R_{4}+C_{2}C_{6}R_{1}R_{2}R_{4}+C_{2}C_{6}R_{2}R_{3}R_{4}+C_{3}C_{6}R_{1}R_{3}R_{4}+C_{3}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C_{6}R_{2}R_{3}R_{4}+C_{5}C
                          Wz: \frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}
10.200 X-INVALID-WZ-200 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, R_4, \frac{R_5}{C_5R_5s+1}, R_6\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)
                                                                   \overline{R_{1}R_{4}R_{5}-R_{2}R_{3}R_{4}+R_{2}R_{3}R_{5}+R_{2}R_{4}R_{5}+R_{3}R_{4}R_{5}+s^{2}\left(C_{1}C_{2}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{1}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}+C_{2}C_{3}R_{1}R_{2}R_{3}R_{4}R_{5}\right)+s\left(-C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{4}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R_{5}+C_{1}R_{1}R_{2}R_{3}R
           Parameters:
                            O: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}-\frac{R_2R_3R_4}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_3R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_3R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}-C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}-\frac{R_2R_3R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}}+\frac{R_2R_3R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}-C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}-\frac{R_2R_3R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}}+\frac{R_2R_3R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_5+C_2C_3}+\frac{R_2R_4R_5}{C_1C_2+C_1C_3-C_1C_
                          Wo: \sqrt{\frac{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}{C_1C_2R_1R_2R_3R_4R_5 + C_1C_3R_1R_2R_3R_4R_5 - C_1C_5R_1R_2R_3R_4R_5 + C_2C_3R_1R_2R_3R_4R_5}}
                                                                                                                              -C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}}-\frac{R_{2}R_{3}R_{4}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}-C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}
                          K-LP: \frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}
                           \underbrace{ \begin{array}{c} -C_3R_1R_2R_3R_4R_6 - C_5R_1R_2R_4R_5R_6 \\ \hline C_1R_1R_2R_3R_4 - C_1R_1R_2R_3R_5 - C_1R_1R_2R_4R_5 - C_1R_1R_3R_4R_5 - C_2R_1R_2R_4R_5 - C_2R_2R_3R_4R_5 - C_3R_1R_3R_4R_5 - C_3R_2R_3R_4R_5 \\ \hline \end{array} }_{ \begin{array}{c} -C_3R_1R_2R_3R_4R_6 - C_5R_1R_2R_4R_5R_6 \\ \hline \end{array} } 
                              Qz: None
                          Wz: \frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}
```

10.198 X-INVALID-WZ-198  $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s}\right)$ 

```
10.201 X-INVALID-WZ-201 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{1}{C_4 s}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                       H(s) = \frac{C_3C_5C_6R_1R_2R_3R_6s^2 + C_5R_1R_2 + s\left(C_3C_5R_1R_2R_3 + C_5C_6R_1R_2R_6\right)}{C_6R_1 + C_6R_2 + C_6R_3 + s^2\left(C_1C_2C_6R_1R_2R_3 + C_1C_3C_6R_1R_2R_3 + C_1C_5C_6R_1R_2R_3 + C_2C_3C_6R_1R_2R_3\right) + s\left(C_1C_6R_1R_2 + C_1C_6R_1R_2 + C_2C_6R_1R_2 + C_2C_
          Parameters:
                                               + \underbrace{\frac{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}{C_{1}R_{1}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{1}+R_{2}+R_{3}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} + C_{2}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2}}\sqrt{R_{2
                         wo: \sqrt{R_1 + R_2 + R_3} \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_3 + C_1 C_3 R_1 R_2 R_3 + C_1 C_4 R_1 R_2 R_3 - C_1 C_5 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \sqrt{R_1 + R_2 + R_3} (C_1 R_1 R_2 + C_1 R_1 R_3 + C_2 R_1 R_2 + C_2 R_2 R_3 + C_3 R_1 R_3 + C_3 R_2 R_3 + C_4 R_2 R_3 - C_5 R_2 R_3) \sqrt{\frac{1}{C_1 C_2 R_1 R_2 R_3 + C_1 C_3 R_1 R_2 R_3 + C_1 C_5 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3}{\frac{1}{C_1 C_2 R_1 R_2 R_3 + C_1 C_3 R_1 R_2 R_3 + C_1 C_5 R_1 R_2 R_3 + C_2 C_3 R_1 R_2 R_3}}
                         \frac{\sqrt{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}}{C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_1C_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_1+R_2+R_3}\sqrt{\frac{1}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} + C_2C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_1}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt{R_2}\sqrt
                       K-HP: \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} K-BP: \frac{C_3C_5R_1R_2+C_1C_4-C_1C_5+C_2C_3}{C_1C_6R_1R_2+C_1C_6R_1R_3+C_2C_6R_1R_2+C_2C_6R_2R_3+C_3C_6R_1R_3+C_3C_6R_2R_3+C_4C_6R_2R_3-C_5C_6R_2R_3} Qz: None
                          Wz: \frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}
10.202 X-INVALID-WZ-202 Z(s) = \left(\frac{R_1}{C_1R_1s+1}, \frac{R_2}{C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \frac{1}{C_4s}, \frac{R_5}{C_5R_5s+1}, R_6\right)
H(s) = \frac{C_3C_5R_1R_2R_3R_5R_6s^2 + R_1R_2R_6 + s\left(C_3R_1R_2R_3R_6 + C_5R_1R_2R_5R_6\right)}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5 + s^2\left(C_1C_2R_1R_2R_3R_5 + C_1C_3R_1R_2R_3R_5 + C_1C_4R_1R_2R_3R_5 + C_2C_3R_1R_2R_3R_5\right) + s\left(-C_1R_1R_2R_3 + C_1R_1R_2R_5 + C_1R_1R_3R_5 + C_2R_1R_2R_5 + C_3R_1R_3R_5 + C_3R_1R_3R
          Parameters:
                         O: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{\frac{R_1R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-\frac{R_2R_3}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_3R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{\frac{R_1R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-\frac{R_2R_3}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{\frac{R_1R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-\frac{R_2R_3}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_5}\sqrt{\frac{R_1R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}}-\frac{R_2R_3}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_3}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}-\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_5+C_2C_3}+\frac{R_2R_5}{C_1C_2+C_1C_3+C_1C_3+C_
                         Wo: \sqrt{\frac{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5}{C_1C_2R_1R_2R_3R_5 + C_1C_3R_1R_2R_3R_5 + C_1C_4R_1R_2R_3R_5 - C_1C_5R_1R_2R_3R_5 + C_2C_3R_1R_2R_3R_5}}
                                                                                                                      -C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - \frac{R_{2}R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} - C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}} - \frac{R_{2}R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} - C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} - \frac{R_{2}R_{3}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}} + \frac{R_{2}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}} + \frac{R
                       K-LP: \frac{R_1R_2R_6}{R_1R_5 - R_2R_3 + R_2R_5 + R_3R_5}
K-HP: \frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}
                       \begin{array}{l} \text{K-BP:} \ \frac{-C_3R_1R_2R_3R_6 - C_5R_1R_2R_5R_6}{C_1R_1R_2R_3 - C_1R_1R_2R_5 - C_1R_1R_3R_5 - C_2R_1R_2R_5 - C_3R_1R_3R_5 - C_3R_1R_3R_5 - C_3R_1R_3R_5 - C_3R_2R_3R_5 - C_4R_2R_3R_5 + C_5R_2R_3R_5} \\ \text{Qz: None} \ \ . \end{array} 
                         Wz: \frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}
10.203 X-INVALID-WZ-203 Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s}\right)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C_3C_5C_6R_1R_2R_3R_4R_6s^2 + C_5R_1R_2R_4 + s(C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6)
H(s) = \frac{1}{C_{6}R_{1}R_{4} + C_{6}R_{2}R_{3} + C_{6}R_{2}R_{4} + C_{6}R_{3}R_{4} + S^{2}\left(C_{1}C_{2}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{3}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{5}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{6}R_{1}R_{2}R_{3}R_{4} + C_{1}C_{6}R_{1}R_{2}R_{3
          Parameters:
                          Q: \frac{c_1c_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}{c_1c_2+c_1c_3+c_1c_4-c_1c_5+c_2c_3} + c_1c_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{c_1c_2+c_1c_3+c_1c_4-c_1c_5+c_2c_3}} + c_1c_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1R_4} + R_2R_3 + R_2R_4 + R_3R_4}\sqrt{\frac{1}{c_1c_2+c_1c_3+c_1c_4-c_1c_5+c_2c_3}} + c_1c_4\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_1}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R_4}\sqrt{R
                         wo: \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4} \sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1C_5R_1R_2R_3R_4 + C_2C_3R_1R_2R_3R_4}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             \sqrt{R_1R_4 + R_2R_3 + R_2R_4 + R_3R_4}(C_1R_1R_2R_3 + C_1R_1R_2R_4 + C_1R_1R_3R_4 + C_2R_1R_2R_4 + C_2R_2R_3R_4 + C_3R_1R_3R_4 + C_3R_2R_3R_4 + C_4R_2R_3R_4 - C_5R_2R_3R_4)\sqrt{\frac{1}{C_1C_2R_1R_2R_3R_4 + C_1C_3R_1R_2R_3R_4 + C_1C_4R_1R_2R_3R_4 - C_1R_2R_3R_4 + C_1R_3R_4 
                         \frac{\text{bandwidth:}}{C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}+C_{1}C_{3}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{1}R_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{1}}\sqrt{R_{1}C_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}C_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}C_{4}+R_{2}R_{3}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{1}}\sqrt{R_{1}C_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}}-C_{1}C_{5}\sqrt{R_{1}}\sqrt{R_{1}C_{4}+R_{2}R_{4}+R_{3}R_{4}}\sqrt{\frac{1}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C
                        \begin{array}{l} \text{K-LP: } \frac{C_5R_1R_2R_4}{C_6R_1R_4+C_6R_2R_3+C_6R_2R_4+C_6R_3R_4} \\ \text{K-HP: } \frac{C_3C_5R_6}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} \end{array} 
                          \begin{array}{c} C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3 \\ \hline \text{K-BP:} & \frac{C_3C_5R_1R_2R_3R_4 + C_5C_6R_1R_2R_4R_6}{C_1C_6R_1R_2R_3 + C_1C_6R_1R_2R_4 + C_1C_6R_1R_3R_4 + C_2C_6R_2R_3R_4 + C_3C_6R_1R_3R_4 + C_3C_6R_2R_3R_4 + C_3C_6R_3R_3R_4 + C_3C_6R_3R_
                            Qz: None
                         Wz: \frac{1}{\sqrt{C_3}\sqrt{C_6}\sqrt{R_3}\sqrt{R_6}}
```

10.204 X-INVALID-WZ-204  $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1}, \frac{R_2}{C_2 R_2 s+1}, \frac{R_3}{C_3 R_3 s+1}, \frac{R_4}{C_4 R_4 s+1}, \frac{R_5}{C_5 R_5 s+1}, R_6\right)$ 

 $C_3C_5R_1R_2R_3R_4R_5R_6s^2 + R_1R_2R_4R_6 + s\left(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6\right)$ 

 $H(s) = \frac{C_3C_5R_1R_2R_3R_4R_5R_6s + R_1R_2R_4R_6 + s(C_3R_1R_2R_3R_4R_6 + C_5R_1R_2R_4R_5R_6s)}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5 + C_1C_3R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4R_5 + C_1C_5R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3R_4R_5 + C_1C_4R_1R_2R_3$ 

## Parameters:

 $Q: \frac{-C_1C_2\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - \frac{R_2R_3R_4}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_2R_3R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_2R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} + \frac{R_2R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_2+C_1C_3+C_1C_4-C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{R_4}\sqrt{R_5}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_2}\sqrt{R_3}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_1}\sqrt{R_2}\sqrt{R_1}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}}} - C_1C_3\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_2C_3}} - C_1C_3\sqrt{R_1}\sqrt{R_1}\sqrt{R_1}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_1C_5+C_1C_5}} - C_1C_3\sqrt{R_1}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_1C_5}} - C_1C_3\sqrt{R_1}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5+C_1C_5}} - C_1C_3\sqrt{R_1}\sqrt{\frac{R_1R_4R_5}{C_1C_4+C_1C_5$  $\frac{-C_{1}C_{2}\sqrt{R_{1}}\sqrt{R_{2}}\sqrt{R_{3}}\sqrt{R_{4}}\sqrt{R_{5}}\sqrt{\frac{R_{1}R_{4}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}}-\frac{R_{2}R_{3}R_{4}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{4}-C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{5}+C_{2}C_{3}}+\frac{R_{2}R_{3}R_{5}}{C_{1}C_{2}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}+C_{1}C_{3}$ 

K-LP:  $\frac{R_1R_2R_4R_6}{R_1R_4R_5 - R_2R_3R_4 + R_2R_3R_5 + R_2R_4R_5 + R_3R_4R_5}$ K-HP:  $\frac{C_3C_5R_6}{C_1C_2 + C_1C_3 + C_1C_4 - C_1C_5 + C_2C_3}$ 

 $\begin{array}{c} -C_3R_1R_2R_3R_4R_6 - C_5R_1R_2R_4R_5R_6 \\ \text{K-BP:} \ \, \frac{-C_3R_1R_2R_3R_4 - C_5R_1R_2R_4R_5 - C_3R_1R_2R_4R_5 - C_3R_1R_3R_4R_5 - C_3R_1R_3R_4R_5 - C_3R_1R_3R_4R_5 - C_3R_1R_3R_4R_5 - C_3R_2R_3R_4R_5 - C_3R_2R_3R_4R_5$ 

Wz:  $\frac{1}{\sqrt{C_3}\sqrt{C_5}\sqrt{R_3}\sqrt{R_5}}$ 

## 11 X-PolynomialError