

# Filter Summary Report: TIA,simple,Z2,ZL

Generated by MacAnalog-Symbolix

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10.26INVALID-ORDER-26	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$	11
10.27INVALID-ORDER-27	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	11
10.28INVALID-ORDER-28	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	11
10.29INVALID-ORDER-29	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	12
10.30INVALID-ORDER-30	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	12
10.31INVALID-ORDER-31	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	12
10.32INVALID-ORDER-32	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	12
10.33INVALID-ORDER-33	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$	12
10.34INVALID-ORDER-34	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$	12
10.35INVALID-ORDER-35	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	12
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10.37INVALID-ORDER-37	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	12
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10.39INVALID-ORDER-39	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	13
10.40INVALID-ORDER-40	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	13
10.41INVALID-ORDER-41	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$	13
10.42INVALID-ORDER-42	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$	13
10.43INVALID-ORDER-43	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	13

10.44INVALID-ORDER-44	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	13
10.45INVALID-ORDER-45	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	13
10.46INVALID-ORDER-46	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	13
10.47INVALID-ORDER-47	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	13
10.48INVALID-ORDER-48	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	13
10.49INVALID-ORDER-49	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, R_L \right)$	14
10.50INVALID-ORDER-50	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, \frac{1}{C_Ls} \right)$	14
10.51INVALID-ORDER-51	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	14
10.52INVALID-ORDER-52	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	14
10.53INVALID-ORDER-53	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	14
10.54INVALID-ORDER-54	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	14
10.55INVALID-ORDER-55	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	14
10.56INVALID-ORDER-56	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	14
10.57INVALID-ORDER-57	$Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, R_L \right)$	14
10.58INVALID-ORDER-58	$Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, \frac{1}{C_Ls} \right)$	14
10.59INVALID-ORDER-59	$Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	15
10.60INVALID-ORDER-60	$Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	15
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10.64INVALID-ORDER-64	$Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	15

## 11 PolynomialError

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## 1 Examined $H(z)$ for TIA simple Z2 ZL: $Z_L$

$$H(z) = Z_L$$

## 2 HP

## 3 BP

$$\mathbf{3.1 \quad BP-1} \quad Z(s) = \left( \infty, R_2, \infty, \infty, \infty, \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L} \right)$$

**Parameters:**

Q:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 Qz: 0  
 Wz: None

$$H(s) = \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L}$$

$$\mathbf{3.2 \quad BP-2} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L} \right)$$

**Parameters:**

Q:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 Qz: 0  
 Wz: None

$$H(s) = \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L}$$

$$\mathbf{3.3 \quad BP-3} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L} \right)$$

**Parameters:**

Q:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 Qz: 0  
 Wz: None

$$H(s) = \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L}$$

**3.4 BP-4**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L} \right)$

**Parameters:**

Q:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 Qz: 0  
 Wz: None

$$H(s) = \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L}$$

**3.5 BP-5**  $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L} \right)$

**Parameters:**

Q:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 Qz: 0  
 Wz: None

$$H(s) = \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L}$$

**3.6 BP-6**  $Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L} \right)$

**Parameters:**

Q:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 Qz: 0  
 Wz: None

$$H(s) = \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L}$$

**3.7 BP-7**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L} \right)$

**Parameters:**

Q:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_L}$

$$H(s) = \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L}$$

K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 Qz: 0  
 Wz: None

$$\mathbf{3.8 \quad BP-8} \quad Z(s) = \left( \infty, \frac{R_2(C_2 L_2 s^2 + 1)}{C_2 L_2 s^2 + C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L} \right)$$

**Parameters:**

Q:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 Qz: 0  
 Wz: None

## 4 LP

## 5 BS

$$\mathbf{5.1 \quad BS-1} \quad Z(s) = \left( \infty, R_2, \infty, \infty, \infty, \frac{R_L(C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_L s + 1} \right)$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_L}{L_L}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP: 0  
 Qz: None  
 Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$\mathbf{5.2 \quad BS-2} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L(C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_L s + 1} \right)$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_L}{L_L}$   
 K-LP:  $R_L$

$$H(s) = \frac{L_L R_L s}{C_L L_L R_L s^2 + L_L s + R_L}$$

$$H(s) = \frac{C_L L_L R_L s^2 + R_L}{C_L L_L s^2 + C_L R_L s + 1}$$

$$H(s) = \frac{C_L L_L R_L s^2 + R_L}{C_L L_L s^2 + C_L R_L s + 1}$$

K-HP:  $R_L$   
K-BP: 0  
Qz: None  
Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$\mathbf{5.3 \quad BS-3} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_L s + 1} \right)$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_L}{L_L}$   
K-LP:  $R_L$   
K-HP:  $R_L$   
K-BP: 0  
Qz: None  
Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{C_L L_L R_L s^2 + R_L}{C_L L_L s^2 + C_L R_L s + 1}$$

$$\mathbf{5.4 \quad BS-4} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_L s + 1} \right)$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_L}{L_L}$   
K-LP:  $R_L$   
K-HP:  $R_L$   
K-BP: 0  
Qz: None  
Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{C_L L_L R_L s^2 + R_L}{C_L L_L s^2 + C_L R_L s + 1}$$

$$\mathbf{5.5 \quad BS-5} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_L s + 1} \right)$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_L}{L_L}$   
K-LP:  $R_L$   
K-HP:  $R_L$   
K-BP: 0  
Qz: None  
Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{C_L L_L R_L s^2 + R_L}{C_L L_L s^2 + C_L R_L s + 1}$$

**5.6 BS-6**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{R_L(C_LL_Ls^2+1)}{C_LL_Ls^2+C_LR_Ls+1} \right)$

**Parameters:**

Q:  $\frac{L_L\sqrt{\frac{1}{C_LL_L}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_LL_L}}$   
 bandwidth:  $\frac{R_L}{L_L}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP: 0  
 Qz: None  
 Wz:  $\sqrt{\frac{1}{C_LL_L}}$

$$H(s) = \frac{C_LL_LR_Ls^2 + R_L}{C_LL_Ls^2 + C_LR_Ls + 1}$$

**5.7 BS-7**  $Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, \frac{R_L(C_LL_Ls^2+1)}{C_LL_Ls^2+C_LR_Ls+1} \right)$

**Parameters:**

Q:  $\frac{L_L\sqrt{\frac{1}{C_LL_L}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_LL_L}}$   
 bandwidth:  $\frac{R_L}{L_L}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP: 0  
 Qz: None  
 Wz:  $\sqrt{\frac{1}{C_LL_L}}$

$$H(s) = \frac{C_LL_LR_Ls^2 + R_L}{C_LL_Ls^2 + C_LR_Ls + 1}$$

**5.8 BS-8**  $Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, \frac{R_L(C_LL_Ls^2+1)}{C_LL_Ls^2+C_LR_Ls+1} \right)$

**Parameters:**

Q:  $\frac{L_L\sqrt{\frac{1}{C_LL_L}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_LL_L}}$   
 bandwidth:  $\frac{R_L}{L_L}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP: 0  
 Qz: None  
 Wz:  $\sqrt{\frac{1}{C_LL_L}}$

$$H(s) = \frac{C_LL_LR_Ls^2 + R_L}{C_LL_Ls^2 + C_LR_Ls + 1}$$

## 6 GE

## 7 AP



## 8 INVALID-NUMER

## 9 INVALID-WZ

## 10 INVALID-ORDER

**10.1 INVALID-ORDER-1**  $Z(s) = (\infty, R_2, \infty, \infty, \infty, R_L)$

$$H(s) = R_L$$

**10.2 INVALID-ORDER-2**  $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{1}{C_L s}\right)$

$$H(s) = \frac{1}{C_L s}$$

**10.3 INVALID-ORDER-3**  $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1}\right)$

$$H(s) = \frac{R_L}{C_L R_L s + 1}$$

**10.4 INVALID-ORDER-4**  $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s}\right)$

$$H(s) = \frac{C_L R_L s + 1}{C_L s}$$

**10.5 INVALID-ORDER-5**  $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s}\right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{C_L s}$$

**10.6 INVALID-ORDER-6**  $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1}\right)$

$$H(s) = \frac{L_L s}{C_L L_L s^2 + 1}$$

**10.7 INVALID-ORDER-7**  $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s}\right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{C_L s}$$

**10.8 INVALID-ORDER-8**  $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L\right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_L L_L s^2 + 1}$$

$$\mathbf{10.9 \quad INVALID-ORDER-9} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

$$H(s) = R_L$$

$$\mathbf{10.10 \quad INVALID-ORDER-10} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{C_L s}$$

$$\mathbf{10.11 \quad INVALID-ORDER-11} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_L R_L s + 1}$$

$$\mathbf{10.12 \quad INVALID-ORDER-12} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{C_L s}$$

$$\mathbf{10.13 \quad INVALID-ORDER-13} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{C_L s}$$

$$\mathbf{10.14 \quad INVALID-ORDER-14} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_L L_L s^2 + 1}$$

$$\mathbf{10.15 \quad INVALID-ORDER-15} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{C_L s}$$

$$\mathbf{10.16 \quad INVALID-ORDER-16} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_L L_L s^2 + 1}$$

$$\mathbf{10.17 \quad INVALID-ORDER-17} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L \right)$$

$$H(s) = R_L$$

$$\mathbf{10.18 \quad INVALID-ORDER-18} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{C_L s}$$

$$\textbf{10.19 INVALID-ORDER-19 } Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_L R_L s + 1}$$

$$\textbf{10.20 INVALID-ORDER-20 } Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{C_L s}$$

$$\textbf{10.21 INVALID-ORDER-21 } Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{C_L s}$$

$$\textbf{10.22 INVALID-ORDER-22 } Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_L L_L s^2 + 1}$$

$$\textbf{10.23 INVALID-ORDER-23 } Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{C_L s}$$

$$\textbf{10.24 INVALID-ORDER-24 } Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_L L_L s^2 + 1}$$

$$\textbf{10.25 INVALID-ORDER-25 } Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

$$H(s) = R_L$$

$$\textbf{10.26 INVALID-ORDER-26 } Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{C_L s}$$

$$\textbf{10.27 INVALID-ORDER-27 } Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_L R_L s + 1}$$

$$\textbf{10.28 INVALID-ORDER-28 } Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{C_L s}$$

$$\mathbf{10.29 \quad INVALID-ORDER-29} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{C_L s}$$

$$\mathbf{10.30 \quad INVALID-ORDER-30} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_L L_L s^2 + 1}$$

$$\mathbf{10.31 \quad INVALID-ORDER-31} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{C_L s}$$

$$\mathbf{10.32 \quad INVALID-ORDER-32} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_L L_L s^2 + 1}$$

$$\mathbf{10.33 \quad INVALID-ORDER-33} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = R_L$$

$$\mathbf{10.34 \quad INVALID-ORDER-34} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{C_L s}$$

$$\mathbf{10.35 \quad INVALID-ORDER-35} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_L R_L s + 1}$$

$$\mathbf{10.36 \quad INVALID-ORDER-36} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{C_L s}$$

$$\mathbf{10.37 \quad INVALID-ORDER-37} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{C_L s}$$

$$\mathbf{10.38 \quad INVALID-ORDER-38} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_L L_L s^2 + 1}$$

$$10.39 \quad \text{INVALID-ORDER-39} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{C_L s}$$

$$10.40 \quad \text{INVALID-ORDER-40} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_L L_L s^2 + 1}$$

$$10.41 \quad \text{INVALID-ORDER-41} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = R_L$$

$$10.42 \quad \text{INVALID-ORDER-42} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{C_L s}$$

$$10.43 \quad \text{INVALID-ORDER-43} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_L R_L s + 1}$$

$$10.44 \quad \text{INVALID-ORDER-44} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{C_L s}$$

$$10.45 \quad \text{INVALID-ORDER-45} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{C_L s}$$

$$10.46 \quad \text{INVALID-ORDER-46} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_L L_L s^2 + 1}$$

$$10.47 \quad \text{INVALID-ORDER-47} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{C_L s}$$

$$10.48 \quad \text{INVALID-ORDER-48} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_L L_L s^2 + 1}$$

$$10.49 \quad \text{INVALID-ORDER-49} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L \right)$$

$$H(s) = R_L$$

$$10.50 \quad \text{INVALID-ORDER-50} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{C_L s}$$

$$10.51 \quad \text{INVALID-ORDER-51} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_L R_L s + 1}$$

$$10.52 \quad \text{INVALID-ORDER-52} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{C_L s}$$

$$10.53 \quad \text{INVALID-ORDER-53} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{C_L s}$$

$$10.54 \quad \text{INVALID-ORDER-54} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_L L_L s^2 + 1}$$

$$10.55 \quad \text{INVALID-ORDER-55} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{C_L s}$$

$$10.56 \quad \text{INVALID-ORDER-56} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_L L_L s^2 + 1}$$

$$10.57 \quad \text{INVALID-ORDER-57} \quad Z(s) = \left( \infty, \frac{R_2 (C_2 L_2 s^2 + 1)}{C_2 L_2 s^2 + C_2 R_2 s + 1}, \infty, \infty, \infty, R_L \right)$$

$$H(s) = R_L$$

$$10.58 \quad \text{INVALID-ORDER-58} \quad Z(s) = \left( \infty, \frac{R_2 (C_2 L_2 s^2 + 1)}{C_2 L_2 s^2 + C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{C_L s}$$

$$\mathbf{10.59 \quad INVALID-ORDER-59} \quad Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_L}{C_LR_Ls+1}$$

$$\mathbf{10.60 \quad INVALID-ORDER-60} \quad Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_LR_Ls+1}{C_Ls}$$

$$\mathbf{10.61 \quad INVALID-ORDER-61} \quad Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_LL_Ls^2+1}{C_Ls}$$

$$\mathbf{10.62 \quad INVALID-ORDER-62} \quad Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$$

$$H(s) = \frac{L_Ls}{C_LL_Ls^2+1}$$

$$\mathbf{10.63 \quad INVALID-ORDER-63} \quad Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_LL_Ls^2 + C_LR_Ls + 1}{C_Ls}$$

$$\mathbf{10.64 \quad INVALID-ORDER-64} \quad Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$$

$$H(s) = \frac{C_LL_LR_Ls^2 + L_Ls + R_L}{C_LL_Ls^2+1}$$

## 11 PolynomialError