Filter Summary Report: CG,Test,simple,Z1,Z3

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Contents

1 Examined $H(z)$ for CG Test simple Z1 Z3: $\frac{Z_1 Z_3 g_m}{Z_1 g_m+1}$ **2**

2 HP **2**

3 BP **2**

3.1 BP-1 $Z(s) = \left(R_1,\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$ . . . 2

3.2 BP-2 $Z(s) = \left(L_1 s,\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 2

3.3 BP-3 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 2

3.4 BP-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 3

4 LP **3**

4.1 LP-1 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 3

4.2 LP-2 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 3

4.3 LP-3 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 4

4.4 LP-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 4

5 BS **4**

5.1 BS-1 $Z(s) = \left(R_1,\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 4

5.2 BS-2 $Z(s) = \left(L_1 s+\frac{1}{C_1 s},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 5

5.3 BS-3 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 5

6 GE **5**

6.1 GE-1 $Z(s) = \left(L_1 s+R_1+\frac{1}{C_1 s},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 5

6.2 GE-2 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1}+R_1,\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 6

7 AP **6**

8 INVALID-NUMER **6**

8.1 INVALID-NUMER-1 $Z(s) = \left(R_1+\frac{1}{C_1 s},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 6

8.2 INVALID-NUMER-2 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ R_3+\frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 6

8.3 INVALID-NUMER-3 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ R_3+\frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 7

9 INVALID-WZ **7**

9.1 INVALID-WZ-1 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ L_3 s+\frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 7

9.2 INVALID-WZ-2 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ L_3 s+R_3+\frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 7

9.3 INVALID-WZ-3 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ L_3 s+\frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 8

9.4 INVALID-WZ-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ L_3 s+R_3+\frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 8

10 INVALID-ORDER **8**
10.1 INVALID-ORDER-1 $Z(s) = (R_1,\ \infty,\ R_3,\ \infty,\ \infty,\ \infty)$ . . . 8
10.2 INVALID-ORDER-2 $Z(s) = \left(R_1,\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 8
10.3 INVALID-ORDER-3 $Z(s) = \left(R_1,\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 8
10.4 INVALID-ORDER-4 $Z(s) = \left(R_1,\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.5 INVALID-ORDER-5 $Z(s) = \left(R_1,\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.6 INVALID-ORDER-6 $Z(s) = \left(R_1,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.7 INVALID-ORDER-7 $Z(s) = \left(R_1,\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.8 INVALID-ORDER-8 $Z(s) = \left(R_1,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.9 INVALID-ORDER-9 $Z(s) = (L_1 s,\ \infty,\ R_3,\ \infty,\ \infty,\ \infty)$ . . . 9
10.10INVALID-ORDER-10 $Z(s) = \left(L_1 s,\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.11INVALID-ORDER-11 $Z(s) = \left(L_1 s,\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.12INVALID-ORDER-12 $Z(s) = \left(L_1 s,\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.13INVALID-ORDER-13 $Z(s) = \left(L_1 s,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$ . . . 9
10.14INVALID-ORDER-14 $Z(s) = \left(L_1 s,\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.15INVALID-ORDER-15 $Z(s) = \left(L_1 s,\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.16INVALID-ORDER-16 $Z(s) = \left(L_1 s,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.17INVALID-ORDER-17 $Z(s) = \left(L_1 s,\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.18INVALID-ORDER-18 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.19INVALID-ORDER-19 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.20INVALID-ORDER-20 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.21INVALID-ORDER-21 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.22INVALID-ORDER-22 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.23INVALID-ORDER-23 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 10
10.24INVALID-ORDER-24 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.25INVALID-ORDER-25 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.26INVALID-ORDER-26 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.27INVALID-ORDER-27 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.28INVALID-ORDER-28 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.29INVALID-ORDER-29 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.30INVALID-ORDER-30 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.31INVALID-ORDER-31 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.32INVALID-ORDER-32 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.33INVALID-ORDER-33 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$ . . . 11
10.34INVALID-ORDER-34 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 12
10.35INVALID-ORDER-35 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$ . . . 12
10.36INVALID-ORDER-36 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$ . . . 12
10.37INVALID-ORDER-37 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 12
10.38INVALID-ORDER-38 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 12
10.39INVALID-ORDER-39 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ . . . 12
10.40INVALID-ORDER-40 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$ . . . 12

10.41INVALID-ORDER-41 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 12
10.42INVALID-ORDER-42 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$ 12
10.43INVALID-ORDER-43 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$ 12
10.44INVALID-ORDER-44 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2 + 1\right)}{C_3 L_3 s^2 + C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 13
10.45INVALID-ORDER-45 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 13
10.46INVALID-ORDER-46 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 13
10.47INVALID-ORDER-47 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 13
10.48INVALID-ORDER-48 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 13
10.49INVALID-ORDER-49 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$ 13
10.50INVALID-ORDER-50 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 13
10.51INVALID-ORDER-51 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$ 13
10.52INVALID-ORDER-52 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$ 13
10.53INVALID-ORDER-53 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2 + 1\right)}{C_3 L_3 s^2 + C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 14
10.54INVALID-ORDER-54 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 14
10.55INVALID-ORDER-55 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$ 14
10.56INVALID-ORDER-56 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$ 14
10.57INVALID-ORDER-57 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$ 14
10.58INVALID-ORDER-58 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2 + 1\right)}{C_3 L_3 s^2 + C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 14
10.59INVALID-ORDER-59 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 14
10.60INVALID-ORDER-60 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 14
10.61INVALID-ORDER-61 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 14
10.62INVALID-ORDER-62 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 15
10.63INVALID-ORDER-63 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$ 15
10.64INVALID-ORDER-64 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 15
10.65INVALID-ORDER-65 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$ 15
10.66INVALID-ORDER-66 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$ 15
10.67INVALID-ORDER-67 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2 + 1\right)}{C_3 L_3 s^2 + C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 15
10.68INVALID-ORDER-68 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 15
10.69INVALID-ORDER-69 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$ 15
10.70INVALID-ORDER-70 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$ 15
10.71INVALID-ORDER-71 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$ 15
10.72INVALID-ORDER-72 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2 + 1\right)}{C_3 L_3 s^2 + C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 16
10.73INVALID-ORDER-73 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 16
10.74INVALID-ORDER-74 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$ 16
10.75INVALID-ORDER-75 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 16
10.76INVALID-ORDER-76 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 16
10.77INVALID-ORDER-77 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$ 16
10.78INVALID-ORDER-78 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$ 16
10.79INVALID-ORDER-79 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$ 16

10.80INVALID-ORDER-80 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1} + R_1,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty \right)$ 16
10.81INVALID-ORDER-81 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1} + R_1,\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty \right)$ 17
10.82INVALID-ORDER-82 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty \right)$ 17
10.83INVALID-ORDER-83 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty \right)$ 17
10.84INVALID-ORDER-84 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty \right)$ 17
10.85INVALID-ORDER-85 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty \right)$ 17
10.86INVALID-ORDER-86 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty \right)$ 17
10.87INVALID-ORDER-87 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty \right)$ 17
10.88INVALID-ORDER-88 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty \right)$ 17
10.89INVALID-ORDER-89 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty \right)$ 17
10.90INVALID-ORDER-90 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty \right)$ 18

11 PolynomialError **18**

1 Examined $H(z)$ for CG Test simple Z1 Z3: $\frac{Z_1 Z_3 g_m}{Z_1 g_m + 1}$

$$H(z) = \frac{Z_1 Z_3 g_m}{Z_1 g_m + 1}$$

2 HP

3 BP

3.1 BP-1 $Z(s) = \left(R_1,\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_3 R_1 R_3 g_m s}{R_1 R_3 g_m + R_3 + s^2 \left(C_3 L_3 R_1 R_3 g_m + C_3 L_3 R_3\right) + s \left(L_3 R_1 g_m + L_3\right)}$$

Parameters:

Q: $C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{1}{C_3 R_3}$
K-LP: 0
K-HP: 0
K-BP: $\frac{R_1 R_3 g_m}{R_1 g_m + 1}$
Qz: 0
Wz: None

3.2 BP-2 $Z(s) = \left(L_1 s,\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_3 g_m s}{C_3 L_1 R_3 g_m s^2 + s \left(C_3 R_3 + L_1 g_m\right) + 1}$$

Parameters:

Q: $\frac{C_3 L_1 R_3 g_m \sqrt{\frac{1}{C_3 L_1 R_3 g_m}}}{C_3 R_3 + L_1 g_m}$
wo: $\sqrt{\frac{1}{C_3 L_1 R_3 g_m}}$
bandwidth: $\frac{C_3 R_3 + L_1 g_m}{C_3 L_1 R_3 g_m}$
K-LP: 0
K-HP: 0
K-BP: $\frac{L_1 R_3 g_m}{C_3 R_3 + L_1 g_m}$
Qz: 0
Wz: None

3.3 BP-3 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_3 g_m s}{C_1 L_1 s^2 + L_1 g_m s + 1}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{g_m}{C_1}$
K-LP: 0
K-HP: 0
K-BP: R_3
Qz: 0

Wz: None

3.4 BP-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_1 R_3 g_m s}{C_1 L_1 R_1 s^2 + R_1 + s\left(L_1 R_1 g_m + L_1\right)}$$

Parameters:

Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$
K-LP: 0
K-HP: 0
K-BP: $\frac{R_1 R_3 g_m}{R_1 g_m + 1}$
Qz: 0
Wz: None

4 LP

4.1 LP-1 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{R_3 g_m}{C_1 C_3 R_3 s^2 + g_m + s\left(C_1 + C_3 R_3 g_m\right)}$$

Parameters:

Q: $\frac{C_1 C_3 R_3 \sqrt{\frac{g_m}{C_1 C_3 R_3}}}{C_1 + C_3 R_3 g_m}$
wo: $\sqrt{\frac{g_m}{C_1 C_3 R_3}}$
bandwidth: $\frac{C_1 + C_3 R_3 g_m}{C_1 C_3 R_3}$
K-LP: R_3
K-HP: 0
K-BP: 0
Qz: None
Wz: None

4.2 LP-2 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1},\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{R_1 R_3 g_m}{C_1 C_3 R_1 R_3 s^2 + R_1 g_m + s\left(C_1 R_1 + C_3 R_1 R_3 g_m + C_3 R_3\right) + 1}$$

Parameters:

Q: $\frac{C_1 C_3 R_1 R_3 \sqrt{\frac{R_1 g_m + 1}{C_1 C_3 R_1 R_3}}}{C_1 R_1 + C_3 R_1 R_3 g_m + C_3 R_3}$
wo: $\sqrt{\frac{R_1 g_m + 1}{C_1 C_3 R_1 R_3}}$
bandwidth: $\frac{C_1 R_1 + C_3 R_1 R_3 g_m + C_3 R_3}{C_1 C_3 R_1 R_3}$
K-LP: $\frac{R_1 R_3 g_m}{R_1 g_m + 1}$
K-HP: 0
K-BP: 0
Qz: None
Wz: None

4.3 LP-3 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 g_m}{C_1 C_3 L_1 s^2 + C_3 L_1 g_m s + C_3}$$

Parameters:

Q: $\frac{C_1\sqrt{\frac{1}{C_1 L_1}}}{g_m}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{g_m}{C_1}$
K-LP: $\frac{L_1 g_m}{C_3}$
K-HP: 0
K-BP: 0
Qz: None
Wz: None

4.4 LP-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_1 g_m}{C_1 C_3 L_1 R_1 s^2 + C_3 R_1 + s\left(C_3 L_1 R_1 g_m + C_3 L_1\right)}$$

Parameters:

Q: $\frac{C_1 R_1\sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m+1}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{R_1 g_m+1}{C_1 R_1}$
K-LP: $\frac{L_1 g_m}{C_3}$
K-HP: 0
K-BP: 0
Qz: None
Wz: None

5 BS

5.1 BS-1 $Z(s) = \left(R_1,\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_1 R_3 g_m s^2 + R_1 R_3 g_m}{R_1 g_m + s^2\left(C_3 L_3 R_1 g_m + C_3 L_3\right) + s\left(C_3 R_1 R_3 g_m + C_3 R_3\right) + 1}$$

Parameters:

Q: $\frac{L_3\sqrt{\frac{1}{C_3 L_3}}}{R_3}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{R_3}{L_3}$
K-LP: $\frac{R_1 R_3 g_m}{R_1 g_m+1}$
K-HP: $\frac{R_1 R_3 g_m}{R_1 g_m+1}$
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

5.2 BS-2 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_3 g_m s^2 + R_3 g_m}{C_1 L_1 g_m s^2 + C_1 s + g_m}$$

Parameters:

Q: $L_1 g_m \sqrt{\frac{1}{C_1 L_1}}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{1}{L_1 g_m}$
K-LP: R_3
K-HP: R_3
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_1 L_1}}$

5.3 BS-3 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_1 R_3 g_m s^2 + R_1 R_3 g_m}{C_1 R_1 s + R_1 g_m + s^2 \left(C_1 L_1 R_1 g_m + C_1 L_1\right) + 1}$$

Parameters:

Q: $\frac{L_1 \sqrt{\frac{1}{C_1 L_1}} (R_1 g_m+1)}{R_1}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{R_1}{L_1 (R_1 g_m+1)}$
K-LP: $\frac{R_1 R_3 g_m}{R_1 g_m+1}$
K-HP: $\frac{R_1 R_3 g_m}{R_1 g_m+1}$
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_1 L_1}}$

6 GE

6.1 GE-1 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_3 g_m s^2 + C_1 R_1 R_3 g_m s + R_3 g_m}{C_1 L_1 g_m s^2 + g_m + s \left(C_1 R_1 g_m + C_1\right)}$$

Parameters:

Q: $\frac{L_1 g_m \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m+1}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{R_1 g_m+1}{L_1 g_m}$
K-LP: R_3
K-HP: R_3
K-BP: $\frac{R_1 R_3 g_m}{R_1 g_m+1}$
Qz: $\frac{L_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1}$
Wz: $\sqrt{\frac{1}{C_1 L_1}}$

6.2 GE-2 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1} + R_1,\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_1 R_3 g_m s^2 + L_1 R_3 g_m s + R_1 R_3 g_m}{L_1 g_m s + R_1 g_m + s^2 \left(C_1 L_1 R_1 g_m + C_1 L_1\right) + 1}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}} (R_1 g_m+1)}{g_m}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{g_m}{C_1 (R_1 g_m+1)}$
K-LP: $\frac{R_1 R_3 g_m}{R_1 g_m+1}$
K-HP: $\frac{R_1 R_3 g_m}{R_1 g_m+1}$
K-BP: R_3
Qz: $C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}$
Wz: $\sqrt{\frac{1}{C_1 L_1}}$

7 AP

8 INVALID-NUMER

8.1 INVALID-NUMER-1 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 R_1 R_3 g_m s + R_3 g_m}{g_m + s^2 \left(C_1 C_3 R_1 R_3 g_m + C_1 C_3 R_3\right) + s \left(C_1 R_1 g_m + C_1 + C_3 R_3 g_m\right)}$$

Parameters:

Q: $\frac{C_1 C_3 R_3 \sqrt{\frac{g_m}{C_1 C_3 R_3 (R_1 g_m+1)}} (R_1 g_m+1)}{C_1 R_1 g_m+C_1+C_3 R_3 g_m}$
wo: $\sqrt{\frac{g_m}{C_1 C_3 R_3 (R_1 g_m+1)}}$
bandwidth: $\frac{C_1 R_1 g_m+C_1+C_3 R_3 g_m}{C_1 C_3 R_3 (R_1 g_m+1)}$
K-LP: R_3
K-HP: 0
K-BP: $\frac{C_1 R_1 R_3 g_m}{C_1 R_1 g_m+C_1+C_3 R_3 g_m}$
Qz: 0
Wz: None

8.2 INVALID-NUMER-2 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 R_3 g_m s + L_1 g_m}{C_1 C_3 L_1 s^2 + C_3 L_1 g_m s + C_3}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{g_m}{C_1}$
K-LP: $\frac{L_1 g_m}{C_3}$
K-HP: 0
K-BP: R_3
Qz: 0
Wz: None

8.3 INVALID-NUMER-3 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 R_1 R_3 g_m s + L_1 R_1 g_m}{C_1 C_3 L_1 R_1 s^2 + C_3 R_1 + s\left(C_3 L_1 R_1 g_m + C_3 L_1\right)}$$

Parameters:

Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$
K-LP: $\frac{L_1 g_m}{C_3}$
K-HP: 0
K-BP: $\frac{R_1 R_3 g_m}{R_1 g_m + 1}$
Qz: 0
Wz: None

9 INVALID-WZ

9.1 INVALID-WZ-1 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 g_m s^2 + L_1 g_m}{C_1 C_3 L_1 s^2 + C_3 L_1 g_m s + C_3}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{g_m}{C_1}$
K-LP: $\frac{L_1 g_m}{C_3}$
K-HP: $\frac{L_3 g_m}{C_1}$
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

9.2 INVALID-WZ-2 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 g_m s^2 + C_3 L_1 R_3 g_m s + L_1 g_m}{C_1 C_3 L_1 s^2 + C_3 L_1 g_m s + C_3}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{g_m}{C_1}$
K-LP: $\frac{L_1 g_m}{C_3}$
K-HP: $\frac{L_3 g_m}{C_1}$
K-BP: R_3
Qz: $\frac{L_3 \sqrt{\frac{1}{C_1 L_1}}}{R_3}$
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

9.3 INVALID-WZ-3 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 R_1 g_m s^2 + L_1 R_1 g_m}{C_1 C_3 L_1 R_1 s^2 + C_3 R_1 + s\left(C_3 L_1 R_1 g_m + C_3 L_1\right)}$$

Parameters:

Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$
K-LP: $\frac{L_1 g_m}{C_3}$
K-HP: $\frac{L_3 g_m}{C_1}$
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

9.4 INVALID-WZ-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 R_1 g_m s^2 + C_3 L_1 R_1 R_3 g_m s + L_1 R_1 g_m}{C_1 C_3 L_1 R_1 s^2 + C_3 R_1 + s\left(C_3 L_1 R_1 g_m + C_3 L_1\right)}$$

Parameters:

Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$
wo: $\sqrt{\frac{1}{C_1 L_1}}$
bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$
K-LP: $\frac{L_1 g_m}{C_3}$
K-HP: $\frac{L_3 g_m}{C_1}$
K-BP: $\frac{R_1 R_3 g_m}{R_1 g_m + 1}$
Qz: $\frac{L_3 \sqrt{\frac{1}{C_1 L_1}}}{R_3}$
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

10 INVALID-ORDER

10.1 INVALID-ORDER-1 $Z(s) = (R_1,\ \infty,\ R_3,\ \infty,\ \infty,\ \infty)$

$$H(s) = \frac{R_1 R_3 g_m}{R_1 g_m + 1}$$

10.2 INVALID-ORDER-2 $Z(s) = \left(R_1,\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{R_1 g_m}{s\left(C_3 R_1 g_m + C_3\right)}$$

10.3 INVALID-ORDER-3 $Z(s) = \left(R_1,\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{R_1 R_3 g_m}{R_1 g_m + s\left(C_3 R_1 R_3 g_m + C_3 R_3\right) + 1}$$

10.4 INVALID-ORDER-4 $Z(s) = \left(R_1,\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 R_1 R_3 g_m s + R_1 g_m}{s\left(C_3 R_1 g_m + C_3\right)}$$

10.5 INVALID-ORDER-5 $Z(s) = \left(R_1,\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_1 g_m s^2 + R_1 g_m}{s\left(C_3 R_1 g_m + C_3\right)}$$

10.6 INVALID-ORDER-6 $Z(s) = \left(R_1,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_3 R_1 g_m s}{R_1 g_m + s^2\left(C_3 L_3 R_1 g_m + C_3 L_3\right) + 1}$$

10.7 INVALID-ORDER-7 $Z(s) = \left(R_1,\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_1 g_m s^2 + C_3 R_1 R_3 g_m s + R_1 g_m}{s\left(C_3 R_1 g_m + C_3\right)}$$

10.8 INVALID-ORDER-8 $Z(s) = \left(R_1,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_1 R_3 g_m s^2 + L_3 R_1 g_m s + R_1 R_3 g_m}{R_1 g_m + s^2\left(C_3 L_3 R_1 g_m + C_3 L_3\right) + 1}$$

10.9 INVALID-ORDER-9 $Z(s) = \left(L_1 s,\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_3 g_m s}{L_1 g_m s + 1}$$

10.10 INVALID-ORDER-10 $Z(s) = \left(L_1 s,\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 g_m}{C_3 L_1 g_m s + C_3}$$

10.11 INVALID-ORDER-11 $Z(s) = \left(L_1 s,\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 R_3 g_m s + L_1 g_m}{C_3 L_1 g_m s + C_3}$$

10.12 INVALID-ORDER-12 $Z(s) = \left(L_1 s,\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 g_m s^2 + L_1 g_m}{C_3 L_1 g_m s + C_3}$$

10.13 INVALID-ORDER-13 $Z(s) = \left(L_1 s,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_3 g_m s^2}{C_3 L_1 L_3 g_m s^3 + C_3 L_3 s^2 + L_1 g_m s + 1}$$

10.14 INVALID-ORDER-14 $Z(s) = \left(L_1 s,\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 g_m s^2 + C_3 L_1 R_3 g_m s + L_1 g_m}{C_3 L_1 g_m s + C_3}$$

10.15 INVALID-ORDER-15 $Z(s) = \left(L_1 s,\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_3 R_3 g_m s^2}{C_3 L_1 L_3 R_3 g_m s^3 + R_3 + s^2 \left(C_3 L_3 R_3 + L_1 L_3 g_m\right) + s \left(L_1 R_3 g_m + L_3\right)}$$

10.16 INVALID-ORDER-16 $Z(s) = \left(L_1 s,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 R_3 g_m s^3 + L_1 L_3 g_m s^2 + L_1 R_3 g_m s}{C_3 L_1 L_3 g_m s^3 + C_3 L_3 s^2 + L_1 g_m s + 1}$$

10.17 INVALID-ORDER-17 $Z(s) = \left(L_1 s,\ \infty,\ \frac{R_3\left(C_3 L_3 s^2 + 1\right)}{C_3 L_3 s^2 + C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 R_3 g_m s^3 + L_1 R_3 g_m s}{C_3 L_1 L_3 g_m s^3 + s^2 \left(C_3 L_1 R_3 g_m + C_3 L_3\right) + s \left(C_3 R_3 + L_1 g_m\right) + 1}$$

10.18 INVALID-ORDER-18 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{R_3 g_m}{C_1 s + g_m}$$

10.19 INVALID-ORDER-19 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{g_m}{C_1 C_3 s^2 + C_3 g_m s}$$

10.20 INVALID-ORDER-20 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 R_3 g_m s + g_m}{C_1 C_3 s^2 + C_3 g_m s}$$

10.21 INVALID-ORDER-21 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 g_m s^2 + g_m}{C_1 C_3 s^2 + C_3 g_m s}$$

10.22 INVALID-ORDER-22 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_3 g_m s}{C_1 C_3 L_3 s^3 + C_1 s + C_3 L_3 g_m s^2 + g_m}$$

10.23 INVALID-ORDER-23 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 g_m s^2 + C_3 R_3 g_m s + g_m}{C_1 C_3 s^2 + C_3 g_m s}$$

10.24 INVALID-ORDER-24 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_3 R_3 g_m s}{C_1 C_3 L_3 R_3 s^3 + R_3 g_m + s^2 \left(C_1 L_3 + C_3 L_3 R_3 g_m\right) + s \left(C_1 R_3 + L_3 g_m\right)}$$

10.25 INVALID-ORDER-25 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_3 g_m s^2 + L_3 g_m s + R_3 g_m}{C_1 C_3 L_3 s^3 + C_1 s + C_3 L_3 g_m s^2 + g_m}$$

10.26 INVALID-ORDER-26 $Z(s) = \left(\frac{1}{C_1 s},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2 + 1\right)}{C_3 L_3 s^2 + C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_3 g_m s^2 + R_3 g_m}{C_1 C_3 L_3 s^3 + g_m + s^2 \left(C_1 C_3 R_3 + C_3 L_3 g_m\right) + s \left(C_1 + C_3 R_3 g_m\right)}$$

10.27 INVALID-ORDER-27 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{R_1 R_3 g_m}{C_1 R_1 s + R_1 g_m + 1}$$

10.28 INVALID-ORDER-28 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{R_1 g_m}{C_1 C_3 R_1 s^2 + s \left(C_3 R_1 g_m + C_3\right)}$$

10.29 INVALID-ORDER-29 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 R_1 R_3 g_m s + R_1 g_m}{C_1 C_3 R_1 s^2 + s \left(C_3 R_1 g_m + C_3\right)}$$

10.30 INVALID-ORDER-30 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_1 g_m s^2 + R_1 g_m}{C_1 C_3 R_1 s^2 + s \left(C_3 R_1 g_m + C_3\right)}$$

10.31 INVALID-ORDER-31 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_3 R_1 g_m s}{C_1 C_3 L_3 R_1 s^3 + C_1 R_1 s + R_1 g_m + s^2 \left(C_3 L_3 R_1 g_m + C_3 L_3\right) + 1}$$

10.32 INVALID-ORDER-32 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_1 g_m s^2 + C_3 R_1 R_3 g_m s + R_1 g_m}{C_1 C_3 R_1 s^2 + s \left(C_3 R_1 g_m + C_3\right)}$$

10.33 INVALID-ORDER-33 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_3 R_1 R_3 g_m s}{C_1 C_3 L_3 R_1 R_3 s^3 + R_1 R_3 g_m + R_3 + s^2 \left(C_1 L_3 R_1 + C_3 L_3 R_1 R_3 g_m + C_3 L_3 R_3\right) + s \left(C_1 R_1 R_3 + L_3 R_1 g_m + L_3\right)}$$

10.34 INVALID-ORDER-34 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_1 R_3 g_m s^2 + L_3 R_1 g_m s + R_1 R_3 g_m}{C_1 C_3 L_3 R_1 s^3 + C_1 R_1 s + R_1 g_m + s^2 (C_3 L_3 R_1 g_m + C_3 L_3) + 1}$$

10.35 INVALID-ORDER-35 $Z(s) = \left(\frac{R_1}{C_1 R_1 s+1},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_3 R_1 R_3 g_m s^2 + R_1 R_3 g_m}{C_1 C_3 L_3 R_1 s^3 + R_1 g_m + s^2 (C_1 C_3 R_1 R_3 + C_3 L_3 R_1 g_m + C_3 L_3) + s (C_1 R_1 + C_3 R_1 R_3 g_m + C_3 R_3) + 1}$$

10.36 INVALID-ORDER-36 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 R_1 R_3 g_m s + R_3 g_m}{g_m + s (C_1 R_1 g_m + C_1)}$$

10.37 INVALID-ORDER-37 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 R_1 g_m s + g_m}{C_3 g_m s + s^2 (C_1 C_3 R_1 g_m + C_1 C_3)}$$

10.38 INVALID-ORDER-38 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 R_1 R_3 g_m s^2 + g_m + s (C_1 R_1 g_m + C_3 R_3 g_m)}{C_3 g_m s + s^2 (C_1 C_3 R_1 g_m + C_1 C_3)}$$

10.39 INVALID-ORDER-39 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_3 R_1 g_m s^3 + C_1 R_1 g_m s + C_3 L_3 g_m s^2 + g_m}{C_3 g_m s + s^2 (C_1 C_3 R_1 g_m + C_1 C_3)}$$

10.40 INVALID-ORDER-40 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_3 R_1 g_m s^2 + L_3 g_m s}{C_3 L_3 g_m s^2 + g_m + s^3 (C_1 C_3 L_3 R_1 g_m + C_1 C_3 L_3) + s (C_1 R_1 g_m + C_1)}$$

10.41 INVALID-ORDER-41 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_3 R_1 g_m s^3 + g_m + s^2 (C_1 C_3 R_1 R_3 g_m + C_3 L_3 g_m) + s (C_1 R_1 g_m + C_3 R_3 g_m)}{C_3 g_m s + s^2 (C_1 C_3 R_1 g_m + C_1 C_3)}$$

10.42 INVALID-ORDER-42 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_3 R_1 R_3 g_m s^2 + L_3 R_3 g_m s}{R_3 g_m + s^3 (C_1 C_3 L_3 R_1 R_3 g_m + C_1 C_3 L_3 R_3) + s^2 (C_1 L_3 R_1 g_m + C_1 L_3 + C_3 L_3 R_3 g_m) + s (C_1 R_1 R_3 g_m + C_1 R_3 + L_3 g_m)}$$

10.43 INVALID-ORDER-43 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_3 R_1 R_3 g_m s^3 + R_3 g_m + s^2 (C_1 L_3 R_1 g_m + C_3 L_3 R_3 g_m) + s (C_1 R_1 R_3 g_m + L_3 g_m)}{C_3 L_3 g_m s^2 + g_m + s^3 (C_1 C_3 L_3 R_1 g_m + C_1 C_3 L_3) + s (C_1 R_1 g_m + C_1)}$$

10.44 INVALID-ORDER-44 $Z(s) = \left(R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_3 R_1 R_3 g_m s^3 + C_1 R_1 R_3 g_m s + C_3 L_3 R_3 g_m s^2 + R_3 g_m}{g_m + s^3 \left(C_1 C_3 L_3 R_1 g_m + C_1 C_3 L_3\right) + s^2 \left(C_1 C_3 R_1 R_3 g_m + C_1 C_3 R_3 + C_3 L_3 g_m\right) + s \left(C_1 R_1 g_m + C_1 + C_3 R_3 g_m\right)}$$

10.45 INVALID-ORDER-45 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 g_m s^2 + g_m}{C_1 C_3 L_1 g_m s^3 + C_1 C_3 s^2 + C_3 g_m s}$$

10.46 INVALID-ORDER-46 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_3 g_m s^2 + R_3 g_m}{C_1 C_3 L_1 R_3 g_m s^3 + g_m + s^2 \left(C_1 C_3 R_3 + C_1 L_1 g_m\right) + s \left(C_1 + C_3 R_3 g_m\right)}$$

10.47 INVALID-ORDER-47 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 R_3 g_m s^3 + C_1 L_1 g_m s^2 + C_3 R_3 g_m s + g_m}{C_1 C_3 L_1 g_m s^3 + C_1 C_3 s^2 + C_3 g_m s}$$

10.48 INVALID-ORDER-48 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 g_m s^4 + g_m + s^2 \left(C_1 L_1 g_m + C_3 L_3 g_m\right)}{C_1 C_3 L_1 g_m s^3 + C_1 C_3 s^2 + C_3 g_m s}$$

10.49 INVALID-ORDER-49 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 L_3 g_m s^3 + L_3 g_m s}{C_1 C_3 L_1 L_3 g_m s^4 + C_1 C_3 L_3 s^3 + C_1 s + g_m + s^2 \left(C_1 L_1 g_m + C_3 L_3 g_m\right)}$$

10.50 INVALID-ORDER-50 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 g_m s^4 + C_1 C_3 L_1 R_3 g_m s^3 + C_3 R_3 g_m s + g_m + s^2 \left(C_1 L_1 g_m + C_3 L_3 g_m\right)}{C_1 C_3 L_1 g_m s^3 + C_1 C_3 s^2 + C_3 g_m s}$$

10.51 INVALID-ORDER-51 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 L_3 R_3 g_m s^3 + L_3 R_3 g_m s}{C_1 C_3 L_1 L_3 R_3 g_m s^4 + R_3 g_m + s^3 \left(C_1 C_3 L_3 R_3 + C_1 L_1 L_3 g_m\right) + s^2 \left(C_1 L_1 R_3 g_m + C_1 L_3 + C_3 L_3 R_3 g_m\right) + s \left(C_1 R_3 + L_3 g_m\right)}$$

10.52 INVALID-ORDER-52 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_3 g_m s^4 + C_1 L_1 L_3 g_m s^3 + L_3 g_m s + R_3 g_m + s^2 \left(C_1 L_1 R_3 g_m + C_3 L_3 R_3 g_m\right)}{C_1 C_3 L_1 L_3 g_m s^4 + C_1 C_3 L_3 s^3 + C_1 s + g_m + s^2 \left(C_1 L_1 g_m + C_3 L_3 g_m\right)}$$

10.53 INVALID-ORDER-53 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_3 g_m s^4 + R_3 g_m + s^2\left(C_1 L_1 R_3 g_m + C_3 L_3 R_3 g_m\right)}{C_1 C_3 L_1 L_3 g_m s^4 + g_m + s^3\left(C_1 C_3 L_1 R_3 g_m + C_1 C_3 L_3\right) + s^2\left(C_1 C_3 R_3 + C_1 L_1 g_m + C_3 L_3 g_m\right) + s\left(C_1 + C_3 R_3 g_m\right)}$$

10.54 INVALID-ORDER-54 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_3 g_m s}{C_1 C_3 L_1 R_3 s^3 + s^2\left(C_1 L_1 + C_3 L_1 R_3 g_m\right) + s\left(C_3 R_3 + L_1 g_m\right) + 1}$$

10.55 INVALID-ORDER-55 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_3 g_m s^2}{C_1 C_3 L_1 L_3 s^4 + C_3 L_1 L_3 g_m s^3 + L_1 g_m s + s^2\left(C_1 L_1 + C_3 L_3\right) + 1}$$

10.56 INVALID-ORDER-56 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_3 R_3 g_m s^2}{C_1 C_3 L_1 L_3 R_3 s^4 + R_3 + s^3\left(C_1 L_1 L_3 + C_3 L_1 L_3 R_3 g_m\right) + s^2\left(C_1 L_1 R_3 + C_3 L_3 R_3 + L_1 L_3 g_m\right) + s\left(L_1 R_3 g_m + L_3\right)}$$

10.57 INVALID-ORDER-57 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 R_3 g_m s^3 + L_1 L_3 g_m s^2 + L_1 R_3 g_m s}{C_1 C_3 L_1 L_3 s^4 + C_3 L_1 L_3 g_m s^3 + L_1 g_m s + s^2\left(C_1 L_1 + C_3 L_3\right) + 1}$$

10.58 INVALID-ORDER-58 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 R_3 g_m s^3 + L_1 R_3 g_m s}{C_1 C_3 L_1 L_3 s^4 + s^3\left(C_1 C_3 L_1 R_3 + C_3 L_1 L_3 g_m\right) + s^2\left(C_1 L_1 + C_3 L_1 R_3 g_m + C_3 L_3\right) + s\left(C_3 R_3 + L_1 g_m\right) + 1}$$

10.59 INVALID-ORDER-59 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 g_m s^2 + C_1 R_1 g_m s + g_m}{C_1 C_3 L_1 g_m s^3 + C_3 g_m s + s^2\left(C_1 C_3 R_1 g_m + C_1 C_3\right)}$$

10.60 INVALID-ORDER-60 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_3 g_m s^2 + C_1 R_1 R_3 g_m s + R_3 g_m}{C_1 C_3 L_1 R_3 g_m s^3 + g_m + s^2\left(C_1 C_3 R_1 R_3 g_m + C_1 C_3 R_3 + C_1 L_1 g_m\right) + s\left(C_1 R_1 g_m + C_1 + C_3 R_3 g_m\right)}$$

10.61 INVALID-ORDER-61 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 R_3 g_m s^3 + g_m + s^2\left(C_1 C_3 R_1 R_3 g_m + C_1 L_1 g_m\right) + s\left(C_1 R_1 g_m + C_3 R_3 g_m\right)}{C_1 C_3 L_1 g_m s^3 + C_3 g_m s + s^2\left(C_1 C_3 R_1 g_m + C_1 C_3\right)}$$

10.62 INVALID-ORDER-62 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 g_m s^4 + C_1 C_3 L_3 R_1 g_m s^3 + C_1 R_1 g_m s + g_m + s^2 \left(C_1 L_1 g_m + C_3 L_3 g_m\right)}{C_1 C_3 L_1 g_m s^3 + C_3 g_m s + s^2 \left(C_1 C_3 R_1 g_m + C_1 C_3\right)}$$

10.63 INVALID-ORDER-63 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 L_3 g_m s^3 + C_1 L_3 R_1 g_m s^2 + L_3 g_m s}{C_1 C_3 L_1 L_3 g_m s^4 + g_m + s^3 \left(C_1 C_3 L_3 R_1 g_m + C_1 C_3 L_3\right) + s^2 \left(C_1 L_1 g_m + C_3 L_3 g_m\right) + s \left(C_1 R_1 g_m + C_1\right)}$$

10.64 INVALID-ORDER-64 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 g_m s^4 + g_m + s^3 \left(C_1 C_3 L_1 R_3 g_m + C_1 C_3 L_3 R_1 g_m\right) + s^2 \left(C_1 C_3 R_1 R_3 g_m + C_1 L_1 g_m + C_3 L_3 g_m\right) + s \left(C_1 R_1 g_m + C_3 R_3 g_m\right)}{C_1 C_3 L_1 g_m s^3 + C_3 g_m s + s^2 \left(C_1 C_3 R_1 g_m + C_1 C_3\right)}$$

10.65 INVALID-ORDER-65 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 L_3 R_3 g_m s^3 + C_1 L_3 R_1 R_3 g_m s^2 + L_3 R_3 g_m s}{C_1 C_3 L_1 L_3 R_3 g_m s^4 + R_3 g_m + s^3 \left(C_1 C_3 L_3 R_1 R_3 g_m + C_1 C_3 L_3 R_3 + C_1 L_1 L_3 g_m\right) + s^2 \left(C_1 L_1 R_3 g_m + C_1 L_3 R_1 g_m + C_1 L_3 + C_3 L_3 R_3 g_m\right) + s \left(C_1 R_1 R_3 g_m + C_1 R_3 + L_3 g_m\right)}$$

10.66 INVALID-ORDER-66 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_3 g_m s^4 + R_3 g_m + s^3 \left(C_1 C_3 L_3 R_1 R_3 g_m + C_1 L_1 L_3 g_m\right) + s^2 \left(C_1 L_1 R_3 g_m + C_1 L_3 R_1 g_m + C_3 L_3 R_3 g_m\right) + s \left(C_1 R_1 R_3 g_m + L_3 g_m\right)}{C_1 C_3 L_1 L_3 g_m s^4 + g_m + s^3 \left(C_1 C_3 L_3 R_1 g_m + C_1 C_3 L_3\right) + s^2 \left(C_1 L_1 g_m + C_3 L_3 g_m\right) + s \left(C_1 R_1 g_m + C_1\right)}$$

10.67 INVALID-ORDER-67 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_3 g_m s^4 + C_1 C_3 L_3 R_1 R_3 g_m s^3 + C_1 R_1 R_3 g_m s + R_3 g_m + s^2 \left(C_1 L_1 R_3 g_m + C_3 L_3 R_3 g_m\right)}{C_1 C_3 L_1 L_3 g_m s^4 + g_m + s^3 \left(C_1 C_3 L_1 R_3 g_m + C_1 C_3 L_3 R_1 g_m + C_1 C_3 L_3\right) + s^2 \left(C_1 C_3 R_1 R_3 g_m + C_1 C_3 R_3 + C_1 L_1 g_m + C_3 L_3 g_m\right) + s \left(C_1 R_1 g_m + C_1 + C_3 R_3 g_m\right)}$$

10.68 INVALID-ORDER-68 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_1 R_3 g_m s}{C_1 C_3 L_1 R_1 R_3 s^3 + R_1 + s^2 \left(C_1 L_1 R_1 + C_3 L_1 R_1 R_3 g_m + C_3 L_1 R_3\right) + s \left(C_3 R_1 R_3 + L_1 R_1 g_m + L_1\right)}$$

10.69 INVALID-ORDER-69 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_3 R_1 g_m s^2}{C_1 C_3 L_1 L_3 R_1 s^4 + R_1 + s^3 \left(C_3 L_1 L_3 R_1 g_m + C_3 L_1 L_3\right) + s^2 \left(C_1 L_1 R_1 + C_3 L_3 R_1\right) + s \left(L_1 R_1 g_m + L_1\right)}$$

10.70 INVALID-ORDER-70 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_3 R_1 R_3 g_m s^2}{C_1 C_3 L_1 L_3 R_1 R_3 s^4 + R_1 R_3 + s^3 \left(C_1 L_1 L_3 R_1 + C_3 L_1 L_3 R_1 R_3 g_m + C_3 L_1 L_3 R_3\right) + s^2 \left(C_1 L_1 R_1 R_3 + C_3 L_3 R_1 R_3 + L_1 L_3 R_1 g_m + L_1 L_3\right) + s \left(L_1 R_1 R_3 g_m + L_1 R_3 + L_3 R_1\right)}$$

10.71 INVALID-ORDER-71 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2+L_1 s+R_1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 R_1 R_3 g_m s^3 + L_1 L_3 R_1 g_m s^2 + L_1 R_1 R_3 g_m s}{C_1 C_3 L_1 L_3 R_1 s^4 + R_1 + s^3 \left(C_3 L_1 L_3 R_1 g_m + C_3 L_1 L_3\right) + s^2 \left(C_1 L_1 R_1 + C_3 L_3 R_1\right) + s \left(L_1 R_1 g_m + L_1\right)}$$

10.72 INVALID-ORDER-72 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2 + 1\right)}{C_3 L_3 s^2 + C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_3 L_1 L_3 R_1 R_3 g_m s^3 + L_1 R_1 R_3 g_m s}{C_1 C_3 L_1 L_3 R_1 s^4 + R_1 + s^3 \left(C_1 C_3 L_1 R_1 R_3 + C_3 L_1 L_3 R_1 g_m + C_3 L_1 L_3\right) + s^2 \left(C_1 L_1 R_1 + C_3 L_1 R_1 R_3 g_m + C_3 L_1 R_3 + C_3 L_3 R_1\right) + s \left(C_3 R_1 R_3 + L_1 R_1 g_m + L_1\right)}$$

10.73 INVALID-ORDER-73 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_1 g_m s^2 + L_1 g_m s + R_1 g_m}{C_3 L_1 g_m s^2 + s^3 \left(C_1 C_3 L_1 R_1 g_m + C_1 C_3 L_1\right) + s \left(C_3 R_1 g_m + C_3\right)}$$

10.74 INVALID-ORDER-74 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{R_3}{C_3 R_3 s + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_1 R_3 g_m s^2 + L_1 R_3 g_m s + R_1 R_3 g_m}{R_1 g_m + s^3 \left(C_1 C_3 L_1 R_1 R_3 g_m + C_1 C_3 L_1 R_3\right) + s^2 \left(C_1 L_1 R_1 g_m + C_1 L_1 + C_3 L_1 R_3 g_m\right) + s \left(C_3 R_1 R_3 g_m + C_3 R_3 + L_1 g_m\right) + 1}$$

10.75 INVALID-ORDER-75 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 R_1 R_3 g_m s^3 + R_1 g_m + s^2 \left(C_1 L_1 R_1 g_m + C_3 L_1 R_3 g_m\right) + s \left(C_3 R_1 R_3 g_m + L_1 g_m\right)}{C_3 L_1 g_m s^2 + s^3 \left(C_1 C_3 L_1 R_1 g_m + C_1 C_3 L_1\right) + s \left(C_3 R_1 g_m + C_3\right)}$$

10.76 INVALID-ORDER-76 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_1 g_m s^4 + C_3 L_1 L_3 g_m s^3 + L_1 g_m s + R_1 g_m + s^2 \left(C_1 L_1 R_1 g_m + C_3 L_3 R_1 g_m\right)}{C_3 L_1 g_m s^2 + s^3 \left(C_1 C_3 L_1 R_1 g_m + C_1 C_3 L_1\right) + s \left(C_3 R_1 g_m + C_3\right)}$$

10.77 INVALID-ORDER-77 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 L_3 R_1 g_m s^3 + L_1 L_3 g_m s^2 + L_3 R_1 g_m s}{C_3 L_1 L_3 g_m s^3 + L_1 g_m s + R_1 g_m + s^4 \left(C_1 C_3 L_1 L_3 R_1 g_m + C_1 C_3 L_1 L_3\right) + s^2 \left(C_1 L_1 R_1 g_m + C_1 L_1 + C_3 L_3 R_1 g_m + C_3 L_3\right) + 1}$$

10.78 INVALID-ORDER-78 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_1 g_m s^4 + R_1 g_m + s^3 \left(C_1 C_3 L_1 R_1 R_3 g_m + C_3 L_1 L_3 g_m\right) + s^2 \left(C_1 L_1 R_1 g_m + C_3 L_1 R_3 g_m + C_3 L_3 R_1 g_m\right) + s \left(C_3 R_1 R_3 g_m + L_1 g_m\right)}{C_3 L_1 g_m s^2 + s^3 \left(C_1 C_3 L_1 R_1 g_m + C_1 C_3 L_1\right) + s \left(C_3 R_1 g_m + C_3\right)}$$

10.79 INVALID-ORDER-79 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 L_3 R_1 R_3 g_m s^3 + L_1 L_3 R_3 g_m s^2 + L_3 R_1 R_3 g_m s}{R_1 R_3 g_m + R_3 + s^4 \left(C_1 C_3 L_1 L_3 R_1 R_3 g_m + C_1 C_3 L_1 L_3 R_3\right) + s^3 \left(C_1 L_1 L_3 R_1 g_m + C_1 L_1 L_3 + C_3 L_1 L_3 R_3 g_m\right) + s^2 \left(C_1 L_1 R_1 R_3 g_m + C_1 L_1 R_3 + C_3 L_3 R_1 R_3 g_m + C_3 L_3 R_3 + L_1 L_3 g_m\right) + s \left(L_1 R_3 g_m + L_3 R_1 g_m + L_3\right)}$$

10.80 INVALID-ORDER-80 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1,\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_1 R_3 g_m s^4 + R_1 R_3 g_m + s^3 \left(C_1 L_1 L_3 R_1 g_m + C_3 L_1 L_3 R_3 g_m\right) + s^2 \left(C_1 L_1 R_1 R_3 g_m + C_3 L_3 R_1 R_3 g_m + L_1 L_3 g_m\right) + s \left(L_1 R_3 g_m + L_3 R_1 g_m\right)}{C_3 L_1 L_3 g_m s^3 + L_1 g_m s + R_1 g_m + s^4 \left(C_1 C_3 L_1 L_3 R_1 g_m + C_1 C_3 L_1 L_3\right) + s^2 \left(C_1 L_1 R_1 g_m + C_1 L_1 + C_3 L_3 R_1 g_m + C_3 L_3\right) + 1}$$

10.81 INVALID-ORDER-81 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2+1} + R_1,\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_1 R_3 g_m s^4 + C_3 L_1 L_3 R_3 g_m s^3 + L_1 R_3 g_m s + R_1 R_3 g_m + s^2 \left(C_1 L_1 R_1 R_3 g_m + C_3 L_3 R_1 R_3 g_m\right)}{R_1 g_m + s^4 \left(C_1 C_3 L_1 L_3 R_1 g_m + C_1 C_3 L_1 L_3\right) + s^3 \left(C_1 C_3 L_1 R_1 R_3 g_m + C_1 C_3 L_1 R_3 + C_3 L_1 L_3 g_m\right) + s^2 \left(C_1 L_1 R_1 g_m + C_1 L_1 + C_3 L_1 R_3 g_m + C_3 L_3 R_1 g_m + C_3 L_3\right) + s \left(C_3 R_1 R_3 g_m + C_3 R_3 + L_1 g_m\right) + 1}$$

10.82 INVALID-ORDER-82 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_1 g_m s^2 + R_1 g_m}{C_1 C_3 R_1 s^2 + s^3 \left(C_1 C_3 L_1 R_1 g_m + C_1 C_3 L_1\right) + s \left(C_3 R_1 g_m + C_3\right)}$$

10.83 INVALID-ORDER-83 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_1 R_3 g_m s^2 + R_1 R_3 g_m}{R_1 g_m + s^3 \left(C_1 C_3 L_1 R_1 R_3 g_m + C_1 C_3 L_1 R_3\right) + s^2 \left(C_1 C_3 R_1 R_3 + C_1 L_1 R_1 g_m + C_1 L_1\right) + s \left(C_1 R_1 + C_3 R_1 R_3 g_m + C_3 R_3\right) + 1}$$

10.84 INVALID-ORDER-84 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 C_3 L_1 R_1 R_3 g_m s^3 + C_1 L_1 R_1 g_m s^2 + C_3 R_1 R_3 g_m s + R_1 g_m}{C_1 C_3 R_1 s^2 + s^3 \left(C_1 C_3 L_1 R_1 g_m + C_1 C_3 L_1\right) + s \left(C_3 R_1 g_m + C_3\right)}$$

10.85 INVALID-ORDER-85 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_1 g_m s^4 + R_1 g_m + s^2 \left(C_1 L_1 R_1 g_m + C_3 L_3 R_1 g_m\right)}{C_1 C_3 R_1 s^2 + s^3 \left(C_1 C_3 L_1 R_1 g_m + C_1 C_3 L_1\right) + s \left(C_3 R_1 g_m + C_3\right)}$$

10.86 INVALID-ORDER-86 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 L_1 L_3 R_1 g_m s^3 + L_3 R_1 g_m s}{C_1 C_3 L_3 R_1 s^3 + C_1 R_1 s + R_1 g_m + s^4 \left(C_1 C_3 L_1 L_3 R_1 g_m + C_1 C_3 L_1 L_3\right) + s^2 \left(C_1 L_1 R_1 g_m + C_1 L_1 + C_3 L_3 R_1 g_m + C_3 L_3\right) + 1}$$

10.87 INVALID-ORDER-87 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_1 g_m s^4 + C_1 C_3 L_1 R_1 R_3 g_m s^3 + C_3 R_1 R_3 g_m s + R_1 g_m + s^2 \left(C_1 L_1 R_1 g_m + C_3 L_3 R_1 g_m\right)}{C_1 C_3 R_1 s^2 + s^3 \left(C_1 C_3 L_1 R_1 g_m + C_1 C_3 L_1\right) + s \left(C_3 R_1 g_m + C_3\right)}$$

10.88 INVALID-ORDER-88 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 L_1 L_3 R_1 R_3 g_m s^3 + L_3 R_1 R_3 g_m s}{R_1 R_3 g_m + R_3 + s^4 \left(C_1 C_3 L_1 L_3 R_1 R_3 g_m + C_1 C_3 L_1 L_3 R_3\right) + s^3 \left(C_1 C_3 L_3 R_1 R_3 + C_1 L_1 L_3 R_1 g_m + C_1 L_1 L_3\right) + s^2 \left(C_1 L_1 R_1 R_3 g_m + C_1 L_1 R_3 + C_1 L_3 R_1 + C_3 L_3 R_1 R_3 g_m + C_3 L_3 R_3\right) + s \left(C_1 R_1 R_3 + L_3 R_1 g_m + L_3\right)}$$

10.89 INVALID-ORDER-89 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_1 R_3 g_m s^4 + C_1 L_1 L_3 R_1 g_m s^3 + L_3 R_1 g_m s + R_1 R_3 g_m + s^2 \left(C_1 L_1 R_1 R_3 g_m + C_3 L_3 R_1 R_3 g_m\right)}{C_1 C_3 L_3 R_1 s^3 + C_1 R_1 s + R_1 g_m + s^4 \left(C_1 C_3 L_1 L_3 R_1 g_m + C_1 C_3 L_1 L_3\right) + s^2 \left(C_1 L_1 R_1 g_m + C_1 L_1 + C_3 L_3 R_1 g_m + C_3 L_3\right) + 1}$$

10.90 INVALID-ORDER-90 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2+1\right)}{C_1 L_1 s^2+C_1 R_1 s+1},\ \infty,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty \right)$

$$H(s) = \frac{C_1 C_3 L_1 L_3 R_1 R_3 g_m s^4 + R_1 R_3 g_m + s^2 \left(C_1 L_1 R_1 R_3 g_m + C_3 L_3 R_1 R_3 g_m\right)}{R_1 g_m + s^4 \left(C_1 C_3 L_1 L_3 R_1 g_m + C_1 C_3 L_1 L_3\right) + s^3 \left(C_1 C_3 L_1 R_1 R_3 g_m + C_1 C_3 L_1 R_3 + C_1 C_3 L_3 R_1\right) + s^2 \left(C_1 C_3 R_1 R_3 + C_1 L_1 R_1 g_m + C_1 L_1 + C_3 L_3 R_1 g_m + C_3 L_3\right) + s \left(C_1 R_1 + C_3 R_1 R_3 g_m + C_3 R_3\right) + 1}$$

11 PolynomialError