$$T(s) = \frac{V_2}{\Sigma V_1}\Big|_{I_2=0} = \frac{k(s+1)}{(s+2)(s+4)} \qquad Z: \begin{cases} V_1 = z_{11} I_1 + z_{12} I_2 \\ V_2 = z_{21} I_1 + z_{22} I_2 \end{cases}$$

$$T(s) = \frac{z_{21}}{z_{11}}$$

$$z_{11} \rightarrow \text{Polos} = s(s+3) \longrightarrow z_{11} = \frac{(s+2)(s+4)}{s(s+3)} \qquad z_{21} = \frac{k(s+1)}{s(s+3)}$$

z_{21}: ceros en $-\infty$, -1; polos en 0, -3 → remociones: $-1, \infty$

z_{11}: ceros en $-\infty$, -4, -3, -2; polos en 0, -3, PP

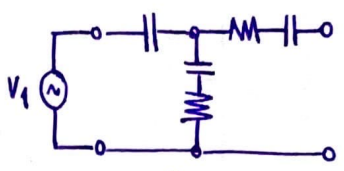
z_2: ceros en -3, -1; polos en 0, $-\infty$

Y_2: ceros en 0, $-\infty$; polos en -3, -1

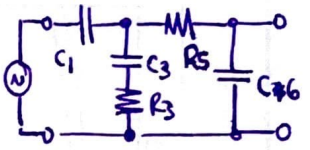
Y_4: ceros en 0, $-\infty$; polos en -3, -1

z_4: ceros en 0, -3; polos en -1, $-\infty$

z_6: ceros en -1, $-\infty$; polos en 0, $-\infty$



Para cumplir con la cond. de medición:



Síntesis analítica

$$z_{11} - \frac{1}{sC_1} = 0\Big|_{s=-1} \rightarrow C_1 = \frac{1}{s \cdot z_{11}}\Big|_{s=-1} = \frac{(s+3)}{(s+2)(s+4)}\Big|_{s=-1} = \frac{2}{1 \cdot 3} = \frac{2}{3}$$

$$z_2 = \frac{s^2+6s+8}{s(s+3)} - \frac{3}{2s} = \frac{s^2+6s+8-\frac{3}{2}s-\frac{9}{2}}{s(s+3)} = \frac{s^2+\frac{9}{2}s+\frac{7}{2}}{s(s+3)} = \frac{(s+1)(s+7/2)}{s(s+3)}$$

$$Y_2 = \frac{s(s+3)}{(s+1)(s+7/2)}$$

Tenque RC en Y: $\frac{1}{R+1/sC} = \frac{sC}{sCR+1} = \frac{s/R}{s+1/RC}$

$$\lim_{s\to-1} Y_2 = \lim_{s\to-1} \frac{1}{R}\cdot\frac{s}{s+1} \rightarrow \frac{1}{R} = \lim_{s\to-1} Y_2 \cdot \frac{(s+1)}{s} \rightarrow R = \lim_{s\to-1} \frac{(s+7/2)}{(s+3)} = \frac{5/2}{2} = \frac{5}{4}$$

$$\frac{1}{RC} = 1 \rightarrow C = \frac{4}{5}$$

$$Y_4 = Y_2 - \frac{s/R}{s+1} = \frac{s^2+3s-\frac{4}{5}\cdot s\cdot(s+7/2)}{(s+1)(s+7/2)} = \frac{1/5\,s^2+1/5\,s}{(s+1)(s+7/2)} = \frac{1}{5}\cdot\frac{s}{(s+7/2)}$$

$$z_4 = 5\cdot\frac{(s+7/2)}{s} \qquad R_5 = 5 \rightarrow z_6 = 5\cdot\frac{7}{2}\cdot\frac{1}{5} = \frac{35}{2}\cdot\frac{1}{5} \rightarrow C_6 = \frac{1}{35}$$

↳ Red con valores