

$$Y_{11} = \frac{I_1}{V_1} \Big|_{V_2=0} = \frac{3S(S^2+7/3)}{(S^2+2)(S^2+5)} \quad Y_{21} = \frac{I_2}{V_1} \Big|_{V_2=0} = \frac{S(S^2+1)}{(S^2+2)(S^2+5)}$$

$$Y_{21} \quad \begin{array}{c} \circ \quad \circ \quad \times \quad \times \quad \circ \\ i1 \quad \quad \quad i\omega \end{array} \rightarrow \text{remociones: } 0, 1, \infty$$

$$Y_{11} \quad \begin{array}{c} \circ \quad \times \quad \circ \quad \times \quad \circ \\ i\sqrt{2} \quad i\sqrt{7/3} \quad i\sqrt{5} \end{array} \rightarrow \text{rem. inicial en } z \text{ (fuente de } V)$$

$$\frac{1}{Y_{11}} \quad \begin{array}{c} \times \quad \circ \quad \times \quad \circ \quad \times \\ \text{R.P.} \end{array} \rightarrow \begin{array}{c} \times \quad \times \\ C_1 \end{array}$$

$$Z_2 \quad \begin{array}{c} \times \quad \circ \quad \times \quad \circ \quad \times \\ i1 \end{array} \rightarrow \begin{array}{c} \times \quad \times \end{array}$$

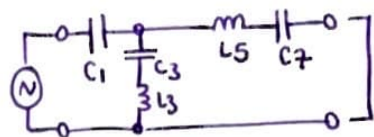
$$Y_2 \quad \begin{array}{c} \circ \quad \times \quad \circ \quad \times \quad \circ \\ \text{R.T.} \end{array} \rightarrow \begin{array}{c} \times \quad \times \\ C_3 \\ L_3 \end{array}$$

$$Y_4 \quad \begin{array}{c} \circ \quad \times \quad \circ \quad \times \quad \circ \end{array} \rightarrow \begin{array}{c} \times \quad \times \\ L_5 \end{array}$$

$$Z_4 \quad \begin{array}{c} \times \quad \circ \quad \times \quad \circ \quad \times \end{array} \rightarrow \begin{array}{c} \times \quad \times \\ C_5 \end{array}$$

$$Z_6 \quad \begin{array}{c} \times \quad \circ \quad \times \quad \circ \quad \times \end{array} \rightarrow \begin{array}{c} \times \quad \times \\ C_7 \end{array}$$

\Rightarrow Topología obtenida:



Síntesis analítica:

$$\frac{1}{Y_{11}} = \frac{(S^2+2)(S^2+5)}{3S(S^2+7/3)} \quad \frac{1}{Y_{11}} - \frac{1}{S C_1} \Big|_{S^2=-1} = 0$$

$$C_1 = \frac{Y_{11}}{S} \Big|_{S^2=-1} = \frac{3(-1+7/3)}{(-1+2)(-1+5)} = 1$$

$$Z_2 = \frac{1}{Y_{11}} - \frac{1}{S C_1} = \frac{S^4+7S^2+10-3(S^2+7/3)}{3S(S^2+7/3)} = \frac{S^4+4S^2+3}{3S(S^2+7/3)}$$

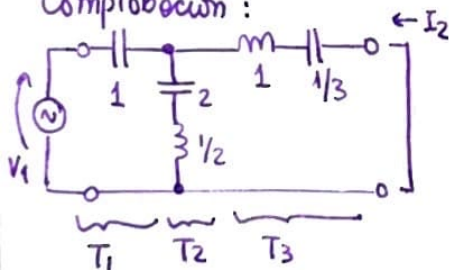
$$Y_2 = \frac{3S(S^2+7/3)}{(S^2+1)(S^2+3)}$$

$$\lim_{S^2 \rightarrow -1} \frac{2k_3 \cdot S}{S^2+1} = \lim_{S^2 \rightarrow -1} Y_2 \rightarrow 2k_3 = \lim_{S^2 \rightarrow -1} Y_{22} \frac{(S^2+1)}{S}$$

$$2k_3 = \frac{3(S^2+7/3)}{S^2+3} \Big|_{S^2=-1} = \frac{4}{2} = 2 \rightarrow \frac{2k_3 \cdot S}{S^2+1} : Y \rightarrow L_3 = \frac{1}{2k_3} \quad C_3 = 2k_3 \rightarrow L_3 = \frac{1}{2} \quad C_3 = 2$$

$$Y_4 = \frac{3S^3+7S-2S(S^2+3)}{(S^2+1)(S^2+3)} = \frac{S^3+S}{(S^2+1)(S^2+3)} = \frac{S}{S^2+3} \rightarrow Z_4 = \frac{S^2+3}{S} = S + \frac{3}{S} \rightarrow L_5 = 1 \quad C_7 = \frac{1}{3}$$

Comprobación:



$$T_1 = \begin{pmatrix} 1 & 1/S \\ 0 & 1 \end{pmatrix} \quad T_2 = \begin{pmatrix} 1 & 0 \\ \frac{1}{\frac{S}{2} + \frac{1}{2S}} & 1 \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ \frac{2S}{S^2+1} & 1 \end{pmatrix} \quad T_3 = \begin{pmatrix} 1 & \frac{S+3/S}{S} \\ 0 & 1 \end{pmatrix} = \begin{pmatrix} 1 & \frac{S^2+3}{S} \\ 0 & 1 \end{pmatrix}$$

$$T_{23} = \begin{pmatrix} 1 \cdot 1 + 0 \cdot 0 & 1 \cdot \frac{S^2+3}{S} + 0 \cdot 1 \\ \frac{2S}{S^2+1} \cdot 1 + 1 \cdot 0 & \frac{2S}{S^2+1} \cdot \frac{S^2+3}{S} + 1 \cdot 1 \end{pmatrix} = \begin{pmatrix} 1 & \frac{S^2+3}{S} \\ \frac{2S}{S^2+1} & \frac{2(S^2+3)+S^2+1}{S^2+1} \end{pmatrix}$$

$$T_{23} = \begin{pmatrix} 1 & \frac{S^2+3}{S} \\ \frac{2S}{S^2+1} & \frac{3S^2+7}{S^2+1} \end{pmatrix}$$

$$T: \begin{cases} V_1 = AV_2 + B(-I_2) \\ I_1 = CV_2 + D(-I_2) \end{cases}$$

$$Y_{21} = \frac{1}{B} \text{ (coincide con la cond. de medición)}$$

$$B = 1 \cdot \frac{S^2+3}{S} + \frac{1}{S} \cdot \frac{3S^2+7}{S^2+1} = \frac{(S^2+3)(S^2+1) + 3S^2+7}{S(S^2+1)} = \frac{S^4+7S^2+10}{S(S^2+1)} = \frac{(S^2+2)(S^2+5)}{S(S^2+1)}$$

$$\Rightarrow \frac{1}{B} = \frac{S(S^2+1)}{(S^2+2)(S^2+5)} \rightarrow \text{Se cumple la transf. solicitada con el cuádrupolo propuesto.}$$