HOJA Nº

FECHA

1) B) Cauer (2) (Remoción de polos en $\omega = 0$)

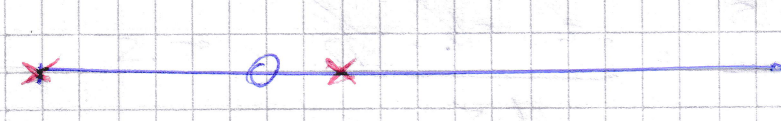
$$Z(s) = \frac{(s^2+3)(s^2+1)}{s.(s^2+2)}$$

$$Z_2(s) = \frac{(s^2+3)(s^2+1)}{s.(s^2+2)} - \frac{k_0}{s}$$

$$k_0 = \lim_{s\to 0} s.Z(s) = \lim_{s\to 0} \frac{(s^2+3)(s^2+1)}{s.(s^2+2)}.s = \frac{3}{2}$$

$$\frac{k_0}{s} = \frac{1}{\left(\frac{2}{3}.s\right)}\Bigg|_{Y(s)} \quad Z(s) \quad = \text{Capacitor en serie de valor } \left(\frac{2}{3}\right)$$

$$Y_2(s) = \frac{1}{Z_2(s)} = \frac{s(s^2+2)}{s^4+\frac{5}{2}s^2}$$



$$Y_4(s) = \frac{s(s^2+2)}{s^4+\frac{5}{2}s^2} - \frac{k_{01}}{s} = \frac{s^3+2s - \frac{k_{01}}{s}.\left(s^4+\frac{5}{2}s^2\right)}{s^4+\frac{5}{2}.s^2}$$

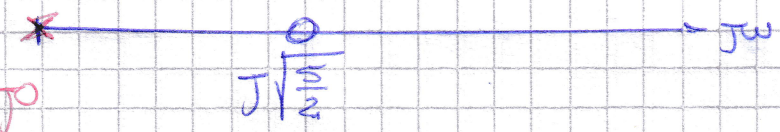
$$k_{01} = \lim_{s\to 0} s.Y_2(s) = \lim_{s\to 0} \frac{s^2.(s^2+2)}{s^4+\frac{5}{2}s^2} = \left(\frac{4}{5}\right)$$

$$\frac{k_{01}}{s} = \frac{1}{\left(\frac{5}{4}.s\right)}\Bigg|_{Z(s)} \quad Y(s) \quad \text{representa un } \cancel{\text{capacitor}} \text{ inductor en derivación de valor } \left(\frac{5}{4}\right)$$

NOTA

$$Y_4(s) = \frac{\frac{1}{5}\cdot s^3}{s^4 + \frac{5}{2}\cdot s^2}$$

$$Z_4(s) = \frac{s^4 + \frac{5}{2}s^2}{\frac{1}{5}s^3} = \frac{s^2 + 5/2}{\frac{1}{5}\cdot s}$$



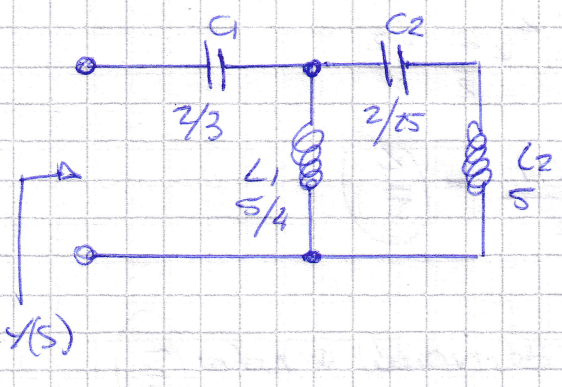
$$Z_0(s) = \frac{s^2 + 5/2}{\frac{1}{5}\cdot s} - \frac{k_{02}}{s} = \frac{s^2 + 5/2 - \frac{k_{02}}{s}\cdot\frac{1}{5}s}{\frac{1}{5}\cdot s}$$

$$k_{02} = \lim_{s\to 0} Z_4(s)\cdot s = \lim_{s\to 0} \frac{s^2 + 5/2}{\frac{1}{5}s}\, s = 5\cdot\left(0 + \frac{5}{2}\right) = \frac{25}{2}$$

$\frac{k_{02}}{s}$ representa un capacitor en serie de valor $\frac{2}{25}$.

$$Z_0(s) = \frac{s^2 + 5/2 - \frac{25}{2\cdot 5}\cdot\frac{1}{5}s}{\frac{1}{5}\cdot s} = \frac{s^2 + 5/2 - 5/2}{\frac{1}{5}\cdot s} = 5\cdot s$$

$\therefore$ $5s$ representa un inductor en derivación de valor (5).



NOTA