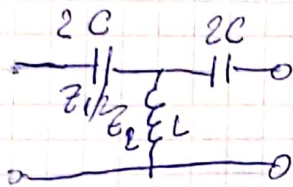


Tarea semanal 15

Alfa Cero de γ en $0,8 \frac{\text{rad}}{s}$

a)



$$Z_{OT} = Z_A Z_C = \sqrt{Z_1 Z_2 \left(1 + \frac{Z_1}{4Z_2}\right)}$$

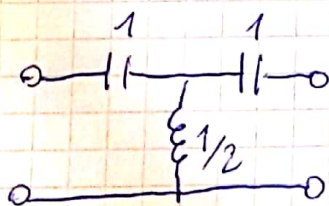
$$Z_1 = \frac{1}{sC} \quad Z_2 = sL$$

$$Z_{OT} = \sqrt{\frac{1}{sC} \cdot sL \left(1 + \frac{1}{4s^2 LC}\right)}$$

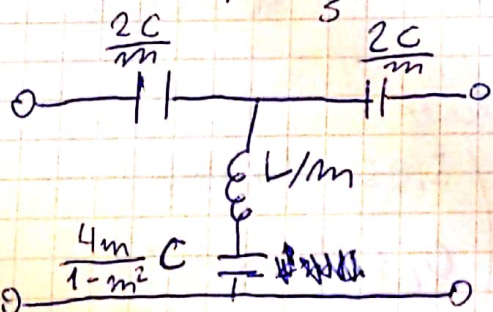
$$Z_2 + \frac{Z_1}{4} = sL + \frac{1}{4sC} = 0$$

$$s^2 = \frac{1}{4LC}$$

$$\omega_0 = 1 = \frac{1}{2\sqrt{LC}} \rightarrow C = L = \frac{1}{2}$$



b) $\omega_z = 0,8 \frac{\text{rad}}{s}$



$$Z_1' = m Z_1 \quad Z_2' = \frac{Z_2}{m} + Z_1 \frac{1-m^2}{4m}$$

$$\omega_0 = \frac{1}{\sqrt{L'C'}} = \frac{1}{\sqrt{\frac{L}{m} \cdot C \frac{4m}{1-m^2}}}$$

$$\omega_z = \frac{1}{\sqrt{L'C'}} = \frac{1}{\sqrt{\frac{L}{m} \cdot C \frac{4m}{1-m^2}}}$$

$$C_1' = \frac{5}{3}$$

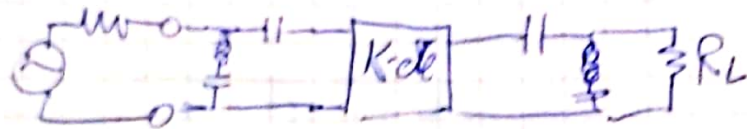
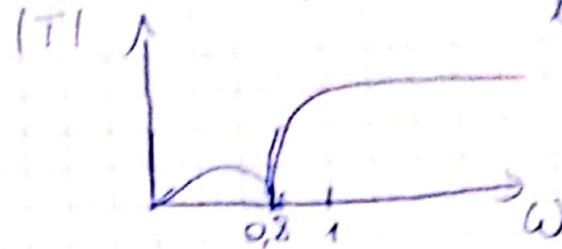
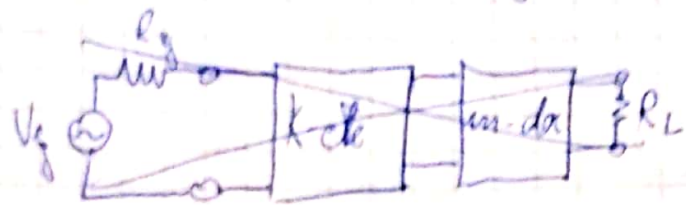
$$C_2' = 1,875$$

$$L' = 5/6$$

$$\omega_z = \sqrt{1-m^2}$$

$$[m = 0,6]$$

Primero adapto con transformaciones L
 c) S_{11} se puede ya que tenemos la impedancia adaptada y
 el error



d) Denormalizo a 50Ω y $\omega_c = 2\pi \cdot 10^6 \frac{\text{rad}}{\text{s}}$

$$R_g = R_L = 50\Omega$$

$$L = \frac{0.5 \cdot 50\Omega}{\omega_c} = 4\mu\text{H}$$

$$L' = 6.63\mu\text{H}$$

$$C = \frac{1}{50\Omega \omega_c} = 3.183\text{nF}$$

$$C_2' = 5.97\text{nF}$$

$$C_1' = 5.31\text{nF}$$

En los rangos L y C,
 los L son el doble de
 lo calculado y C la mitad