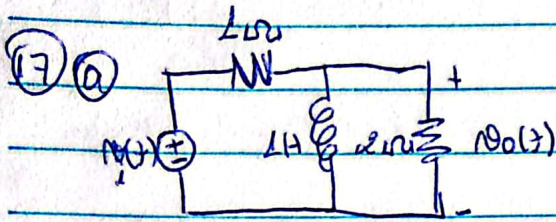


# Prova 04a - Tabela de Silva Neves - 11811ECPO26

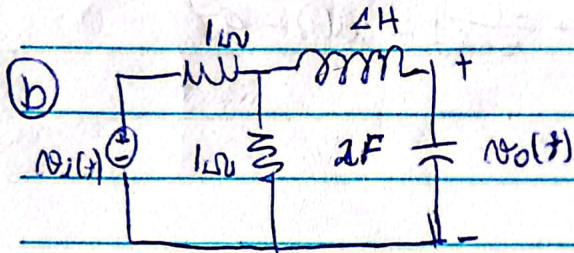
## 2a 17 a 20, sistemas elétricos



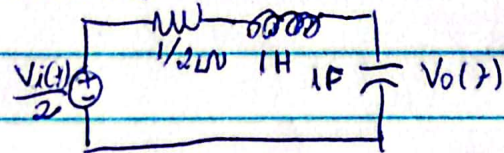
Eq das mals

$$\frac{V_o - V_i}{s} + \frac{V_o}{s} + V_o = 0$$

$$\frac{V_o}{V_i} = \frac{1}{s+2}$$



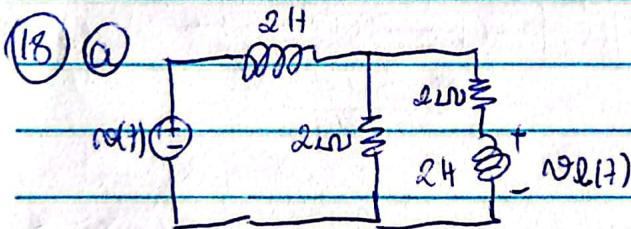
Usando Thevenin



Usando divisão de tensão

$$V_o(s) = \frac{V_i(s)}{2} \cdot \frac{\frac{1}{s}}{\frac{1}{2} + s + \frac{1}{s}}$$

$$\frac{V_o(s)}{V_i(s)} = \frac{1}{2s^2 + s + 2}$$



Eq das malhas

$$(2s+2)I_1(s) - 2I_2(s) = V_i(s)$$

$$-2I_1(s) + (2+s)I_2(s) = 0$$

temos  $I_1(s) = (s+2)I_2(s)$

$$(2s+2)(s+2)I_2(s) - 2I_2(s) = V_i(s)$$

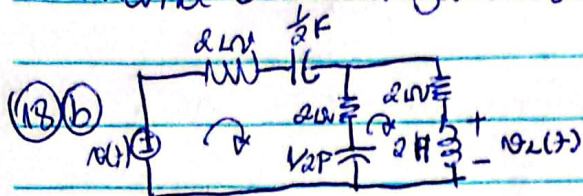
$$\frac{I_2(s)}{V_i(s)} = \frac{1}{2s^2 + 4s + 2}$$

temos  $V_L(s) = sI_2(s)$

$$\frac{V_L(s)}{V_i(s)} = \frac{s}{2s^2 + 4s + 2}$$



Semana 04a - Izabela da Silva Neves - 11811ECPO26



Eq das malhas

$$\textcircled{I} (2+2+2s)I_1(s) - (2+2s)I_2 = 19.1(s)$$

$$\textcircled{II} -(2+2s)I_1 + (2s+2+2+2s)I_2 = 0$$

$$\textcircled{I} (4+2s)I_1 - (2+2s)I_2 = 19.1(s)$$

$$\textcircled{II} -(2+2s)I_1 + (4s+4)I_2 = 0$$

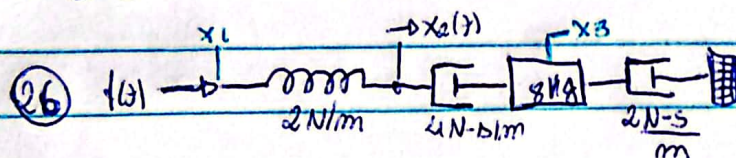
temos  $I_1 = \left[ \frac{2s+1}{s+1} \right] I_2$

$$\textcircled{I} (4+2s) \cdot \left[ \frac{2s+1}{s+1} \right] I_2 - (2+2s)I_2 = 19.1(s)$$

$$\cancel{I_2} \cdot \left( \frac{2s^2 + 6s + 2}{s+1} \right) = 19.1(s)$$

$$\frac{V(s)}{I(s)} = \frac{2s^2 + 2s}{2s^2 + 6s + 2}$$

~~26~~ 26 a 23, sistemas mecânicos livres



$$2(x_1 - x_2) = F(s)$$

$$-2x_1(s) + (4s+2)x_2(s) - 4x_3(s) = 0$$

$$-4s x_2(s) + (8s^2 + 8s)x_3(s) = 0$$

$$x_2(s) =$$