

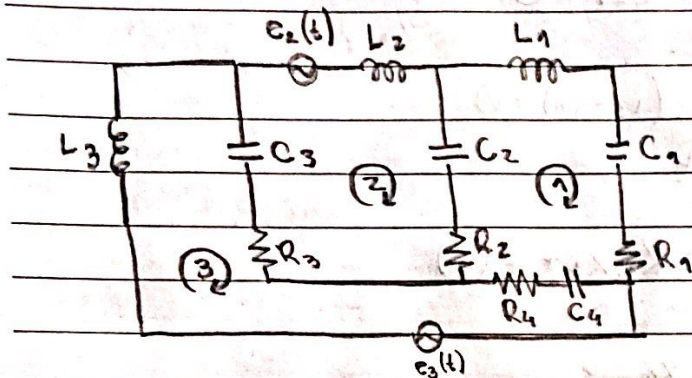
Vitória Menino Campos

nUSP 10874175

PME3380 - Exercícios aula 08/09.

Lista com os exercícios 3, 6, 7 e 8:

Questão 3:



→ Malha 1:

$$L_1 D i_1 + \frac{1}{C_4 D} (i_1 - i_3) + R_4 (i_1 - i_3) + \frac{1}{C_1 D} i_1 + R_1 i_1 + \frac{1}{C_2 D} (i_1 - i_2) + R_2 (i_1 - i_2) = 0$$

→ Malha 2:

$$L_2 D i_2 + \frac{1}{C_2 D} (i_2 - i_1) + R_2 (i_2 - i_1) + \frac{1}{C_3 D} (i_2 - i_3) + R_3 (i_2 - i_3) = e_2(t)$$

→ Malha 3:

$$L_3 D i_3 + \frac{1}{C_3 D} (i_3 - i_2) + R_3 (i_3 - i_2) + \frac{1}{C_4 D} (i_3 - i_1) + R_4 (i_3 - i_1) = e_3(t)$$

$$m_1 \ddot{x}_1 + (b_1 + b_2 + b_4) \dot{x}_1 + (K_1 + K_2 + K_4) x_1 = b_2 \dot{x}_2 + K_2 x_2 + b_4 \dot{x}_3 + K_4 x_3$$

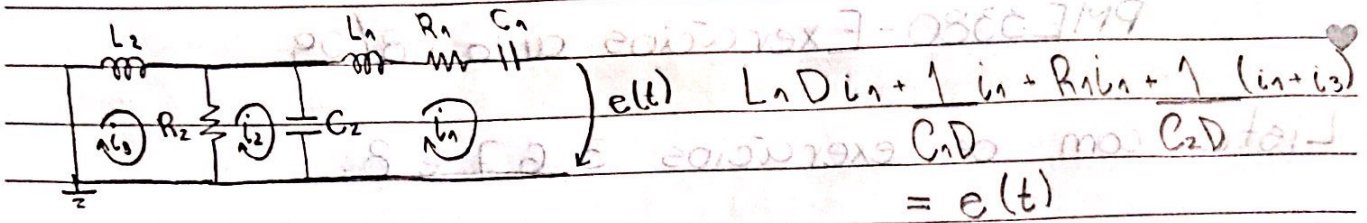
$$m_2 \ddot{x}_2 + (b_2 + b_3) \dot{x}_2 + (K_2 + K_3) x_2 = b_2 \dot{x}_1 + b_3 \dot{x}_3 + K_2 x_1 + K_3 x_3 + f_2(t)$$

$$m_3 \ddot{x}_3 + (b_3 + b_4) \dot{x}_3 + (K_3 + K_4) x_3 = b_3 \dot{x}_2 + K_3 x_2 + b_4 \dot{x}_1 + K_4 x_1 + f_3(t)$$

tilibra

Questão 6:

→ Malha 1:



→ Malha 2: $L_2 \cdot D \cdot i_2 + R_2 (i_2 - i_3) = 0$

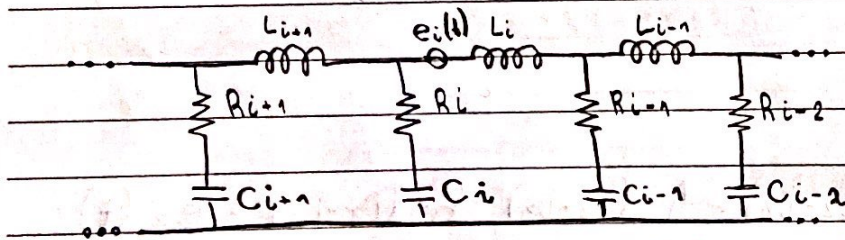
→ Malha 3: $R_2 (i_3 - i_2) + \frac{1}{C_2 D} (i_3 - i_1) = 0$

$$m_1 \ddot{x}_1 + b_1 \dot{x}_1 + (k_1 + k_2) x_1 = k_2 x_3 + f(t)$$

$$m_2 \ddot{x}_2 + b_2 \dot{x}_2 = b_2 \dot{x}_3$$

$$b_2 \dot{x}_3 + k_2 x_3 = b_2 \dot{x}_2 + k_2 x_1$$

Questão 7:

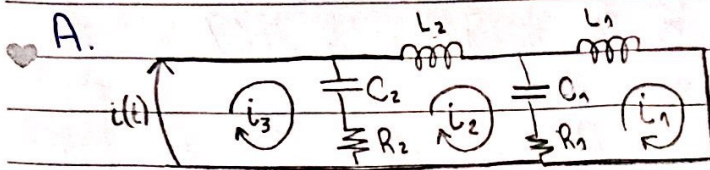


→ Malha i:

$$L_i D i_i + \frac{1}{C_i D} (i_i - i_{i+1}) + \frac{1}{C_{i-1} D} (i_i - i_{i-1}) + R_{i-1} (i_i - i_{i-2}) = e_i$$

$$m_i \ddot{x}_i + k_i (x_i - x_{i-1}) + b_i (\dot{x}_i - \dot{x}_{i-1}) + k_{i-1} (x_i - x_{i-1}) + b_{i-1} (\dot{x}_i - \dot{x}_{i-1}) = u_i - R_i$$

Questão 8:



→ Malha 1:

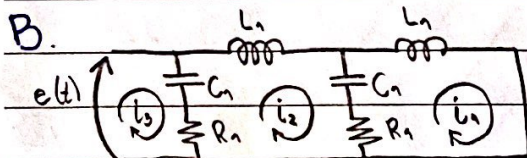
$$L_1 D i_1 + \frac{1}{C_1 D} (i_1 - i_2) + R_1 (i_1 - i_2) = 0$$

→ Malha 2:

$$L_2 D i_2 + \frac{1}{C_1 D} (i_2 - i_1) + R_1 (i_2 - i_1) + \frac{1}{C_2 D} (i_2 - i_3) + R_2 (i_2 - i_3) = 0$$

$$m \ddot{x}_1 + b_1 \dot{x}_1 + k_1 x_1 = b_1 \dot{x}_2 + k_1 x_2$$

$$m \ddot{x}_2 + (b_1 + b_2) \dot{x}_2 + (k_1 + k_2) x_2 = b_1 \dot{x}_1 + k_1 x_1 + b_2 \dot{w}(t) + k_2 w(t)$$



→ Malha 1:

$$L_1 D i_1 + \frac{1}{C_1 D} (i_2 - i_1) + R_1 (i_2 - i_1) = 0$$

→ Malha 2:

$$L_2 D i_2 + \frac{1}{C_1 D} (i_2 - i_1) + R_1 (i_2 - i_1) + \frac{1}{C_2 D} (i_2 - i_3) + R_2 (i_2 - i_3) = 0$$

→ Malha 3:

$$\frac{1}{C_2 D} (i_3 - i_2) + R_2 (i_3 - i_2) = e(t)$$



$$M \ddot{x}_1 + b_1 \dot{x}_1 + K_1 x_1 = b_1 \dot{x}_2 + K_1 x_2$$

$$m \ddot{x}_2 + b_1 \dot{x}_2 + K_1 x_2 = b_1 \dot{x}_1 + K_1 x_1 + w(t)$$

