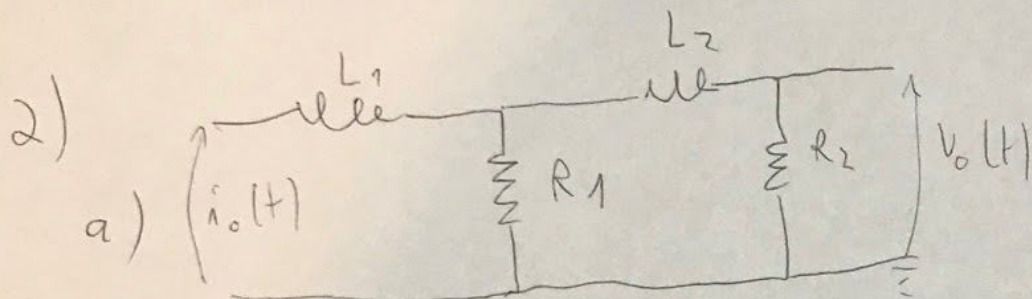


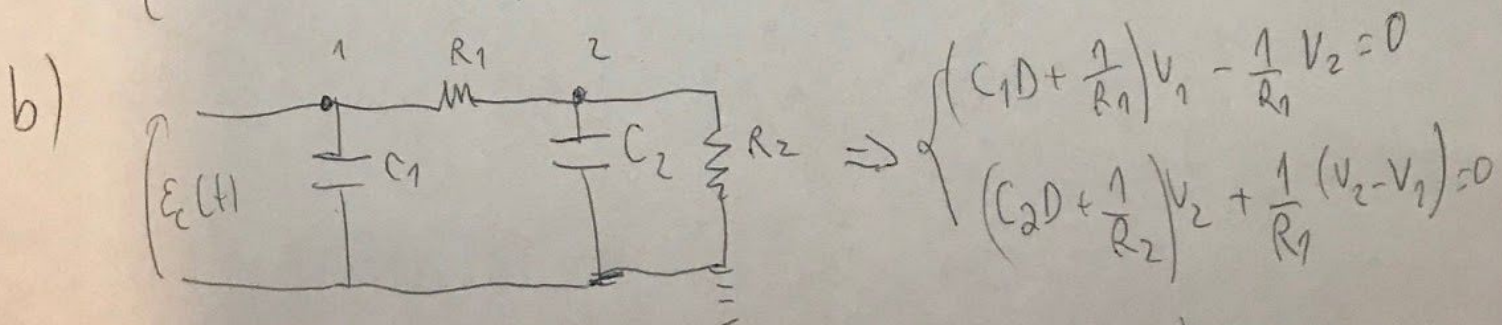
NATHAN DALEFFI RODRIGUES RAYES 10772585

$$1) C = \frac{V}{R_T} = \frac{A \times}{R_T} = \frac{2}{287} = 2,16 \cdot 10^{-5} \text{ m s}^2$$



$$\begin{cases} L_1 D i_1 + R_1 (i_1 - i_2) = 0 \\ (L_2 D + R_2) i_2 + R_1 (i_2 - i_1) = 0 \end{cases} \Rightarrow \begin{cases} \left( \frac{A_1 D}{s} + \frac{1}{s R_1} \right) i_0 = \left( \frac{1}{s R_2} \right) i_0 \\ \left( \frac{A_2 D}{s} + \frac{1}{s R_2} + \frac{1}{s R_1} \right) i_0 = \left( \frac{1}{s R_1} \right) i_0 \end{cases}$$

$$\Rightarrow \begin{cases} \left( \frac{A_1 D}{s} + \frac{1}{s R_1} \right) i_0 = \frac{R_2 Q_0}{R} \\ (A_2 R_2 D + 1 + \frac{R_2}{R}) Q_0 = \frac{1}{s R_1} \cdot P_0 \end{cases}$$



$$\Rightarrow \begin{cases} \left( \frac{A_1 D}{s} + \frac{1}{s R_1} \right) v_0 = \frac{1}{s R_2} P_0 \\ \left( \frac{A_2 D}{s} + \frac{1}{s R_2} + \frac{1}{s R_1} \right) P_0 = \frac{1}{s R_2} P_0 \end{cases} \Rightarrow \begin{cases} \left( \frac{A_1 D}{s} + \frac{1}{s R_1} \right) P_0 = \frac{R_2 Q_0}{R} \\ (A_2 R_2 D + 1 + \frac{R_2}{R}) Q_0 = \frac{1}{s R_2} P_0 \end{cases}$$