

Prova B dell'esame a distanza di ELETTRONICA del 19-3-2021

Calcolare la tensione $v_C(t)$ per $t > 0$, nell'ipotesi che il circuito di figura 1 sia a regime al tempo $t=0$ in cui l'interruttore K si apre.

$$R_0 = 1 \, \Omega, \quad R_1 = 5 \, \Omega, \quad R_2 = \frac{1}{2} \, \Omega, \quad C = \frac{1}{10} \, \text{F}, \quad L = \frac{1}{3} \, \text{H}, \quad g_m = \frac{7}{10} \, \text{S}, \quad i_0(t) = 120 \cos(\omega t + \theta) \, \text{A},$$

STANDARD: $R_3 = 0 \, \Omega$, $\omega = 5 \, \text{rad/s}$, $\theta = \frac{\pi}{2} \, \text{rad}$. $\left\{ \begin{aligned} v_C(t) &= (51 - 210t)e^{-5t} + 108,2 \cos(5t + 4,124)V \\ &= (51 - 210t)e^{-5t} - 60 \cos(5t) + 90 \sin(5t)V \end{aligned} \right\}$

LIGHT: $G_3 = 1/R_3 = 0 \, \text{S}$, $\omega = 0 \, \text{rad/s}$, $\theta = 0 \, \text{rad}$. $\langle v_C(t) = 87.27e^{-7.5t} - 120 \, \text{V} \rangle$

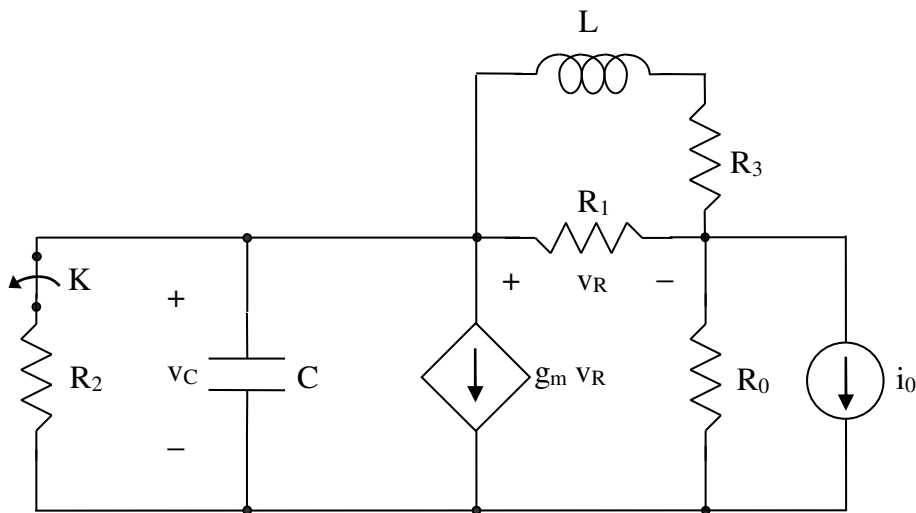


fig. 1