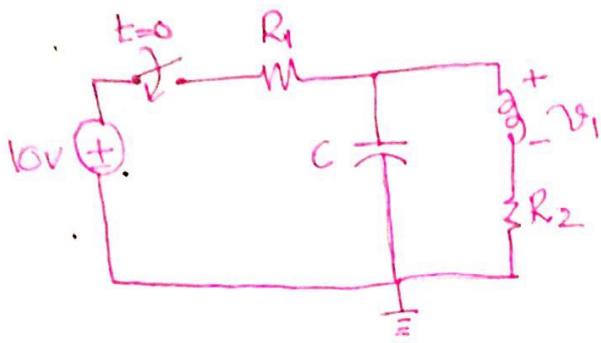
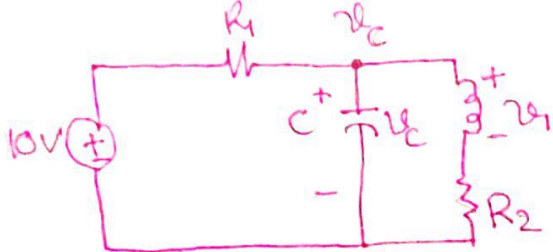


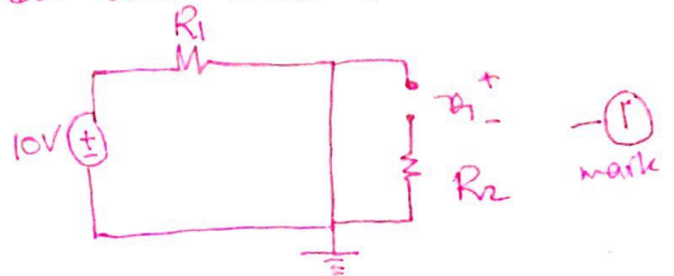
QUIZ 07 SECO1 SOLUTION



at time t :



at time $t=0^+$:



Nodal at v :

$$C \frac{dv_c}{dt} + \frac{1}{R_2} \int v_1 dt + \frac{v_c - 10}{R_1} = 0 \quad \text{--- (1) --- (2) marks}$$

at time $t=0^+$,

$$v_1(0^+) = v_1(0^-) = 0V \quad \text{--- (1) mark}$$

$$i_c(0^+) = i_c(0^-) = 0A \quad \text{--- (1) mark}$$

$$v_c(0^+) = v_c(0^-) = 0V \quad \text{--- (1) mark}$$

(1) mark for $v_1 = v_c$

\therefore Hence eq1 becomes:

$$C \frac{dv_c(0^+)}{dt} + i_c(0^+) + \frac{v_c(0^+) - 10}{R_1} = 0$$

$$\Rightarrow \frac{dv_c(0^+)}{dt} = \frac{10}{R_1 C} \quad \text{--- (3) marks}$$