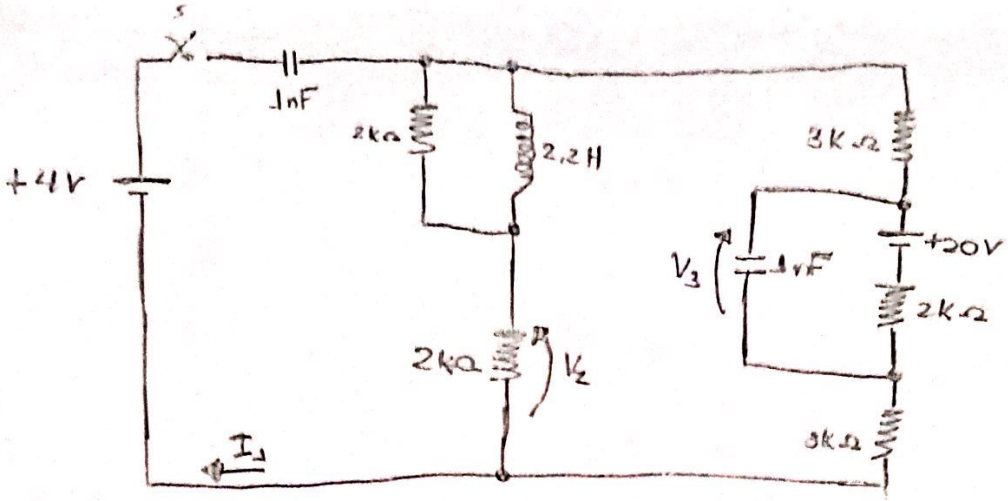
(5.) a)



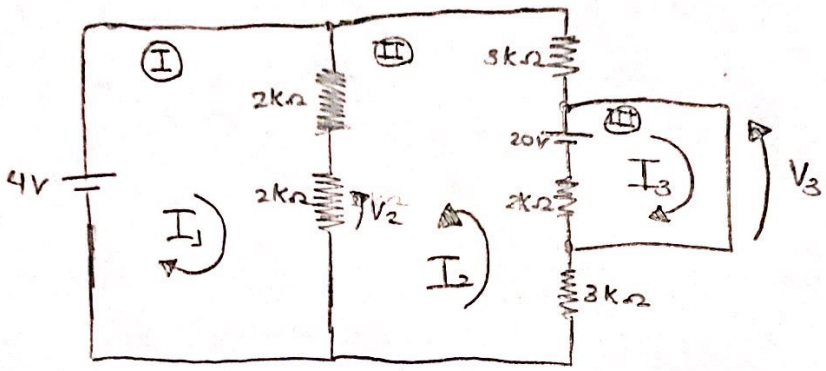
$V_c(0^-) = 0V$

$V_L(0^-) = 0V$

$t = 0$:

Capacitor : curto-circuito

Indutor : circuito aberto



(I) $\rightarrow 4(I_1 + I_2) = 4 \rightsquigarrow I_1 + I_2 = 1 \rightsquigarrow I_2 = 1 - I_1$

(II) $\rightarrow 2(I_2 + I_3) = 20 \rightsquigarrow I_2 + I_3 = 10 \rightsquigarrow I_3 = 10 - I_2 \rightarrow I_3 = 9 + I_1$

(III) $\rightarrow 6I_2 + 4(I_1 + I_2) + 2(I_2 + I_3) = 20$

$6I_2 + 4I_1 + 4I_2 + 2I_2 + 2I_3 = 20$

$4I_1 + 12I_2 + 2I_3 = 20 \rightarrow 2I_1 + 6I_2 + I_3 = 10$

Substituindo

$\rightsquigarrow 2I_1 + 6(1 - I_1) + 9 + I_1 = 10 \rightsquigarrow 2I_1 + 6 - 6I_1 + 9 + I_1 = 10$

$I_1 = \frac{10 - 15}{-3} = \frac{5}{3} \Rightarrow \boxed{I_1 = 1,6667\ mA}$

$I_2 = -0,6667\ mA$

$I_3 = 10,6667\ mA$

$\rightsquigarrow V_2 = 2(I_1 + I_2)$

$\boxed{V_2 = 2,0\ V}$

$V_3 = 20 - 2(I_2 + I_3)$

$V_3 = 20 - 20$

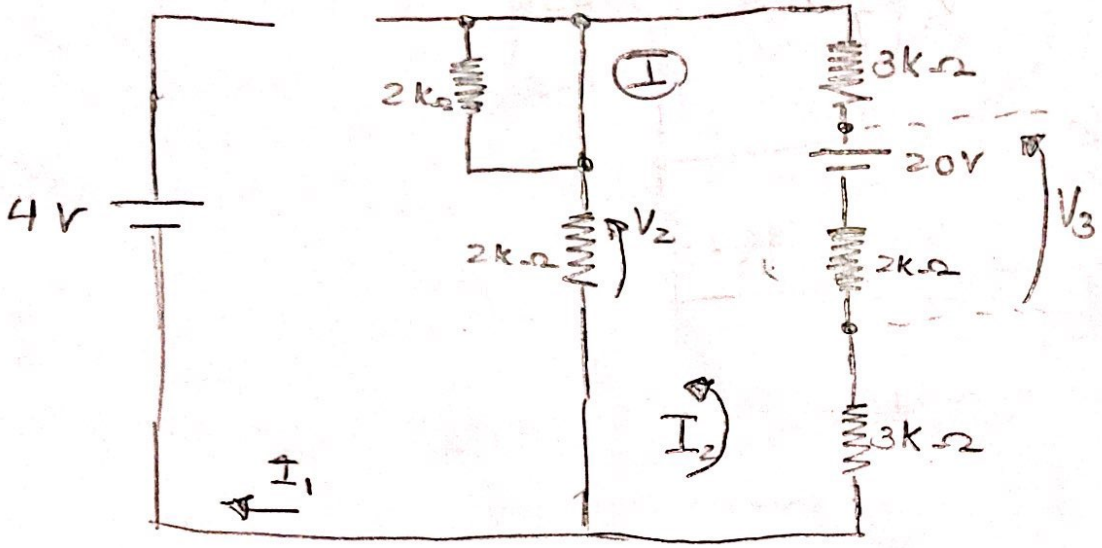
$\boxed{V_3 = 0\ V}$

b)

$t \to \infty$

Capacitor = circuito aberto

Indutor = curto - circuito



$I_1 = 0\ A$

↳ circuito aberto

$\textcircled{I} \rightarrow I_2 = \frac{U}{Req} = \frac{20}{10} = 2\ mA$

$V_2 = 2 . I_2 \Rightarrow V_2 = 2.2$

$\boxed{V_2 = 4{,}0\ V}$

$V_3 = 20 - 2I_2 \rightarrow V_3 = 20 - (2.2)$

$\boxed{V_3 = 16{,}0\ V}$