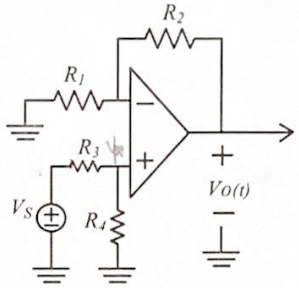
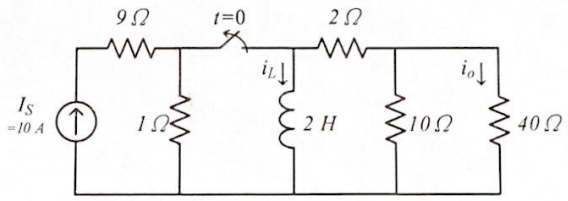
Nov. 22, 2021

AY110 - Electric Circuits –Second Examination

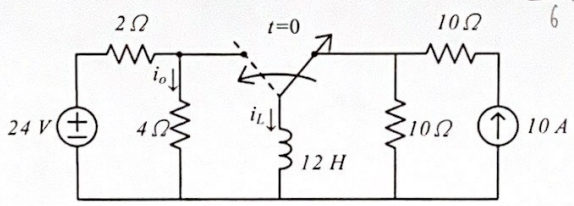
1. According to the following circuit, determine the $v_o(t)$. (7%)



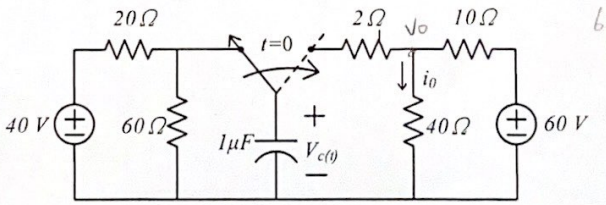
2. Based on the following circuit, determine the $i_L(t)$ and $i_o(t)$. (7%)



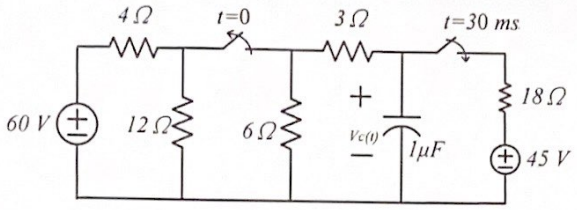
3. Based on the following circuit, determine the $i_L(t)$ and $i_o(t)$. (7%)



4. According to the following circuit, determine the $v_c(t)$ and $i_o(t)$. (*Hint:* using superposition to determine $i_o(t)$). (7%)



5. According to the following circuit, determine the $v_c(t)$ when t approaches infinity. (7%)



$V_c(\infty) = 15\,V$

$\frac{12\times6}{12+6} = \frac{12}{4+3} = 4\,\Omega$

$V_c(0) = 30\,V$

$V_c(\infty) = 0$

$\tau = 9\times10^{-6}$

$v_c(t) = 30\,e^{-\frac{10^6}{9}t}$

$V_c(3ms) = 30\,e^{-\frac{10^6}{9}\times 30\times10^{-3}} = 0$

$V_c(\infty) = 15$