Student's Name:

Introduction to Circuit Analysis

Homework 9 – Equivalent capacitance and inductance, and RC Transient circuit

Instructions:

- You have to show all work in order to receive full credit
- All answer must be in engineering notation rounded off to the hundredth

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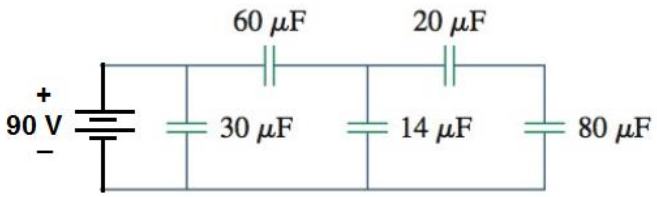
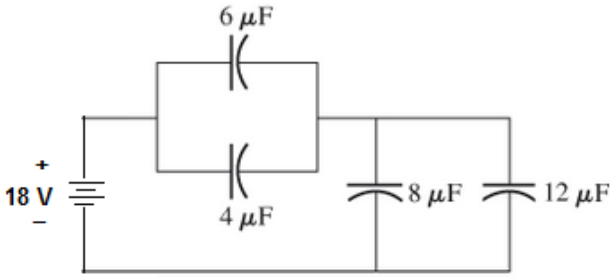
Question 1) For the following circuit, find the equivalent capacitance

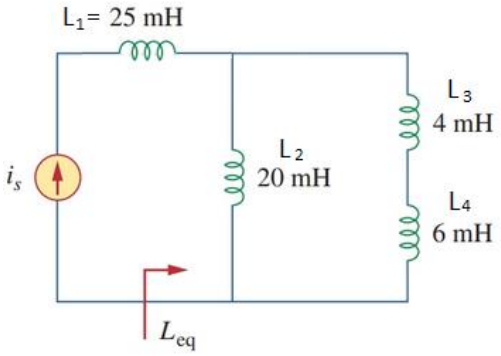
a)



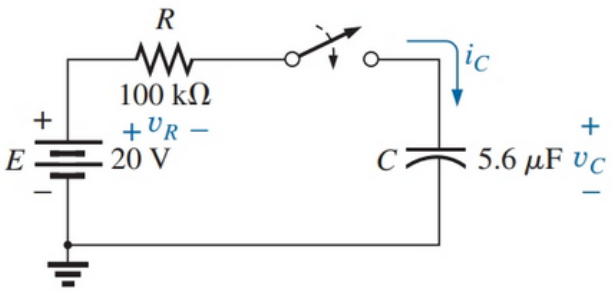
b)



Question 2) For the following circuit, find the equivalent inductor, L_{eq}

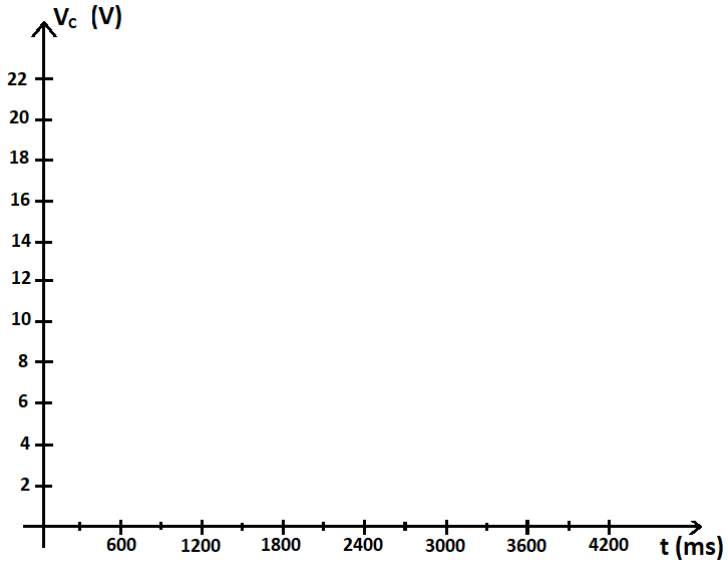


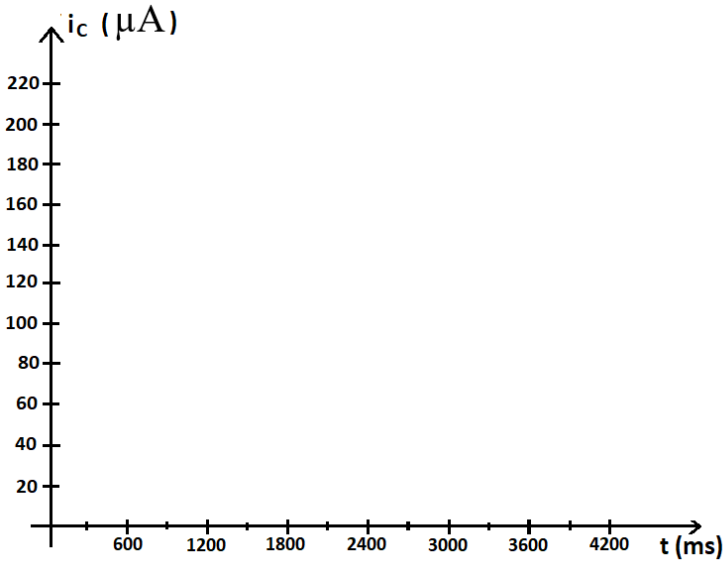
Question 3) For the following RC transient circuit, find the voltage and current through the resistor and the voltage drop at the capacitor, according the given time in the table.

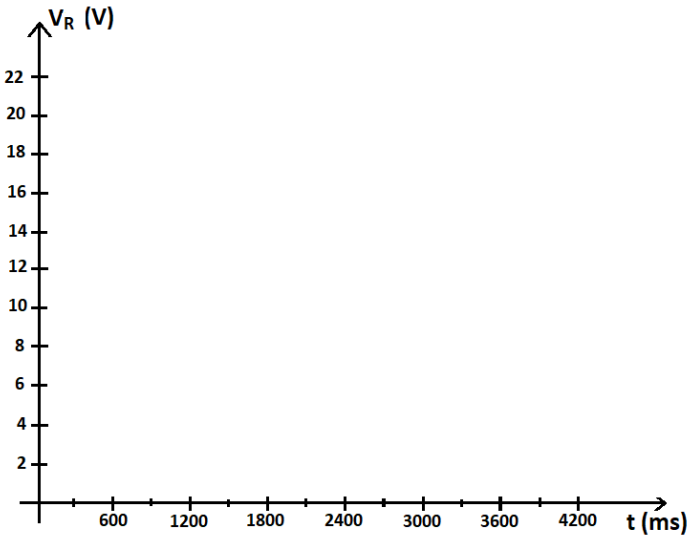


RC Transient Circuit			
Time (ms)	$v_C = V_S\left(1 - e^{-\frac{t}{RC}}\right)$	$v_R = V_S\left(e^{-\frac{t}{RC}}\right)$	$i_C = V_S\left(e^{-\frac{t}{RC}}\right)$
0			
160			
300			
400			
500			
600			
800			
1200			
2000			
2500			
3000			
3500			
4000			

Use the table above, sketch V_C, I_C, and V_R







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