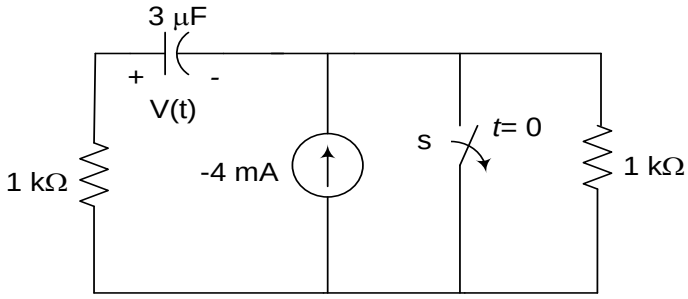
King Saud University
College of Engineering
Dept. of Electrical Engineering

EE-212: *Electric Circuits*
Mid-Term Exam (*1*) 28.04.1431
(*13.04.2010*)
Time Allowed: *1.5 Hours*

Question #1 [10 marks]

In the circuit shown in Fig.1 the switch has been closed for a long time. At t = 0 it is opened. Determine an expression for v(t) for $t \geq 0$ and draw a sketch to show its variation with time.



(Fig.1)

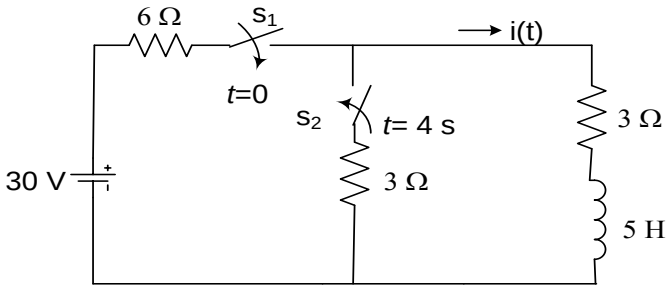
Question #2 [15 marks]

In the circuit shown in Fig.2 both switches have been open for a long time. Switch S_1 is closed first at t=0 and then switch S2 is closed at t= 4 seconds later. Both switches remain closed.

a) Determine an expression for i(t) for $0 \leq t \leq 4s$ and for $4s \leq t \leq \infty$.

b) Find the magnitude of current i at t= 2 s and t = 5s.

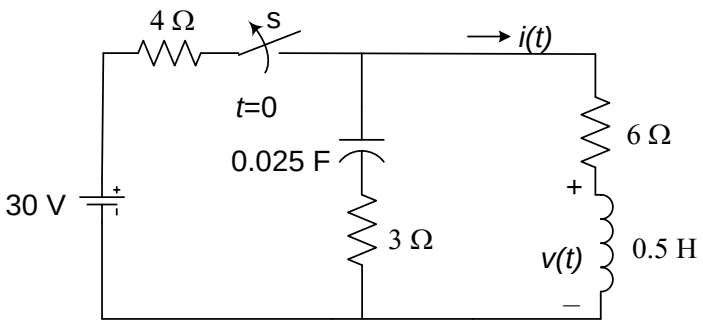
c) Draw a sketch to show variation of i(t) with time for $0 \leq t \leq \infty$.



(Fig.2)

Question # 3 [20 marks]

In the circuit shown (**Fig.3**), switch S has been closed for a long time. At t=0, it is opened. Find expression for *i(t)* and *v(t)*.



(Fig.3)