| Faculty of Electronics Engineering<br>Dept. Electrical Comm. Engineering<br>1st term<br>(2nd year) | | Subject: Electric Circuits Theory<br>*Final Exam (70 Mark)*<br>Allowed Time: 3 Hour [both parts]<br>Date: 16/1/2020 (10 AM-1 PM) |

## Part (2)      (35 Marks)

### Answer as much as you can

### [1] Question One (15 Marks):

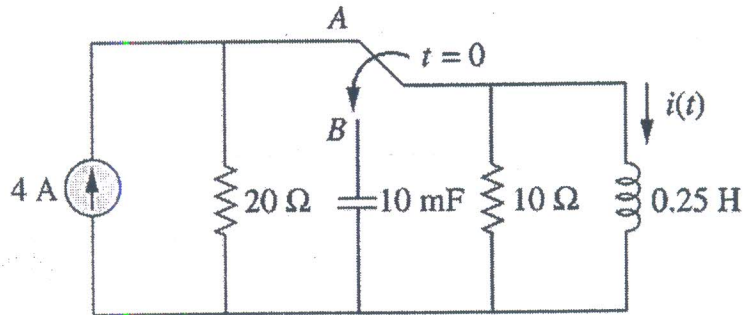A) The switch in Fig. (1) moves from position $A$ to position $B$ at $t = 0$. Determine $i(t)$ for $t > 0$



Fig. (1)

B) For the circuit in Fig. (2), if $v = 10e^{-4t}$ V and $i = 0.2e^{-4t}$ A, $t > 0$
    (a) Find R and C.
    (b) Determine the time constant.
    (c) Calculate the initial energy in the capacitor.
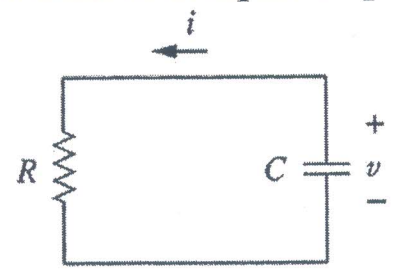    (d) -Obtain the time it takes to dissipate 50 percent of the initial energy.



Fig. (2)

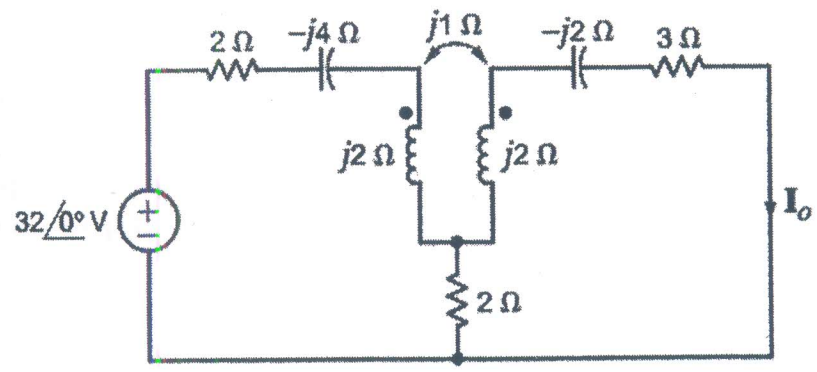C) Find $I_o$ in the circuit in Fig. (3)



Fig. (3)