ELECTRICAL ENGINEERING DEPARTMENT

EEL 101 INTRODUCTION TO ELECTRICAL ENGINEERING

MINOR TEST III

Date: November 11, 2008 Time: 6:30 to 7:30PM

Q1. (i) Find the Thevenin's equivalent across x-y in Fig. Q1(a) and obtain the power delivered at the 20Ω resistance. (3)

(ii) Write down the loop equations for the circuit given in Fig. Q1(b) and evaluate the value of the voltage across the resistor V_R. (3)

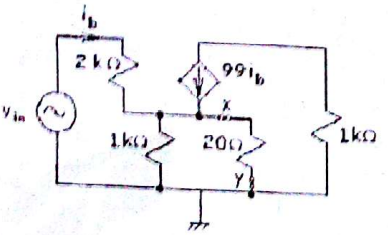

Fig. Q1(a)

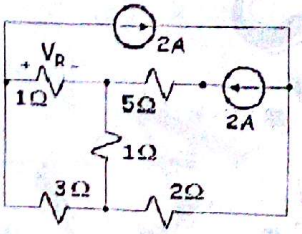

Fig. Q1(b)

Q2. Find the output voltage V_{out} for the opamp circuit given in Fig.Q2 for

1. $v_1 = 0$; $v_2 = V_2 \sin \omega t$ (2)
2. $v_1 = V_1 \sin \omega t$; $v_2 = 0$ (2)
3. $v_1 = V_1 \sin \omega t$; $v_2 = V_2 \sin \omega t$ (2)

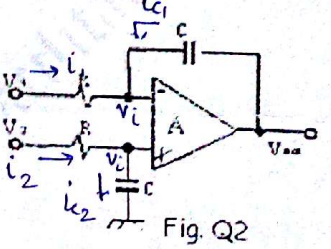

Fig. Q2

Q3. In the network of Fig. Q3, the switch is in position 1 for a very long time and moved to position 2 at time t = 0.

a. Determine the values of v_{ab} and i at t = 0⁺. (2)

b. Find the expression for the complete response of i. (3)

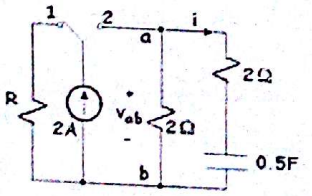

Fig. Q3

Q4. For the diode circuit shown in Fig. Q4 containing three Silicon diodes, (V_{Diode} = 0.7V), obtain the current I_1 and I_2 for V_A = +1V and -1V. (3)

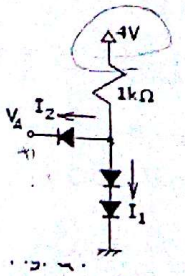

Fig. Q4

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