COLLEGE OF ENGINEERING & TECHNOLOGY

Department : Electrical & Control Engineering
Lecturer : Staff
Course : Electrical Circuits II
Course Code : EE 232 Marks : 40
Date : 18/1/2016 Time : 2 hour

Final Exam

Answer all the following questions

1) Use the Node-voltage method to find the steady-state expression for $v_o(t)$in the circuit in Fig. 1.if: (6 marks) (A.5, B.2)

V_{g1}= 25 sin (400t + 143.13°) V
V_{g2}= 18.03 cos (400t + 33.69°) V

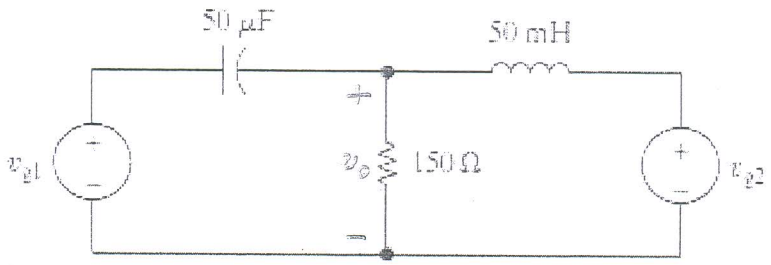

Figure 1

2) The magnitude of the phase voltage of an ideal balanced three-phase Y-connected source is 125 V. The source is connected to a balanced Y- connected load by a distribution line that has an impedance of 0.1 + j 0.8 Ω/Ø . The load impedance is 19.9 + j 14.2 Ω/Ø. The phase sequence of the source is ABC. Use the a-phase voltage of the source as the reference. Specify the magnitude and phase angle of the following quantities: (a) the three line currents, (b) the three line voltages at the source, (c) the three phase voltages at the load, and (d) the three line voltages at the load. (10 marks) (A.5, B.2)

3) For the Circuit shone in Fig. 2 find the following: . (10 marks) (A.5, B.2)

a) The load phase currents
b) The total real power absorbed by the load.
c) The total reactive power absorbed by the load.
d) The total complex power generated by the source.

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Course Coordinator : Prof. Dr. Samah El Safty		5/1/2016
Head of Department: Prof. Dr. Hamdy Ashour		5/1/2016

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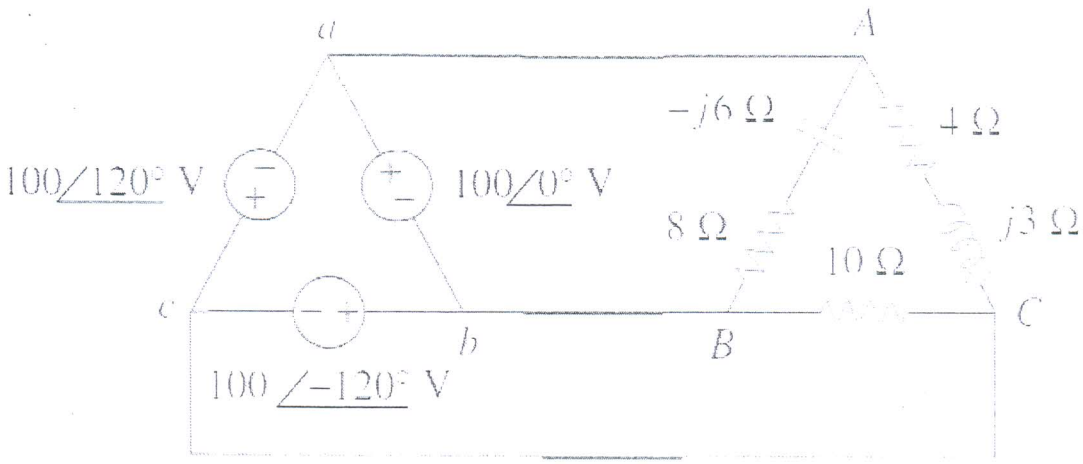

Figure 2

4) Assume that the switch in the circuit of Fig. 3 has been in position a for a long time and that at t=0 it is moved to position b. Find: (a) $v_c(0)$; (b) $v_c(\infty)$; (c) τ for $t > 0$; (d) i(0); (e) $v_c(t)$, $t \geq 0$; and (f) i(t), $t \geq 0$. (8 marks) (A.5, B.2)

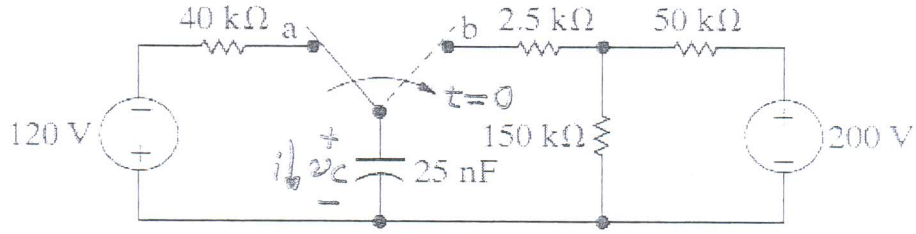

Figure 3

5) The switch in the circuit in Fig. 4 has been closed for a long time. At t = 0 it is opened.

i) Find the expression for i0(t) for $t \geq 0$

ii) Find the expression for v0(t) for $t \geq 0$ (6 marks) (A.5, B.2)

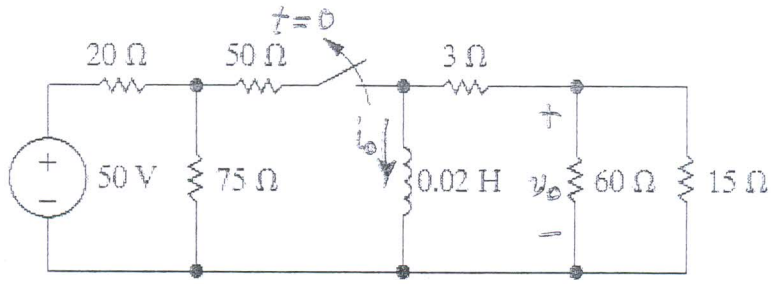

Figure 4

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