VIT
UNIVERSITY
VELLORE ● CHENNAI
www.vit.ac.in

SCHOOL OF ELECTRICAL ENGINEERING
Continuous Assessment Test - 1, August 2016
B.Tech. (CSE\IT\ME\CE\BT), Fall Semester 2016

Course Code : EEE1001   Duration   : 90 Minutes.
Course Name : Basic Electrical and Electronics Engg.   Max. Marks   : 50

Answer all the questions.

1. In the network shown in Figure 1, if $V_1 = 12V$, find V_s.   [10]
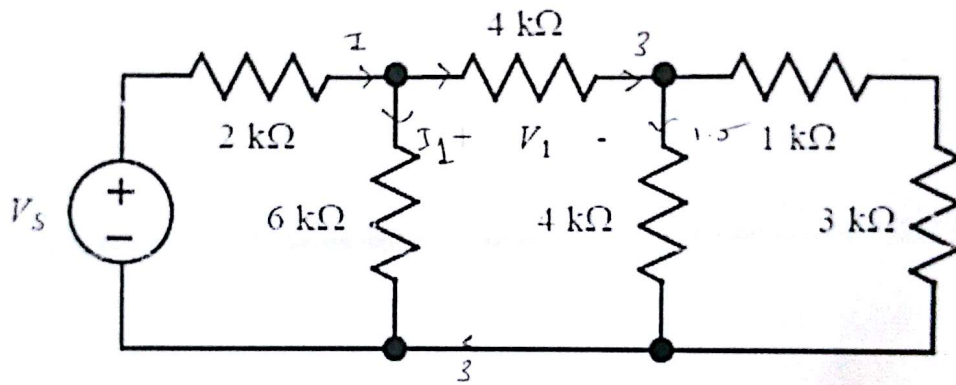

Figure 1

2. Using nodal analysis, find V_0 in the circuit shown in Figure 2.   [10]
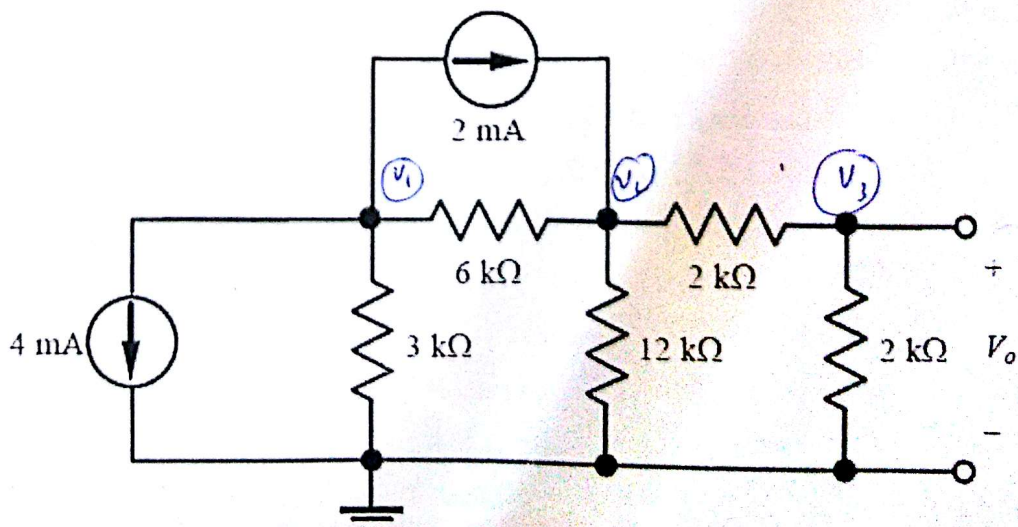

Figure 2

3. Using Thevenin's theorem, find current through R_3 in the circuit shown in Figure 3.
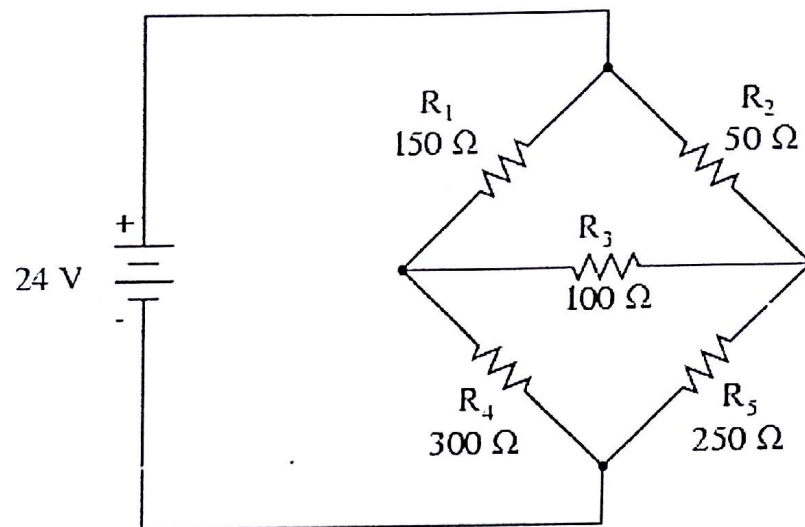[10]

Figure 3

4. A. The instantaneous value of voltage in an AC circuit is given by $V(t) = 100 \sin (50\pi t - 0.523) V$. Find i. the peak to peak voltage, ii. the average voltage iii. the RMS voltage iv. the frequency, and v. the phase angle [3]

B. The power taken by an inductive circuit when connected to a 120V, 50 Hz supply is 400W and the current is 8A. Calculate (a) the resistance, (b) the impedance, (c) the reactance, (d) the power factor, and (e) the phase angle between voltage and current.
[7]

5. A. Draw the phasor diagrams to represent a) a purely resistive a.c. circuit b) a purely inductive a.c circuit c) a purely capacitive a.c circuit. Also mention the phase difference between current and voltage in each case. [3]

B. A series RLC circuit with R=40Ω and L=50.07mH is connected across a 400V, 50Hz supply. The circuit draws a current of 10A. Find i. the capacitor value ii. the power factor of the circuit iii. V_L and V_c [7]