



VIT[®]

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Vellore – 632014, Tamil Nadu, India

SCHOOL OF ELECTRICAL ENGINEERING

FALL SEMESTER 2023-2024

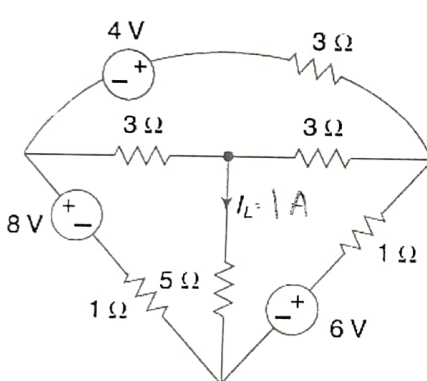
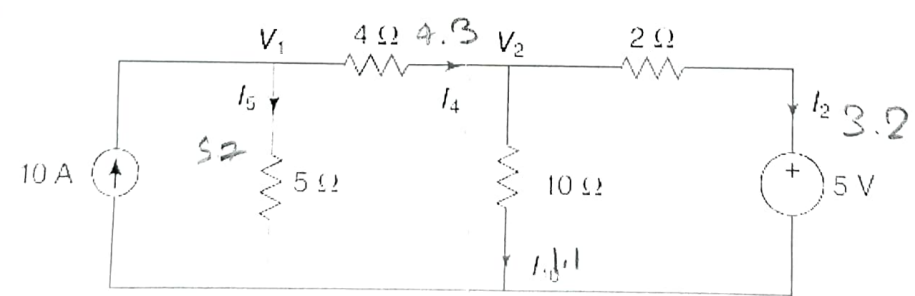
CAT-I

SLOT:F1

Programme Name & Branch : B. Tech (Computer Science and Engineering and Business Systems)
Course Code : EEE1001
Course Name : Basic Electrical and Electronics Engineering
Faculty Members : Dr. P. Geethanjali, Dr. S. Karthik Kiran
Class Number(s) : VL2023240107381, VL2023240107411
Date of the Examination : 15/09/2023
Duration : 90 minutes

Max. Marks : 50

ANSWER ALL THE QUESTIONS

Q. No	Question	Marks
1.	Determine the current I_L in the circuit shown below using Mesh current analysis method.  Handwritten calculations: $i_1 = 1.22A$ $i_2 = 0.67$ $i_3 = 1.07$	10
2.	Determine the current in each branch of the circuit shown below using Nodal voltage analysis method.  Handwritten calculations: $V_1 = 52$ $V_2 = 4.3$ $I_2 = 3.2$ $I_4 = 1.0$	10

3.	Determine the R_L for the maximum power and the maximum power consumed for the circuit shown below. 94.5Ω $0.72 W$	10
4.	A circuit consisting of a resistor in series with a capacitor takes 100 watts at a power factor of 0.5 from a 100 V, 60 Hz supply. Find (a) the current flowing (b) the phase angle (c) the resistance (d) the impedance and (e) the capacitance 2.5 50 $61.25 \mu F$	10
5.	A $40 \mu F$ capacitor in series with a coil of resistance 8Ω and inductance $80 mH$ is connected to a 200 V, 100 Hz supply. Calculate (a) the circuit impedance (b) the current flowing (c) the phase angle between voltage and current (d) the voltage across the coil and (e) the voltage across the capacitor 15.17 13.18 82.69 883.96 602.946	10

Signature of Question paper setter(s)
Name:

Signature of Moderator
Name: