VIT
Vellore Institute of Technology

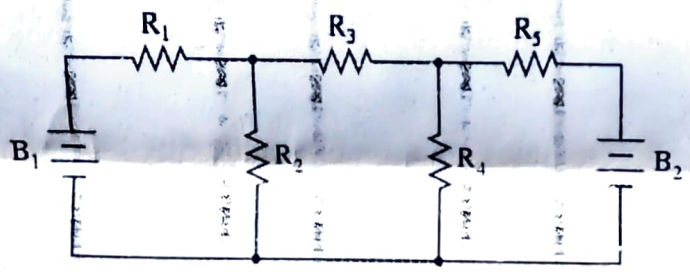
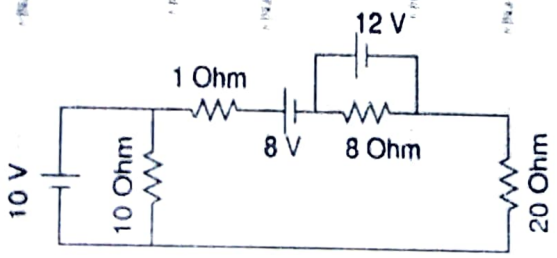
24BEE0202

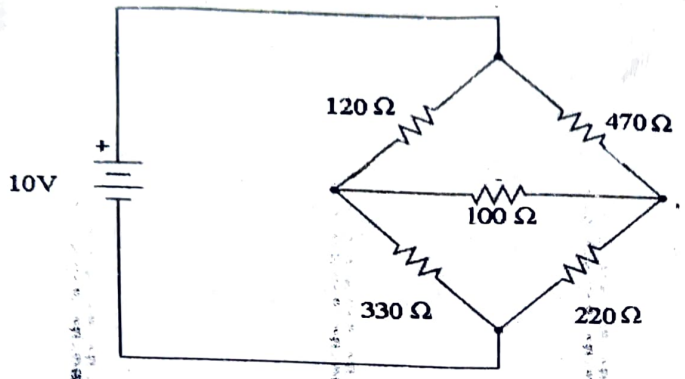
Vellore – 632014, Tamil Nadu, India
SCHOOL OF ELECTRICAL ENGINEERING
FALL SEMESTER 2024-2025
CAT-I

SLOT: D2+TD2

Programme Name & Branch : B.Tech & EE/EI/EL Course Code: BEEE102L
Course Name : Basic Electrical and Electronics Engineering
Faculty Members : Dr.J.Belwin Edward, Dr.B.Saravanan and Dr.R.Gnanavignesh
Class Numbers : VL2024250105964, 5965 and 5966
Date of the Examination: **28.08.24 AN** **Duration: 90 minutes**

Answer All Questions (5 x 10 = 50 Marks)

S.No	Questions	Marks	CO	BL
1.	Using mesh analysis, find current through each resistor for the circuit shown in Figure 1. The following are the parameters of the circuit. R_1=20 Ω, R_2= 10Ω, R_3=15Ω, R_4=15Ω, R_5=18Ω, B_1=25 V and B_2=15V.  Figure 1	10	1	3
2.	Find the current through 20 ohm resistor using Super position Theorem.  Figure 2	10	1	3

3.	Using Thevenin's theorem find the current through 100 Ω resistor and draw the thevenin's equivalent circuit.  Figure 3	10	1	5
4.	A coil has a resistance of 18Ω and an inductance of 45mH is connected across a 220 V, 50Hz supply. Calculate (a) the reactance (b) the impedance (c) current taken from the source (d) the phase angle between the supply voltage and current (e) Power taken from the supply and (f) draw the phasor diagram.	10	2	5
5	A three phase balanced star connected AC source with phase sequence abc and line to line voltage $V_{ab}=415\angle 30°V$ is connected to a balanced star connected load of (10+j20) Ω per phase. Calculate the phase currents, line currents, phase voltages, line voltages for the load. Also find the real power consumed by the load.	10	2	5