VIT®

Vellore Institute of Technology

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

School of Computer Science and Engineering

Fall Semester 2024-25

CAT I

SLOT: C2+TC2

Programme Name & Branch: B.Tech

Course Name & Code: Basic Electrical and Electronics Engineering - BEEE102L

Class Numbers:
VL2024250106425, VL2024250106434, VL2024250106435, VL2024250106436, VL2024250106437, VL2024250106438, VL2024250106439, VL2024250106926, VL2024250106956, VL2024250106993, VL2024250107051, VL2024250107057, VL2024250109164

Faculty Names:
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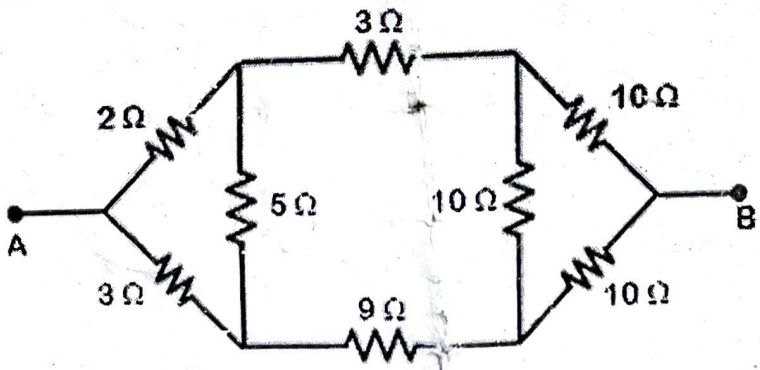
Exam Duration: 90 Min. **Maximum Marks: 50**

General instructions: Answer all questions.

Q. No.	Question	Max Marks
1.	Calculate the voltage which need to be applied across AB in order to drive a current of 5A into the circuit.	10



2. Using Nodal analysis, find the node voltages for the circuit shown in Fig. 1.

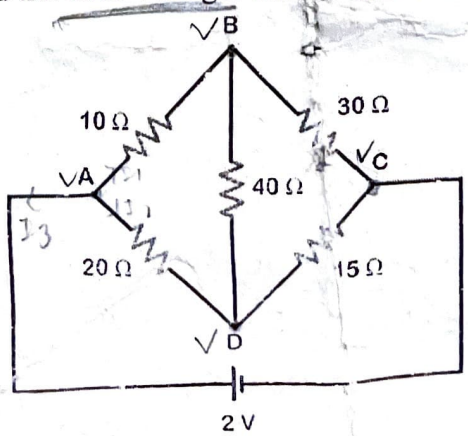
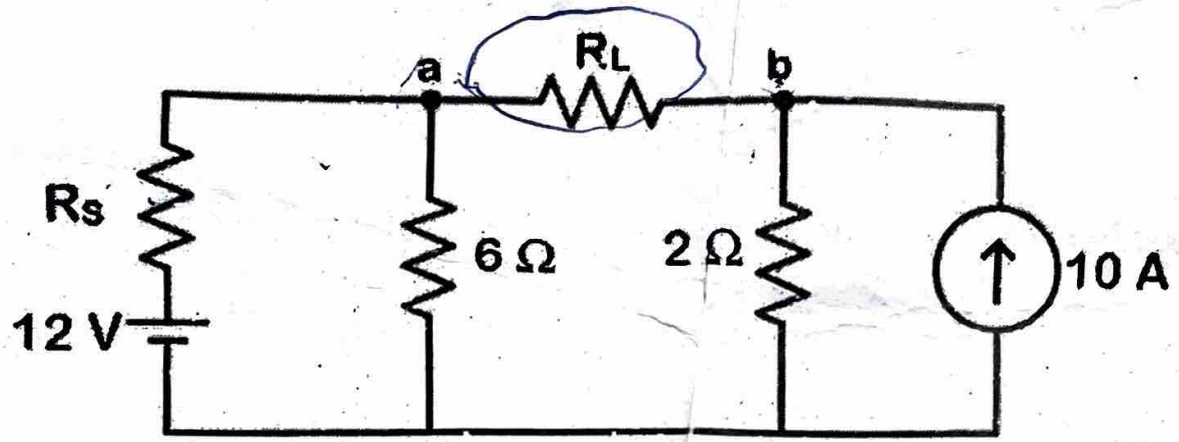


Fig. 1

3. When the load resistance (R_L) is equal to 4Ω, it absorbs maximum power. Calculate the value of source resistance R_S and compute the maximum power absorbed by load resistance (R_L). 10



4. A series RL circuit is connected across AC source $\boldsymbol{V = 200\angle 0°}$ V. The current in the circuit is calculated as $\boldsymbol{I = 10\angle -45°}$ A. Determine impedance, power factor, real power and apparent power. (The given phasor quantities are on basis of peak values.) 10

5. A circuit consist of series connected resistance and capacitance. The value of resistance is 10 Ω. The capacitive reactance is 20 Ω. Further, the circuit is supplied by 200 V, 50 Hz AC supply. 10

a) Compute the values of capacitance.
b) Calculate the impedance.
c) Calculate the power factor of the circuit.
d) Calculate the real and reactive power of the circuit.