

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL
Mid Term Exam (May 2022)

Course: **B. Tech**

Semester **II**

Section: **B & E**

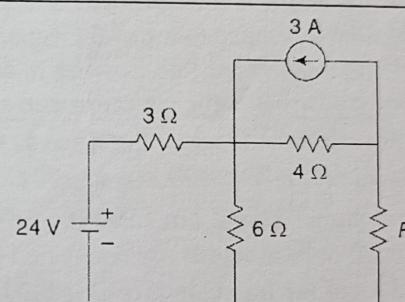
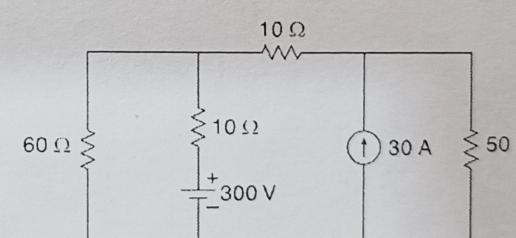
Subject Name : Basic Electrical and Electronics Engineering

Subject Code: **EE 108**

Time : **1 1/2 Hours**

Max Marks: **20**

NOTE: All questions are compulsory. Assume the necessary data suitably if any missing.

Q.No.	Question	Marks
1.	<p>a) Determine the value of R_L for which maximum power will be received by it. Also find the value of maximum power.</p> 	3
2.	<p>Find the current in the 10 ohms resistor in Fig. using Superposition theorem.</p> 	3

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3.	<p>(a) A coil which has 6Ω resistance and 25.5 mH inductance is energized from a 440 V, 50 Hz supply. Calculate the current.</p> <p>(b) A capacitor is then connected in parallel with the coil so that the overall power factor is unity. Calculate the capacitance of the capacitor.</p> <p>(c) What current will be flowing in the main supply cable when the capacitor is connected in the circuit and what is the capacitor current?</p>	5
4.	<p>(a) A resistance R and inductance $L = 0.01 \text{ H}$ and a capacitance C are connected in series. When a voltage of $V = 400 \sin(3000t - 10^\circ) \text{ volt}$ is applied to the series combination, the current flowing is $10\sqrt{2} \sin(3000t - 55^\circ) \text{ ampere}$. Find R and C.</p> <p>(b) Two coils A and B are connected in series across a 240 V, 50 Hz supply. The resistance of A is 5Ω and the inductance of B is 0.015 H. If the input from the supply is 3 kW and 2 kVAr, find the inductance of A and resistance of B. Calculate the voltage across each coil.</p>	5 4