

Name of the Student _____ Roll No. _____

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY

End Term Exam , March '2022

Course: **B. Tech**

Semester - I

Branch: **SECTION- F,G,H,I,J**

Subject Name : Basic Electrical and Electronics Engineering

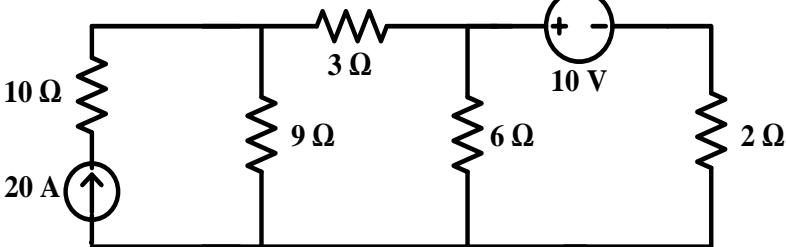
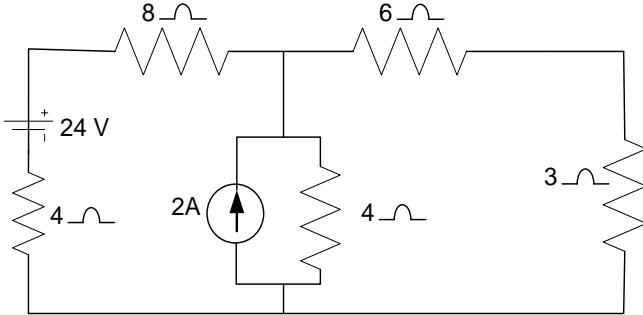
Subject Code: EE-108

Time : **3 Hours**

Max Marks: **50**

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

Name of the submitted answer sheet (PDF file) must be your Roll number.

Q. No.	Question	Marks
1	<p>a) Calculate the current in 3 ohm resistor using super position theorem.</p>  <p>b) With the help of Thevenin's theorem, calculate current flowing through the 3Ω resistor in the network of given figure</p> 	5
2	<p>a) Two circuit, the impedance of which are given by $Z_1 = 10+j15$ and $Z_2 = 6-j8$ ohms are connected in parallel. If the total current supplied is 15 A, what is the power taken by each branch? Find also the power factor of individual circuits and of combination. Draw vector diagram.</p> <p>b) Three impedances are connected in series across a 200V, 50 Hz supply. The first impedance is a 10Ω resistor, the second is a coil of 15Ω inductive reactance and 5Ω resistance and the third consists of a 15Ω resistor in series with 25Ω capacitive reactance. Calculate (i) circuit current (ii) circuit phase angle (iii) circuit power factor (iv) power consumed.</p>	5
3	<p>a) Draw and discuss the input and output characteristics of a Bipolar Junction transistor in CE configuration. (Indicate there in the active, cut-off and saturation region).</p> <p>b) Describe the forward and reverse biasing of PN junction diode and also draw the VI characteristic of PN junction diode.</p>	5
4	<p>a) With the help of neat sketches explain the Core type and Shell type transformer. Discuss their advantages and disadvantages. Give the reasons for the sandwich-type of arrangement of windings.</p>	5

	b) A 60 kVA, Single phase transformer has copper losses and core at full 34.78 kW and 17.39 kW respectively. Determine its efficiency at 60% of full load at 0.8 p.f. lag. Also determine maximum efficiency of the transformer.	5
5	a) A 6-pole dc generator has 65 slots and each slot contains 15 conductors. Flux per pole is 8 mwb and runs at 1000rpm. Find the induced emf of machine if its armature is wave wound. b) State the types of DC motors? What is the basis of the classification, represent with the help of circuit diagram?	5 5

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

Course: **B. Tech**

Semester **II**

Section: **B & E**

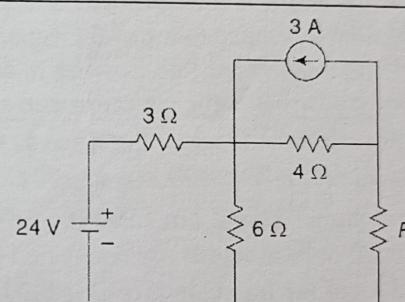
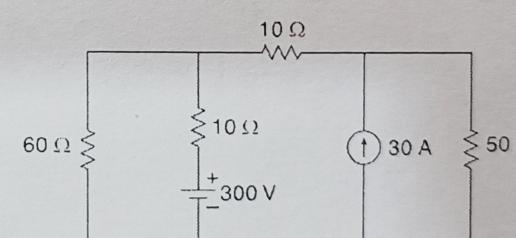
Subject Name : Basic Electrical and Electronics Engineering

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

P.T.O

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

Maulana Azad National Institute of Technology, Bhopal
Mid Term Examination, February, 2022

Department: Electrical Engineering
Semester: B.Tech. Ist Sem Section: G
Subject: Basic Electrical & Electronics Engineering

Date: 05/02/2022
Subject Code: EE-108

Time: 1:30 Hrs Max. Marks: 20

Note: (i) All Questions are compulsory.
(ii) Name of the submitted answer sheet (PDF file) must be your Roll number.

1. For the network shown in Fig.1 determine the currents in each of the resistors using mesh analysis. [5]

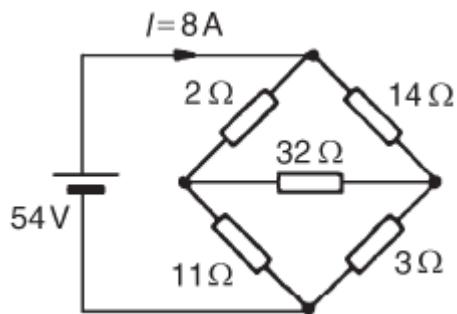


Fig.1

2. An alternating voltage is given by $v = 282.8 \sin 314t$ volts. Find (a) the rms voltage, (b) the frequency and (c) the instantaneous value of voltage when $t = 4$ ms. [5]

3. A coil having a resistance of $10\ \Omega$ and an inductance of $125\ \text{mH}$ is connected in series with a $60\ \mu\text{F}$ capacitor across a $120\ \text{V}$ supply. At what frequency does resonance occurs? Find the current flowing at the resonant frequency. [5]

4. A star-connected load consists of three identical coils each of resistance $30\ \Omega$ and inductance $127.3\ \text{mH}$. If the line current is $5.08\ \text{A}$, calculate the line voltage if the supply frequency is $50\ \text{Hz}$. [5]

Mini Test

B. Tech Ist Sem (Section G)

Date: 05.01.2022

Max^m Marks:10

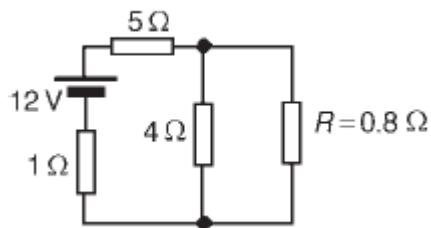
Sub: BEEE

Sub Code: EE - 108

(1) Define Norton's theorem. How it is applied ? [2.5]

(2) What is Superposition theorem, explain with circuit diagram [2.5]

(3) For the network shown in Figure determine the current in the 0.8 resistor using Thevenin's theorem. [2.5]



(3) For the circuit shown in Figure , find using the superposition theorem current flowing in and the pd across the 18 resistor. [2.5]

