

Roll No: _____

Enrollment No: _____

Department of Computer Science & Engineering
School of Engineering Sciences & technology
JamiaHamdard
Odd Semester Examination 2022

Time: 3 Hrs

Marks: 60

Subject Name: Basic Electrical Engineering

Subject Code: BTCSE 103/BTCSE AI 103/BTECE 103

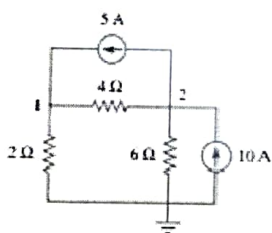
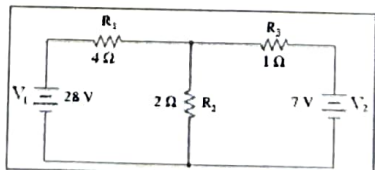
Note: Please do proper numbering of Attempted Questions.

- CO1** Understand the working of basic elements of physics and simple theorems to solve network consisting of these elements.
- CO2** Use of basic elements in a network consisting of sinusoidal potential and their impact on their response.
- CO3** To understand the magnetic field and how it behaves around the transformer.
- CO4** To understand different types of electrical machines
- CO5** To understand the working of different types of electrical devices

Section A

Note: All the Questions are Compulsory. Each question carry equal marks

[4 x 5 marks = 20 marks]

Q.No	Question	CO	BL
Q1.	For a single phase induction motor, discuss various regions of the Torque-Slip Characteristics?	CO4	L2
Q2.	What are the different types of three phase transformer connections? Discuss them with the help of a suitable example?	CO3	L1
Q3.	For a circuit diagram shown below, create mathematical equations solving the network for voltage at node 1 and node 2 	CO1	L4
Q4.	Find the current passing through the 2 Ω resistor in the given network using the superposition theorem 	CO1	L4

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Section B**Note: Attempt any four questions. Each question carry equal marks****[4 x 10 marks = 40 marks]**

Q. No	Question	CO	BL
Q1.	Explain the working of a single phase induction motor. While discussing different types of losses for a single phase induction motor derive the equation for its efficiency?	CO3	L3
Q2.	Derive the equation of copper saving in Auto-transformer in a step down mode. Discuss its various advantages and disadvantages?	CO4	L3
Q3.	Discuss different stages of hysteresis loop with the help of a suitable and neat diagram. Determine the condition for maximizing the efficiency?	CO4	L4
Q4.	For a series RC circuit, draw the capacitor transient current and voltage curve. Determine the equation for the same.	CO1	L4
Q5.	A 30-ohm resistor, a 0.4 H inductor, and a 20-mF capacitor are connected in series with a 180-V, 90 Hz ac source. a) Calculate the impedance for this circuit. b) Find the effective current and the phase angle. c) Verify whether it is an inductive or a capacitive circuit.	CO2	L5
Q6.	Write a short note on any four of the following: a) DC-DC buck and boost control b) switch Fuse Unit (SFU) c) MCB & MCCB d) Types of Wires and cables e) Types of batteries f) duty ratio control	CO5	L2

BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3- Applying, 4- Analyzing, 5- Evaluating, 6- Creating)

CO-Course Outcomes

******* End of Paper *******