

Department of Computer Science & Engineering
School of Engineering Sciences & technology
JamiaHamdard
Supplementary Exam for Odd Semester- 2023

Time: 3 Hrs

Subject Name: Basic Electrical Engineering

Marks: 75

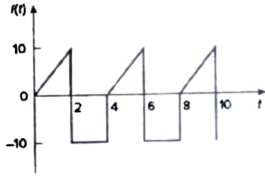
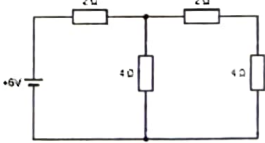
Subject Code: BTCSE 103

- 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

[7 x 5 marks = 35 marks]

Q.No	Question	CO	BL
Q1.	Statement: Under Steady State, Condition, Capacitor acts as an open circuit Explain the above statement with the help of suitable mathematical equations? Derive the Ohm's law equation in terms of Inductor with the help of a suitable circuit diagram?	CO1	L3
Q2.	Determine the rms value of the current waveform shown below. If the current is passed through 2Ω resistor, find the average power absorbed by the resistor 	CO2	L4
Q3.	Explain how a rotating magnetic field are generated? Draw proper wave diagram for the same.	CO4	L3
Q4.	What is a slip in a motor? Discuss the Torque-slip characteristics for the same?	CO4	L3
Q5.	Compare different types of magnetic materials?	CO3	L2
Q6.	Determine the current through 4Ω resistor using Norton's Theorem? 		
Q7.	With the help of Hysteresis Loop, explain the concept of residual magnetism and coercive force?	CO3	L2

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

Q. No	Question	CO	BL
Q1.	What do you mean by a transient? In a series RL circuit, find the transient and steady state current equation for source free and with source circuit respectively?	CO1	L3
Q2.	Determine the mathematical relation for efficiency of a motor	CO4	L4
Q3.	For a series RC circuit, determine the impedance triangle? What do you mean by resonance? Determine the mathematical equation for Quality factor?	CO2	L4
Q4.	What are the different types of losses in a transformer? Derive the mathematical equation for copper saving in auto transformer in step down mode with the help of a suitable diagram?	CO3	L4
Q5.	A three phase motor can be regarded as a balanced Y- load. A three phase motor draws 5.6 kW when the line voltage is 220V and the line current is 18.2A. Determine the power factor of the motor?	CO2	L5
Q6.	Write a short note on any three of the following i. MCB and MCCB ii. Types of Batteries iii. Duty Ratio control iv. Earthing v. Types of wires	CO5	L1

BL – Bloom's Taxonomy Levels

(1- Remembering, 2- Understanding, 3- Applying, 4- Analyzing, 5- Evaluating, 6- Creating),

CO-Course Outcomes******* End of Paper *******