



B.Tech II Semester Regular/Supplementary Examinations, June 2024

BASIC ELECTRICAL ENGINEERING

(Common to CSE & CSE(AI&ML))

Maximum Marks: 60

Date: 28.06.2024 Duration: 3 hours

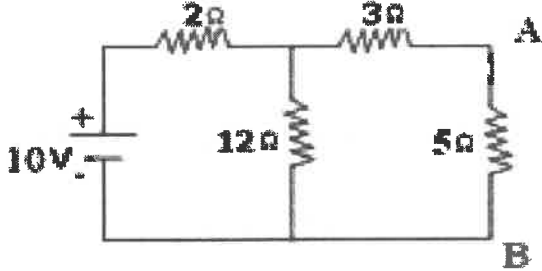
- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks		(10X1M=10 Marks)	CO	Bloom Tx
1.	a	What is ideal current source?	1	1
	b	Define KCL?	1	1
	c	What is phase difference?	1	1
	d	Define peak factor?	1	1
	e	What is the working principle of Transformer?	3	1
	f	Define voltage regulation?	3	1
	g	What is synchronous speed?	3	1
	h	What is rotating magnetic field?	3	1
	i	What is ELCB?	4	1
	j	What is earthing?	4	1

Part-B

Answer All the following questions.		(5X10M=50 Marks)		
2	A. Explain different energy sources? [5M]		1	2
	B. Find the current through across 5 Ohms resistor in the circuit shown in below figure 1. [5M]		1	4
Figure 1				
OR				
3	A. State and explain superposition theorem with an example. [6M]		2	2

	<p>B. By using Norton's theorem, determine the current through 5Ω resistor for the circuit shown in figure 2. [4M]</p>  <p style="text-align: center;">Figure 2</p>	2	4
4	<p>A. Derive the expression for the RMS value of a sinusoidal waveform? [5M]</p> <p>B. Explain series RL circuit with its waveforms? [5M]</p>	2	3
OR			
5	Derive the expression for the form factor of a sinusoidal waveform? [10M]	2	3
6	<p>A. Explain various losses occurring in a transformer? [5M]</p> <p>B. Explain equivalent circuit of a transformer referred to secondary? [5M]</p>	3	2
OR			
7	<p>A. What is a transformer? Explain about principle of operation of transformer? [7M]</p> <p>B. Describe about various 3phase transformer groups? [3M]</p>	3	2
8	<p>A. Explain the constructional details of DC machine. [6M]</p> <p>B. A 6 pole, 3-ϕ induction motor runs at 1140 rpm on full load when supplied from a 60Hz supply. Determine the synchronous speed, slip. [4M]</p>	3	2
OR			
9	<p>A. Explain torque-slip characteristics of a three phase Induction Motor? [5M]</p> <p>B. Explain construction of a synchronous generator? [5M]</p>	3	2
10	<p>A. What is MCB? Mention advantages and disadvantages of MCB. [5M]</p> <p>B. What is earthing? Explain pipe earthing? [5M]</p>	4	2
OR			
11	<p>A. What are the types of batteries? Explain the characteristics of a battery? [5M]</p> <p>B. What is power factor? How to improve power factor? [5M]</p>	4	2
		4	3