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INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

I B.TECH II Sem Supplementary Examination, May 2022
BASIC ELECTRICAL ENGINEERING
(ECE)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Question paper consists: Part-A and Part-B.

2. In Part – A, answer all questions which carries 20 marks.

3. In Part – B, answer any one question from each unit.

Each question carries 10 marks and may have a, b as sub questions.

PART- A

(10*2 Marks = 20 Marks)

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|-------|---|----|-----|------|
| 1. a) | Define passive element and give example. | 2M | C01 | BL-1 |
| b) | Define time constant and write time constant of RC series circuit. | 2M | C01 | BL-1 |
| c) | What is the RMS value of sinusoidal wave form and define RMS value. | 2M | C02 | BL-2 |
| d) | What is the phase angle between voltage and current in resistor? | 2M | C02 | BL-2 |
| e) | What is practical transformer? | 2M | C03 | BL-3 |
| f) | What is the purpose of auto transformer? | 2M | C03 | BL-1 |
| g) | What are the different types of three phase induction motors? | 2M | C04 | BL-1 |
| h) | Give any two applications of single phase induction motors. | 2M | C04 | BL-4 |
| i) | What is the purpose of earthing? | 2M | C05 | BL-2 |
| j) | What are types of Batteries? | 2M | C05 | BL-2 |

PART- B

(10*5 Marks = 50 Marks)

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|------|--|----|-----|------|
| 2 a) | State and explain Thevenin theorem with example. | 5M | C01 | BL-4 |
| b) | State and prove KVL with example. | 5M | C01 | BL-3 |

OR

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|---|--|-----|-----|------|
| 3 | Explain time domain analysis of first order RC circuits. | 10M | C01 | BL-4 |
| 4 | Determine Average value of the sinusoidal wave form. | 10M | C02 | BL-3 |

OR

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|------|---|-----|-----|------|
| 5 | The impedances of parallel circuit are $Z_1=(6+j8)$ & $Z_2=(8-j6)$. If the applied voltage is 120V, find | 10M | C02 | BL-3 |
| i. | Current & power of each branch. | | | |
| ii. | Overall current & power factor of the combination | | | |
| iii. | Active and reactive powers. | | | |

6	Explain working principle of single phase practical transformer.	10M	C03	BL-4
OR				
7	Develop step by step exact equivalent circuit of a single phase two winding transformer	10M	C03	BL-6
8	Explain Construction and working of synchronous generators.	10M	C04	BL-4
OR				
9	Explain working of a single-phase induction motor.	10M	C04	BL-4
10	a) Explain working principle of ELCB.	5M	C05	BL-4
	b) How to improve power factor discuss.	5M	C05	BL-1
OR				
11	What are types of batteries? Discuss the Characteristics of Batteries.	10M	C05	BL-2

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