

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-I & II EXAMINATION – WINTER 2024

Subject Code:BE01000051

Date:06-01-2025

Subject Name:Basic Electrical Engineering

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Apply and illustrate KCL on star connected circuit.	03
	(b) Compute R_{th} and V_{th} for thevenin theorem. Assume necessary circuit for the same.	04
	(c) Explain star to delta conversion with neat and clean diagram.	07
Q.2	(a) Explain the concept of active, reactive and apparent power.	03
	(b) Analyze voltage and current relations in three phase star connection.	04
	(c) Compare series and parallel resonance.	07
	OR	
	(c) Illustrate the Phasor diagram of RC series circuit and explain its development.	07
Q.3	(a) Describe concept of MMF.	03
	(b) Define flux, flux density, reluctance and permeability.	04
	(c) Compare Split phase and Capacitor start motors.	07
	OR	
Q.3	(a) Describe Construction and working of brushless DC motor.	03
	(b) Examine construction of single phase induction motor.	04
	(c) Explain B-H Curve and Hysteresis Loop in detail.	07
Q.4	(a) List components of low tension switchgear.	03
	(b) Define types of lamps for industrial and residential premises.	04
	(c) Explain Lumen requirements for different categories.	07
	OR	
Q.4	(a) Describe working of MCB.	03
	(b) State different parts with neat and clean diagram of MCCB.	04
	(c) Explain working principal of energy meter.	07
Q.5	(a) List various methods of earthing.	03
	(b) Describe the necessity of using electrical protective devices.	04
	(c) Explain Pipe earthing.	07
	OR	
Q.5	(a) State important characteristics of batteries.	03
	(b) State safety precautions of electrical appliances.	04
	(c) Explain plate earthing.	07
