Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–I & II(NEW)EXAMINATION – SUMMER 2022

Subject Code:2110005 Date:12-08-2022

Subject Name:Elements of Electrical Engineering

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Question No. 1 is compulsory. Attempt any four out of remaining Six 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)**	(1) Draw Impedance triangle for R-L Series circuit. (2) Define quality factor. (3) Define temperature coefficient. (4) What is the power factor of pure inductive circuit? (5) List out the method of power measurement. (6) Define RMS value. (7) Explain the limitations of Ohm's law.	**07**
	(b)	(1) Draw circuit diagram of staircase wiring. (2) List out the different types of wires. (3) What is the unit of electric field intensity? (4) Write the equation of resonant frequency of R-L-C Series circuit. (5) Define Lumen. (6) Define A-H efficiency. (7) Write the equation of equivalent capacitance of two series connected capacitors.	**07**
Q-2	**(a)**	Explain the KCL and KVL	**03**
	(b)	Explain the effect of temperature on resistor.	**04**
	(c)	Derive the equation of resistance from star to delta transformation.	**07**
Q-3	**(a)**	Draw Hysteresis curve and explain it.	**03**
	(b)	Give the comparisons between magnetic circuit and electric circuit.	**04**
	(c)	Explain the self and mutual inductance and also state Faraday's Law.	**07**
Q-4	**(a)**	Define Peak and Form factor of ac circuit.	**03**
	(b)	Derive the equation of phase relationship of pure L circuit.	**04**
	(c)	Draw the Impedance triangle of R-L_C series circuit and also explain the effect of frequency on various electrical parameters.	**07**

Q-5	**(a)**	Draw the circuit diagram of two wattmeter method of power measurement.	**03**
	(b)	Explain the important factor of good wiring system.	**04**
	(c)	Derive the phase relationship of line voltage and phase voltage , line current and phase current in 3-phase delta connection.	**07**
Q-6	**(a)**	Explain the construction of Lead Acid battery.	**03**
	(b)	Explain the different types of wiring system.	**04**
	(c)	Explain the construction of 3-phase cable.	**07**
Q-7	**(a)**	Explain the tube-light wiring.	**03**
	(b)	Derive the equation of resonant frequency in case of parallel circuit.	**04**
	(c)	Explain the function and construction of ELCB.	**07**

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