Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VI (NEW) EXAMINATION – WINTER 2020

Subject Code:2160911 Date:01/02/2021

Subject Name:Computer Aided Analysis and Design for Electrical Engg.

Time:02:00 PM TO 04:00 PM Total Marks: 56

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1	**(a)**	Explain various modes of heat dissipation.	**03**
	(b)	Define specific electrical loadings. State advantages and disadvantages of higher specific electric loadings.	**04**
	(c)	Explain design criteria for selection of specific magnetic loadings for the rotating electrical machine.	**07**
Q.2	**(a)**	State advantages of computer aided design of electrical machines.	**03**
	(b)	State input data to be fed in to the program for rotating electrical machine.	**04**
	(c)	State and explain steps for general design procedure.	**07**
Q.3	**(a)**	What is skin effect in conductors?	**03**
	(b)	Explain standard ratings of electrical machines.	**04**
	(c)	Classify different types of materials used for electrical machine.	**07**
Q.4	**(a)**	What are the required properties of good insulating material?	**03**
	(b)	Explain different types of enclosures used for rotating electrical machine.	**04**
	(c)	Explain different types of ventilation scheme used for transformers.	**07**
Q.5	**(a)**	State advantages of FEM.	**03**
	(b)	Explain different applications of FEM in electrical machine design?	**04**
	(c)	Explain global coefficient matrix and elemental coefficient matrix.	**07**
Q.6	**(a)**	Draw a flowchart for the design of choke coil.	**03**
	(b)	Draw a flowchart for the design of DC shunt motor starter.	**04**
	(c)	Write a computer program for the computer aided design of field regulator.	**07**
Q.7	**(a)**	Draw a flowchart for the design of compensating winding of DC machine.	**03**
	(b)	Draw a flowchart for the design of armature winding of DC generator.	**04**
	(c)	Write a computer program for the calculation of main dimensions of DC motor.	**07**
Q.8	**(a)**	Write a computer program for the calculation of window dimensions of 3- Φ transformer.	**03**
	(b)	Draw a flowchart for the design windings of transformer.	**04**
	(c)	Write a computer program for the calculation of no load current of 3- Φ transformer	**07**

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