Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2160911 **Date: 08/05/2017**

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

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.**

Q.1		**Short Questions**	**14**
	1	Define magnetic loading	
	2	Define specific electric loading	
	3	Give unit of current density	
	4	Give unit of specific electric loading	
	5	Write output power equation of DC machine	
	6	Write equation of "ac"	
	7	Write equation of "Bav"	
	8	Define back pitch	
	9	Define front pitch	
	10	List types of armature winding	
	11	Write general equation of output coefficient	
	12	Write output power equation of three phase transformer	
	13	State two factors on which air gap length of DC machine depend	
	14	State two advantages of computer-aided design	
Q.2	**(a)**	Explain significance of "Kg/KVA".	**03**
	(b)	State output data to be printed after execution of program.	**04**
	(c)	Draw flowchart for computer-aided optimal design of Transformer.	**07**
		OR	
	(c)	Write a computer program for field winding design of DC generator.	**07**
Q.3	**(a)**	Explain various modes of heat dissipation.	**03**
	(b)	Explain ventilation schemes in transformers.	**04**
	(c)	Write a computer program for main dimensions of DC motor.	**07**
		OR	
Q.3	**(a)**	Discuss standard ratings of electrical machines.	**03**
	(b)	What are the requirement of dummy coils and equalizer connection?	**04**
	(c)	Write a computer program for design HV winding of transformer.	**07**
Q.4	**(a)**	State disadvantages of Higher Specific Electric Loadings.	**03**
	(b)	Explain advantages of Higher Specific Electric Loadings.	**04**
	(c)	Draw flowchart for computer-aided design of field regulator.	**07**
		OR	
Q.4	**(a)**	State the advantages of Finite Element Method.	**03**
	(b)	Explain global coefficient matrix and elemental coefficient matrix.	**04**
	(c)	Explain various applications of FEM technique for design.	**07**
Q.5	**(a)**	Draw flowchart for computer design of main dimensions of DC generator.	**07**
	(b)	Write a computer program for design of DC Series motor starter.	**07**
		OR	
Q.5	**(a)**	Draw flowchart for design of starter for DC motor.	**07**
	(b)	Write a computer program for design of cooling tubes in transformer.	**07**