Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (OLD) EXAMINATION – WINTER 2018

Subject Code:131901 Date:12/12/2018

Subject Name:Electrical Machines And Electronics

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	**(a)**	Draw and explain the construction of a DC Machine.	**07**
	(b)	Explain Internal and External characteristics of DC Shunt Generator	**07**
Q.2	**(a)**	Is DC Motor self-started? Why? Draw and Explain Three point starter.	**07**
	(b)	Sketch and explain the speed-current, speed-torque and torque-current characteristics of a d.c. shunt motor.	**07**
		OR	
	(b)	Classify and Explain DC Generator with circuit diagram with terminal voltage and generated power equation.	**07**
Q.3	**(a)**	Explain production of rotating magnetic field in three phase induction motor.	**07**
	(b)	Is Single phase induction motor self-starting? Why? Explain double field revolving theory for the same motor.	**07**
		OR	
Q.3	**(a)**	Explain parallel operation of alternators.	**07**
	(b)	Explain the construction features and working principle of single phase transformer	**07**
Q.4	**(a)**	Explain different speed control methods for DC Shunt motor.	**07**
	(b)	What is power factor? Discuss the disadvantages of low power factor and explain the methods to improve power factor.	**07**
		OR	
Q.4	**(a)**	Explain merits and demerits of overhead system and underground system for electric supply. Also compare A.C. and D.C. transmission system	**07**
	(b)	What do you mean by Tariff? Explain different types of Tariff.	**07**
Q.5	**(a)**	Explain the full wave rectifier in detail with the help of circuit diagram and waveforms	**07**
	(b)	Draw & Explain Internal architecture of 8085 microprocessor	**07**
		OR	
Q.5	**(a)**	What is the purpose of substations in electrical power system? Explain briefly the function of following equipment in a substation: 1) Bus-bar 2) Circuit Breaker 3) Isolator 4) Lightning Arrester 5) Insulator	**07**
	(b)	What is Logic-Gate? Draw the Truth table & symbol for AND, OR, NOT, NOR Gate. Also State & Explain De-Morgan's Theorem	**07**

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