GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–III (NEW) • EXAMINATION – SUMMER 2015

Subject Code: 2130105   **Date: 02/06/2015**
Subject Name: Electrical Machines & Electronics
Time: 02.30pm-05.00pm   **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)**	Explain constructional details of D.C. generator with its diagram.	**07**
	(b)	What are the conditions to be fulfilled for parallel operation of two synchronous machines? Give any one method of synchronizing.	**07**
Q.2	**(a)**	Explain External and Internal characteristics of D.C. shunt generator.	**07**
	(b)	Draw and explain the construction of a three-point starter for D.C. shunt motor. Explain the function of Hold-on Coil and Overload Coil in it.	**07**

OR

	(b)	Write different starters used for 3-phase induction motor and explain any one of them.	**07**
Q.3	**(a)**	Explain different speed control methods for induction motor.	**07**
	(b)	Describe working principle of shaded pole type single-phase induction motor with neat diagram.	**07**

OR

Q.3	**(a)**	Explain different speed control methods for D.C. series motor.	**07**
	(b)	Explain the working principle and construction and types of a single phase transformer.	**07**
Q.4	**(a)**	Draw the typical layout of substation. Also, state the function of equipment used in substation.	**07**
	(b)	Explain merits and demerits of overhead system and underground system for electric supply. Also, give the comparison for A.C. and D.C transmission system.	**07**

OR

Q.4	**(a)**	What is a tariff? Explain the types of tariff.	**07**
	(b)	Explain the features of 8085 microprocessor.	**07**
Q.5	**(a)**	Explain the full wave rectifier in detail with the help of circuit diagram and waveforms.	**07**
	(b)	Explain (i) Three-phase bridge rectifier. (ii) Multi stage amplifier.	**07**

OR

Q.5	**(a)**	What is an Op-Amp? State various applications of Op-Amp.	**07**
	(b)	Explain De-Morgan's theorems in Boolean algebra.	**07**

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