Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–II • EXAMINATION – WINTER • 2014

Subject Code: X21101 **Date: 26-12-2014**

Subject Name: Electrical Engineering

Time: 02:30 pm - 05:00 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)**	Classify different type of DC generator. Derive EMF equation of DC generator.	**07**
	(b)	Explain different methods for speed control of D.C. shunt motor	**07**
Q.2	**(a)**	Explain necessity of starter for D.C. motor. Discuss three point starter with Appropriate diagram.	**07**
	(b)	Derive the emf equation of the d.c. machine. State clearly the meaning and units of each symbols used.	**07**
		OR	
	(b)	A D.C. generator delivers 450 Amp. At 230 V and the resistance of the shunt field and armature are 50 ohm and 0.03 ohm respectively. Calculate the generated emf.	**07**
Q.3	**(a)**	Explain working principle and construction of single phase transformer.	**07**
	(b)	Explain the procedure to obtain efficiency and regulation using the direct loading test.	**07**
		OR	
Q.3	**(a)**	Explain torque slip curve of 3 phase induction motor.	**07**
	(b)	Discuss the type of 3 phase induction motor based on the rotor construction and explain its working.	**07**
Q.4	**(a)**	With the help of diagram, explain the operation of capacitor start motor.	**07**
	(b)	Explain construction and working of universal motor.	**07**
		OR	
Q.4	**(a)**	Explain why single phase induction motor is not self started? Explain the starting methods for single phase induction motor in brief.	**07**
	(b)	Explain the operating principle and construction of a shaded pole single phase induction motor.	**07**
Q.5	**(a)**	Explain different types and application of servomotor.	**07**
	(b)	Define Voltage regulation of alternator. State various methods to find voltage regulation and Explain any one method in detail	**07**
		OR	
Q.5	**(a)**	Explain the working principle and applications of synchronous motor.	**07**
	(b)	Explain the comparison between 3 phase induction motor with 3 phase Synchronous motor.	**07**

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