Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV EXAMINATION – SUMMER 2016

Subject Code:142401 Date:30/05/2016

Subject Name:Electro Mechanical Energy Conversion.- 1

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)**	Explain the characteristics of separately excited DC motor.	**07**
	(b)	Explain the no load characteristics of self excited DC generator.	**07**
Q.2	**(a)**	Derive the equation for starting torque of 3-F induction motor. Derive the condition for max. Starting torque and discuss the effect of change in supply on the starting torque.	**07**
	(b)	Explain construction and working of Schrage Motor.	**07**
		OR	
	(b)	Explain different losses occur in dc generator.	**07**
Q.3	**(a)**	Explain the internal and external characteristics of DC Shunt Generator.	**07**
	(b)	Discuss speed control methods for controlling speed of DC motor.	**07**
		OR	
Q.3	**(a)**	Explain the construction and working principle of three phase induction motor.	**07**
	(b)	Discuss operation of single phase transformer at no load and on load.	**07**
Q.4	**(a)**	Explain all day efficiency in the case of transformer.	**07**
	(b)	Derive emf equation of a transformer. Prove the core loss is practically same under all load condition.	**07**
		OR	
Q.4	**(a)**	Discuss the necessity of starter. Explain the three-point starter with neat diagram.	**07**
	(b)	Explain the equivalent circuit of single-phase transformer.	**07**
Q.5	**(a)**	Write a short note on stepper motor.	**07**
	(b)	Explain the repulsion principle with the help of neat diagram.	**07**
		OR	
Q.5	**(a)**	Explain auto transformer in detail.	**07**
	(b)	Define Distribution factor and Pitch factor. Derive the emf equation of an alternator.	**07**

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