Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II (Old course)• REMEDIAL EXAMINATION – SUMMER 2015

Subject Code: 1720701 **Date:12/05/2015**

Subject Name: Advanced Electrical Machines

Time: 02:30 pm to 5:00 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)**	Derive the winding inductances and voltage equations for Induction Machine and also mention the assumptions made for derivation.	**07**
	(b)	Explain the close loop control scheme of PMBLDC motor drive with suitable schematic diagram.	**07**
Q.2	**(a)**	State the merits of BLDC motor and explain its construction & working principle.	**07**
	(b)	Discuss the torque-pulse rate characteristic of Stepping motor.	**07**
		OR	
	(b)	Explain the concept of Micro stepping control of Stepper Motor. Also state the advantages of it.	**07**
Q.3	**(a)**	Explain the compensation of reactive power requirement of Windmill generator.	**07**
	(b)	State EEM efficiency evaluation techniques and explain the Segregated loss method.	**07**
		OR	
Q.3	**(a)**	Explain direct saving and pay back analysis of Energy Efficient Motor.	**07**
	(b)	Explain the doubly fed Induction Generator with suitable diagram.	**07**
Q.4	**(a)**	Explain the Motor Current Signature Analysis (MCSA) technique for Condition Monitoring of Induction Motor.	**07**
	(b)	Discuss block diagram of typical electromechanical system. Explain energy balance in such system.	**07**
		OR	
Q.4	**(a)**	Explain the Dissolved Gas Analysis (DGA) diagnostic method of Transformer.	**07**
	(b)	Explain the application and control of Linear Induction Motor.	**07**
Q.5	**(a)**	Explain the construction and working of Hybrid stepper Motor.	**07**
	(b)	Explain the Infrared thermograph technique of Condition Monitoring of Induction Motor.	**07**
		OR	
Q.5	**(a)**	What is Partial discharge? Explain ñTan delta measurement methodò for condition monitoring.	**07**
	(b)	Explain electromechanical energy conversion in SRM.	**07**

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