Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – WINTER • 2014

Subject Code: 152404 **Date: 01-12-2014**

Subject Name: Electro Mechanical Energy Conversion - II

Time: 10.30 am - 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 blocked rotor test of 3-Φ induction motor.	**07**
	(b)	With the help of necessary waveforms explain the excitation phenomena of the magnetic materials.	**07**
Q.2	(a)	Explain with the help of vector diagram the effect of increased load with constant excitation in 3-Φ Synchronous Motor.	**07**
	(b)	Compare 3-Φ induction motor and 3-Φ synchronous motor. List the applications of 3-Φ synchronous motor.	**07**
		OR	
	(b)	Derive the equation of the power developed by the 3-Φ Synchronous Motor.	**07**
Q.3	(a)	Write a technical note on : 1-Φ AC series motor.	**07**
	(b)	Explain the double field revolving theory of 1-Φ induction motor. Draw the necessary diagrams.	**07**
		OR	
Q.3	(a)	Explain the working of shaded-pole 1-Φ induction motor with the help of necessary diagrams.	**07**
	(b)	Explain the capacitor start and run type 1-Φ induction motor.	**07**
Q.4	(a)	List the conditions for the parallel operation of 3-Φ transformers.	**06**
	(b)	Explain the 3-Φ to 3-Φ transformation using Scott connection in 3-Φ transformers.	**08**
		OR	
Q. 4	(a)	Explain the V-V connection of 3-Φ transformers.	**06**
	(b)	Draw the winding connections and EMF vectors for Dz 0, Dd 6, Yd 1 and Yz 11 connections of 3-Φ transformers.	**08**
Q.5	(a)	Explain the construction and the principle of operation of Switched Reluctance Motor.	**07**
	(b)	Explain the construction and working of Linear Induction Motor.	**07**
		OR	
Q.5	(a)	Explain the construction and the principle of operation of PMBLDC Motor.	**07**
	(b)	Explain the construction and working of Linear Synchronous Motor.	**07**

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