Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER • 2014

Subject Code: 152404 **Date: 17-06-2014**

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 properties of magnetic materials.	**07**
	(b)	List the merits of three-phase transformer over the bank of three single-phase transformers. List the necessary conditions for parallel operation of three-phase transformers.	**07**
Q.2	**(a)**	Explain the blocked rotor test of three-phase induction motor.	**07**
	(b)	Explain the analysis of three-phase induction motor fed from non-sinusoidal voltage supply.	**07**
		OR	
	(b)	Explain the Scott connection for three-phase to three-phase transformation.	**07**
Q.3	**(a)**	Explain the double field revolving theory of single-phase induction motor.	**07**
	(b)	Explain the single value capacitor start and run single-phase induction motor.	**07**
		OR	
Q.3	**(a)**	Explain the construction and working of shaded pole induction motor.	**07**
	(b)	Explain the construction and working of single-phase ac series motor.	**07**
Q.4	**(a)**	Explain the principle of operation of three-phase synchronous motor and its working on load keeping the excitation constant.	**07**
	(b)	With the help of vector diagram explain the effect of increased load with constant excitation in three-phase synchronous motor.	**07**
		OR	
Q.4	**(a)**	Derive the equation of power developed by three-phase synchronous motor.	**07**
	(b)	With the help of vector diagram explain the effect of changing excitation on constant load in three-phase synchronous motor.	**07**
Q.5	**(a)**	Explain the construction and working of PMBLDC motor.	**07**
	(b)	Explain the construction and working of variable reluctance stepper motor.	**07**
		OR	
Q.5	**(a)**	Explain the construction and working of SRM.	**07**
	(b)	Explain the linear induction motor and magnetic levitation.	**07**

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