Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – WINTER 2013

Subject Code: 152001 **Date: 27-11-2013**

Subject Name: Electromechanical Energy Conversion

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)**	Draw and explain the approximate equivalent Circuit of an Iron Core Reactor	**07**
	(b)	Explain various types of Magnetic Materials? Also explain the properties of magnetic materials?	**07**
Q.2	**(a)**	State and explain Ampere's and Bio savart's Law	**07**
	(b)	Derive the expression for the magnetic field due to current in the straight wire.	**07**
		OR	
	(b)	Explain various effect of Airgap in Ferromagnetic Circuit.	**07**
Q.3	**(a)**	Write an short notes of Plunger Type Electromagnet	**07**
	(b)	Explain Construction and working of elementary Generator	**07**
		OR	
Q.3	**(a)**	Explain Energy Conversion in 2-ph induction Machine	**07**
	(b)	Explain Reluctance and Hysteresis Motor in Detail	**07**
Q.4	**(a)**	Explain Construction and Working Principal of Synchronous Machine	**07**
	(b)	Explain Magnetizing Characteristics of separately excited D.C Generator	**07**
		OR	
Q.4	**(a)**	State and Explain Coulombs' law for two point charge particles	**07**
	(b)	State Faraday's Law for the theory of electromagnetic induction. Explain Statically induced e.m.f in detail	**07**
Q.5	**(a)**	Explain the methods of starting of single phase induction motor.	**07**
	(b)	Why single phase induction motors are not self starting? explain double field revolving theory in detail with necessary diagram	**07**
		OR	
Q.5	**(a)**	Explain Revolving Field theory in case of three phase induction motor	**07**
	(b)	Draw the Equivalent circuit of three phase induction motor and also obtain the formula to find the formula of rotor and stator resistance and reactance per phase.	**07**

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