

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**
