

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**
