

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**
