

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER– V • EXAMINATION – WINTER 2016**

Subject Code: 150901

Date: 30/11/2016

Subject Name: Electrical Machine - II

Time: 10:30AM – 01:00PM

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 vector diagram, connection diagram and clock representation of Yz1 connection of 3-phase transformer. **07**
- (b) Discuss different methods of speed control of 3-phase Induction motor. **07**
- Q.2** (a) Why we need starters for three phase induction motors? Explain star-delta starter with necessary circuit diagram. **07**
- (b) Describe the construction and working of a double-cage induction motor. **07**
- OR**
- (b) Explain Principle of operation, construction and application of Induction Generator. **07**
- Q.3** (a) Why single phase A.C. motor is not self-started? Explain the application of single-phase A.C.Motor. **07**
- (b) Explain with necessary diagrams how two 1-phase transformer can be used to convert a 3-phase supply to a 2-phase one. **07**
- OR**
- Q.3** (a) Explain the working of on load tap-changer. **07**
- (b) Explain the effect of variation of voltage and supply frequency on the performance parameters of an induction motor. **07**
- Q.4** (a) Briefly explain the phenomenon of Crawling and Cogging in induction motor. **07**
- (b) State and explain the conditions for satisfactory parallel operation of three phase transformers. **07**
- OR**
- Q.4** (a) Explain construction of welding transformer. How does it differ from power transformer. **07**
- (b) Draw the phasor diagram and equivalent circuit of a 3-phase induction motor. **07**
- Q.5** (a) Explain the construction and working principle of Repulsion motor. **07**
- (b) Mention the types of single phase AC motors. Describe the Universal motor in detail. **07**
- OR**
- Q.5** (a) Briefly explain the construction and working of Schrage motor. **07**
- (b) Briefly describe the construction and working of shaded pole single phase AC motor. **07**

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