

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER-II • EXAMINATION – WINTER • 2014

Subject Code: X21101

Date: 26-12-2014

Subject Name: Electrical Engineering

Time: 02:30 pm - 05:00 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) Classify different type of DC generator. Derive EMF equation of DC generator. **07**
(b) Explain different methods for speed control of D.C. shunt motor **07**
- Q.2** (a) Explain necessity of starter for D.C. motor. Discuss three point starter with Appropriate diagram. **07**
(b) Derive the emf equation of the d.c. machine. State clearly the meaning and units of each symbols used. **07**
- OR**
- (b) A D.C. generator delivers 450 Amp. At 230 V and the resistance of the shunt field and armature are 50 ohm and 0.03 ohm respectively. Calculate the generated emf. **07**
- Q.3** (a) Explain working principle and construction of single phase transformer. **07**
(b) Explain the procedure to obtain efficiency and regulation using the direct loading test. **07**
- OR**
- Q.3** (a) Explain torque slip curve of 3 phase induction motor. **07**
(b) Discuss the type of 3 phase induction motor based on the rotor construction and explain its working. **07**
- Q.4** (a) With the help of diagram, explain the operation of capacitor start motor. **07**
(b) Explain construction and working of universal motor. **07**
- OR**
- Q.4** (a) Explain why single phase induction motor is not self started? Explain the starting methods for single phase induction motor in brief. **07**
(b) Explain the operating principle and construction of a shaded pole single phase induction motor. **07**
- Q.5** (a) Explain different types and application of servomotor. **07**
(b) Define Voltage regulation of alternator. State various methods to find voltage regulation and Explain any one method in detail **07**
- OR**
- Q.5** (a) Explain the working principle and applications of synchronous motor. **07**
(b) Explain the comparison between 3 phase induction motor with 3 phase Synchronous motor. **07**
