

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III EXAMINATION – SUMMER 2016

Subject Code:131901**Date:13/06/2016****Subject Name:Electrical Machines and Electronics****Time:10:30 AM to 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 construction and working principle of DC generator. **07**
(b) A three-phase squirrel cage induction motor has a starting torque of 150% and a maximum torque of 300% with respect to rated torque at rated voltage and rated frequency. Neglect the stator resistance and rotational losses. Find the value of slip for maximum torque. **07**
- Q.2** (a) Draw and explain torque speed characteristics of 3-phase induction motor. **07**
(b) Give classification of DC motors with diagrams. **07**
- OR**
- (b) Why starters are used in DC shunt motors? Explain 3-point starter with neat diagram. **07**
- Q.3** (a) Explain the construction features and working principle of single phase transformer. **07**
(b) Explain working of capacitor start capacitor run 1-phase induction motor. **07**
- OR**
- Q.3** (a) State conditions for parallel operation of two alternators. Explain any one method of synchronizing. **07**
(b) Explain construction and working principal of 3-phase induction motor **07**
- Q.4** (a) State and explain conditions for parallel operation of two transformers. **07**
(b) State different methods of pf improvement, explain any one in detail **07**
- OR**
- Q.4** (a) Draw single line diagram of substation. explain main equipment use in it. **07**
(b) State methods of speed control of D.C. shunt motor. Explain any one in detail. **07**
- Q.5** (a) Explain AND, OR, NOT, NAND and NOR logic gates with truth table. **07**
(b) Explain the architecture of 8085 microprocessor. **07**
- OR**
- Q.5** (a) Compare A.C. and D.C. Transmission system in details. **07**
(b) Explain the use of C.T. and P.T. for voltage, current and power measurement. **07**
