

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-III(OLD) • EXAMINATION – WINTER 2016**

**Subject Code:131901****Date:05/01/2017****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 characteristics of d.c. shunt and series motor. **07**  
 (b) Explain construction features of 3-phase induction motor. Compare slip ring induction motor with squirrel cage induction motor. **07**
- Q.2** (a) Explain construction & working principle of 1-phase transformer. **07**  
 (b) Why 1-phase induction is not self start? Explain starting methods of 1-phase induction motor. **07**
- OR**
- (b) Explain parallel operation of alternators. **07**
- Q.3** (a) Explain torque-slip characteristics of 3-phase induction motor. Compare 3-phase induction motor with 1-phase induction motor. **07**  
 (b) Explain A.C. transmission with D.C. transmission system. **07**
- OR**
- Q.3** (a) What is tariff? Explain types of tariff. **07**  
 (b) Explain causes of low power factor. Discuss the disadvantages of low power factor. **07**
- Q.4** (a) What is a substation? Explain classification of substation. **07**  
 (b) Explain equipments which are use in substation with their function. **07**
- OR**
- Q.4** (a) Explain half wave and full wave rectifier circuit. Also compare them. **07**  
 (b) Explain OR gate, AND gate, NAND gate, NOR gate ,NOT gate and EX-OR gate with their truth table. **07**
- Q.5** (a) Explain De-Morgan's theorems. **07**  
 (b) Explain architecture of 8085 microprocessor. **07**
- OR**
- Q.5** (a) Explain methods of power factor improvement. **07**  
 (b) Explain starting methods of 3-phase induction motor. **07**

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