

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM - III EXAMINATION – WINTER 2014

Subject Code: 2130105**Date: 01/01/2015****Subject Name: Electrical Machines and Electronics****Time: 02:30pm – 05:00pm****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)** With the help of a neat diagram explain the operation of a D. C. Generator. **07**
- (b)** Explain working principle of a single phase transformer. Mention its use. **07**
- Q.2 (a)** Armature of a 6pole generator has 120 slots each carrying 60 conductors (lap wound). Flux developed per pole is 0.02 Wb. If rpm of generator is 1000, find emf generated. **07**
- (b)** Explain (any two) of the following terms of a 3phase induction motor : **07**
(i) Cu loss (ii) Iron loss (iii) efficiency
- OR**
- (b)** What is CT and PT? Explain how they are utilized in monitoring electrical parameters of a supply system. **07**
- Q.3 (a)** Compare between Indoor and Outdoor substations. **07**
- (b)** Explain the working principle of a squirrel cage motor. Mention its applications. **07**
- OR**
- Q.3 (a)** State and prove De-Morgan's theorems. **07**
- (b)** Mention the components and their utilization of any substation. **07**
- Q.4 (a)** Give comparison between A.C and D.C power transmission. Which type is mostly used in our country? **07**
- (b)** What is Power Factor? Discuss the effect of low power factor and mention their improvement methods. **07**
- OR**
- Q.4 (a)** Why a starter is necessary in a D.C shunt motor? Draw a neat diagram of a 3point starter (no explanation necessary). **07**
- (b)** What is tariff? Explain how it is determined. **07**
- Q.5 (a)** What are logic gates? Explain the following (any three) : **07**
(i) OR (ii) NOR (iii) AND (iv) NAND
- (b)** Draw a circuit diagram and explain a two stage transistor amplifier. **07**
- OR**
- Q.5 (a)** Draw and briefly mention internal architecture of 8085 microprocessor. **07**
- (b)** What is OP-AMP? Mention its ideal characteristics and used. **07**
