

GUJARAT TECHNOLOGICAL UNIVERSITY**PDDC - SEMESTER-II • EXAMINATION – WINTER 2013****Subject Code: X21901****Date: 20-12-2013****Subject Name: Electrical Machines and Electronics****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) Explain the construction & working principle of Induction Motor. **07**
(b) Explain the principle of operation of DC Motor and derive the equation of output Torque. **07**
- Q.2** (a) What are the advantages and disadvantages of overhead and underground transmission? **07**
(b) Draw the equivalent circuit of transformer. Explain the experiments which can determine these parameters. **07**
- OR**
- (b) Explain the transformer on NO-LOAD with vector diagram. **07**
- Q.3** (a) What are the causes and demerits of low power factor? **07**
(b) Compare A.C and D.C transmission system. **07**
- OR**
- Q.3** (a) Compare outdoor and indoor substation. **07**
(b) Explain different types of D.C generators. **07**
- Q.4** (a) Explain the full-wave rectifier with necessary circuit and wave form. **07**
(b) Explain speed control methods for D.C shunt motor. **07**
- OR**
- Q.4** (a) Discuss and draw the truth table for AND, NAND, OR, NOR and NOT logic gates. **07**
(b) Explain the three phase rotating magnetic field theory for induction motor. **07**
- Q.5** (a) Explain De-Morgan's theorem with equations and diagrams. **07**
(b) Give comparison between D.C and A.C transmission. What are the advantages of high voltage transmission? **07**
- OR**
- Q.5** (a) Which type of losses occurs in d.c.motor? Explain with it suitable diagram. **07**
(b) What is the difference between core type and shell type of transformer? **07**
