

GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012

Subject code: 140902**Date: 28/12/2012****Subject Name: Electrical Power****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Discuss factors for site selection of Thermal power station **07**
(b) Draw neat schematic diagram of hydro power station and label each component. **07**
- Q.2** (a) Discuss advantages and disadvantages of Nuclear power stations **07**
(b) Draw and explain combined cycle power plant **07**
OR
(b) Discuss fully binary cycle solar thermal power plant **07**
- Q.3** (a) Discuss wind turbine unit with battery storage facilities. **07**
(b) Draw and explain generalized cable construction and explain them detail. **07**
OR
- Q.3** (a) Compare overhead transmission line v/s underground transmission line. **07**
(b) Enlist types of insulator and explain any two with neat sketch **07**
- Q.4** (a) Discuss methods of improving power factor **07**
(b) Enlist equipments or components in substation explain the function of each in brief **07**
OR
- Q.4** (a) Explain self GMD and mutual GMD **07**
Q.4 (b) In a three phase line the three conductors are placed at the corners of a triangle of sides 1.5 m, 3m, and 2.6 m respectively. If the diameter of each conductor is 1.4 cm and the conductors are regularly transposed, calculate the inductance/phase/km length of the line. **07**
- Q.5** (a) Give brief note on transposition of conductor **07**
(b) Enumerate types of neutral earthing and explain any one with neat sketch **07**
OR
- Q.5** (a) Discuss types of distributors in dc distribution **07**
(b) Derive from basic consideration expression for capacitance and charging current per km length of a single phase line made of two solid round conductors of radius r metre and spaced at D metres. Neglect ground capacitance **07**
