

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - SEMESTER-III • EXAMINATION – WINTER • 2014

Subject Code: X 30904**Date: 02-01-2015****Subject Name: Electrical Power****Time: 10:30 am - 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 steam Power Station with a schematic diagram. **07**
 (b) Discuss advantages and disadvantages of hydroelectric plant. Compare it with other power plants. **07**
- Q.2** (a) Explain with a neat sketch the various parts of nuclear reactor. **07**
 (b) Describe with help of a neat sketch the working of solar power plant. **07**
- OR**
- (b) Explain the essential factors which influence the choice of site for steam power station. **07**
- Q.3** (a) What is a substation? Explain the classification of substation. **07**
 (b) Explain with schematic arrangement gas turbine power plant. **07**
- OR**
- Q.3** (a) Describe the equipments which are used in substation with their function. **07**
 (b) Explain the combined cycle power plant. **07**
- Q.4** (a) Discuss the merits and demerits of wind energy? Explain wind turbine generator. **07**
 (b) Explain the different types of distribution system with diagram. **07**
- OR**
- Q.4** (a) Explain skin effect, proximity effect and Ferranti effect. **07**
 (b) A consumer draws a 500 KW power steadily at a 0.7 power factor lag for 3000 hours at annum. The tariff is Rs. 1300 per kVA of maximum demand per annum plus Rs 0.80 per kWh. The annual cost of the phase advancing plant is Rs. 150 per kVAR. Find the annual saving if the power factor of load is improved to the value of most economical power factor. **07**
- Q.5** (a) What are the causes of low power factor? Explain the methods of power factor improvement. **07**
 (b) Derive equation for Capacitance of single phase two wire line. **07**
- OR**
- Q.5** (a) Explain following methods of earthing with diagram. **07**
 (i) Voltage transformer earthing (ii) Arc suppression coil earthing
 (b) Describe the types of cables. Compare over head transmission with underground transmission system. **07**
