

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

Subject code: 140904**Date: 31/12/2012****Subject Name: Institute Elective -1 (Energy Systems)****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) What do you mean by conventional and non conventional source of energy? 07
Explain the advantages and disadvantages of them in detail.
- (b) Draw the general layout of steam power station and explain the working of it in brief. 07
- Q.2 (a) Explain the key points to be considered in selecting the site for Hydro Power Station. 07
- (b) Why Electrostatic Dust Collectors (ESP) is provided? Explain the operation of it with necessary diagram. 07
- OR
- (b) Explain the comparison between Steam, Hydro and Nuclear power station with reference to efficiency, maintenance, fuel cost, reliability and life. 07
- Q.3 (a) Explain the grid connected wind energy system in detail. 07
- (b) Define solar radiation. Explain the application of solar energy in brief. 07
- OR
- Q.3 (a) List out the different types of solar collector. Explain the different types of flat plat collectors in brief. 07
- (b) Explain the limitations of wind energy system also explain the effects of wind speed on grid conditions. 07
- Q.4 (a) Explain the working and characteristic of solar photo voltaic system. 07
- (b) Explain the application of solar photo voltaic system to lighting and water pumps. 07
- OR
- Q.4 (a) Explain the advantages and draw backs of solar photo voltaic system. 07
- Q.4 (b) Draw and explain the schematic arrangement of Nuclear power station. 07
- Q.5 (a) Explain the sources and properties of Hydrogen as fuel & also give the application of Hydrogen energy.. 07
- (b) Define fuel cell. Explain the principle and operation of fuel cell technology. 07
- OR
- Q.5 (a) Explain the different types of Ash Handling system with reference to thermal power station. 07
- (b) Give the basic drying parameters and design calculations for solar drier. 07
