

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

Subject code: 161904**Date: 05/01/2013****Subject Name: Alternate Energy Sources****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) Explain construction and working Pyrheliometer with diagram. **07**
(b) What is energy conservation act-2001? Write down few of the salient features of this act. **07**

- Q.2** (a) Explain Open Cycle MHD Power Plant. **07**
(b) Define alternate energy sources. Explain in brief about these energy sources with special reference to Indian scenario. **07**

OR

- (b) Classify wind mills. Explain vertical axis wind turbine (VAWT). **07**

- Q.3** (a) Derive an equation for maximum power, maximum torque and maximum axial thrust available from wind turbine. What is Optimum velocity? **07**
(b) Write a brief note on effect of various parameters on performance of flat plate collectors. **07**

OR

- Q.3** (a) Write down advantages and disadvantages of MHD Power plant system. **07**
(b) Write a short note on vapour dominated hydrothermal system. **07**

- Q.4** (a) Explain construction and working of open cycle OTEC system with the help of schematic diagram. **07**
(b) How bio-gas plants classified? Explain fixed dome type domestic biogas plant. **07**

OR

- Q.4** (a) Write a difference between Conventional steam power plant and Geothermal power plants. **07**
(b) Explain factors affecting in site selection for wind power plant. **07**

- Q.5** (a) Define following terms with necessary figure. **07**
(1) Sunrise/Sunset hour angle (2) Solar tilt angle
(3) Solar altitude angle (4) Declination Angle
(5) Day length (6) Surface azimuth angle
(b) Describe with neat diagram the construction and working of solar pond. **07**

OR

- Q.5** (a) Write a short note on Tidal power plant with double basin system. **07**
(b) What is wave energy? Explain with advantages and disadvantages. **07**
