

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – WINTER 2013****Subject Code: 161904****Date: 06-12-2013****Subject Name: Alternate Energy Sources****Time: 02:30 pm to 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) Define the following terms with necessary sketch. **07**
1.Solar declination angle 2.Hour angle 3.solar Zenith angle 4.Solar incident angle.
- (b) Define Sun rise hour angle, also calculate the day length in Ahmedabad (23° N) on 22nd December and 22nd March. **07**
- Q.2** (a) What is Solar still? Explain Solar still with neat sketch. **07**
(b) List different types of concentrating collector. Explain any one with figure. **07**
- OR**
- (b) Discuss the working of compound parabolic concentrator (CPC) and state its advantages and disadvantages. **07**
- Q.3** (a) Classify wind mills and explain horizontal axis wind mill. **07**
(b) Discuss various factors for site selection to establish wind power plant. **07**
- OR**
- Q.3** (a) Explain fixed dome type domestic biogas plant with neat sketch. **07**
(b) What is MHD? What are the various types of it? Explain any one of them. **07**
- Q.4** (a) Explain principle open cycle OTEC system with suitable diagram. **07**
(b) What are the advantages and disadvantages of Geothermal energy forms? **07**
- OR**
- Q.4** (a) Write short note on : Tidal power plant with double basin system. **07**
(b) Explain briefly construction and working of sun shine recorder. **07**
- Q.5** (a) What are the co-general plants? Explain the different between bottoming and topping cycle **07**
(b) Describe with neat sketch 'solar water heater. **07**
- OR**
- Q.5** (a) Explain about Phosphoric Acid Fuel Cell(PAFC). **07**
(b) Discuss Hydrogen as alternative fuel for motor vehicle. **07**
