

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV • EXAMINATION – SUMMER 2013****Subject Code: 141904****Date: 17-06-2013****Subject Name: Non-Conventional Energy Sources****Time: 10:30am – 01:00pm****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 term 'Solar Constant'. Explain the variation of solar constant with the time of the year. **07**
- (b) Describe advantages and disadvantages of Wind Energy. **07**
- Q.2** (a) Define the following terms. **07**
(i) Air Mass (ii) Global Radiation (iii) Diffuse Radiation.
- (b) Calculate the day length on 1st April, 2013 at Ahmedabad. **07**
- OR**
- (b) Explain the following terms in context to Solar Flat Plate Collectors. **07**
(i) Aperture Area (ii) Stagnation Temperature
- Q.3** (a) Explain construction and working of Basin Type Solar Still with neat figure. **07**
- (b) Discuss the methods of site selection for installing wind mill. **07**
- OR**
- Q.3** (a) Explain construction and working of Fixed Dome Type Biomass Plant with neat figure. **07**
- (b) Describe the suitability of Biogas for Petrol engines. **07**
- Q.4** (a) Describe the advantages and disadvantages of Geothermal Energy sources. **07**
- (b) Explain working of Double Basin Tidal Power Plant with figure. Also write advantages of it. **07**
- OR**
- Q.4** (a) Describe about Oscillating water column wave energy conversion system with figure. **07**
- (b) Explain working of open cycle MHD power plant with necessary figure. **07**
- Q.5** (a) Describe the principle of operation of Hydrox fuel cell with neat sketch. **07**
- (b) Write applications of Hydrogen energy. **07**
- OR**
- Q.5** (a) Write briefly about the Strategy for Energy conservation. **07**
- (b) Explain about thermo chemical conversion of biomass. **07**
