

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014

Subject Code: 161904**Date: 28-05-2014****Subject Name: Alternate Energy Sources****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) What do you mean by primary and secondary energy sources? What are the prospects of non conventional energy sources in India? **07**
(b) Explain following terms: - Energy conservation, Energy management, energy audit, energy efficiency, energy security. **07**
- Q.2** (a) How are the concentrating collectors classified? With neat sketch explain construction and working of any one. **07**
(b) Write brief note on Performance Characteristic of Wind machine. **07**
- OR**
- (b) Define the following terms: solar constant, air mass, solar declination, zenith angle, day length, local solar time, solar altitude angle. **07**
- Q.3** (a) Explain in detail site selection criteria for biogas plant and list digester design consideration. **07**
(b) List advantages and disadvantages of Geothermal energy as compared to Wind and Solar energy. **07**
- OR**
- Q.3** (a) How are biomass gasifiers classified? With a neat sketch explain any one. **07**
(b) List application and prospects of geothermal energy with reference to Indian context. **07**
- Q.4** (a) Derive an expression of energy and power in simple single basin tidal power plant. **07**
(b) Describe the closed cycle O.T.E.C. system with its advantages over open cycle system. **07**
- OR**
- Q.4** (a) Explain the following wave energy conversion devices with neat sketches: Float wave energy conversion device, dolphin type wave generator. **07**
(b) Explain how a selection criterion of heat exchangers is done in O.T.E.C. system. **07**
- Q.5** (a) Write brief note on M.H.D. design problems and developments. **07**
(b) Draw neat labeled sketch only of the following : **07**
(i) K.V.I.C. digester (ii) Sunshine recorder (iii) Pyranometer.
- OR**
- Q.5** (a) Explain following terms pertaining to MHD system: **07**
(i) Seeding (ii) Super conductivity (iii) Gas conductivity
(b) Draw neat labeled sketch only of the following : **07**
(i) Solar still (ii) Solar cooker (iii) Solar dryer.
