

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – WINTER • 2014****Subject Code: 161904****Date: 05-12-2014****Subject Name: Alternate Energy Sources****Time: 02:30 pm - 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) What is meant by renewable energy sources? What are the prospects of non-conventional energy sources in India? **07**
- (b) Define terms: Altitude angle, Incident angle, Zenith angle, Solar Azimuth angle, latitude angle, Declination angle, Hour Angle **07**
- Q.2** (a) Write a short note on Darrius rotor. **07**
- (b) What is the basic principle of ocean thermal energy conversion (OTEC)? **07**
- OR**
- (b) Describe the 'closed cycle' OTEC system, write its advantages over 'open cycle' system. **07**
- Q.3** (a) How MHD systems are classified? Describe them in brief. **07**
- (b) What are the advantages and limitations of wave energy conversion? **07**
- OR**
- Q.3** (a) Define solar constant. What is the difference between a Pyrheliometer and a Pyranometer? **07**
- (b) Explain energy conservation and energy audit. **07**
- Q.4** (a) What are the main applications of a solar pond? Describe briefly. **07**
- (b) Explain the constructional detail and working of KVIC digester. **07**
- OR**
- Q.4** (a) How are gasifiers classified? What is pyrolysis? What are the potential applications of the gasifier? **07**
- (b) What are the difficulties in tidal power developments? **07**
- Q.5** (a) Classify combined cycle power generation. Explain any one in brief with neat sketch. **07**
- (b) Describe in brief, the different energy storage methods used in the solar system. **07**
- OR**
- Q.5** (a) Define geothermal source. Classify and explain geothermal sources. **07**
- (b) Describe a binary cycle system for liquid dominated system. **07**
