

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-IV • EXAMINATION – SUMMER • 2014**

**Subject Code: 141904****Date: 25-06-2014****Subject Name: Non-Conventional 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 are the advantages and limitations of renewable energy sources? **07**  
 (b) How solar energy is used for drying purpose? Explain with direct type with forced convection type solar dryers. **07**
- Q.2** (a) Classify the solar collectors and write on principle, construction and working of liquid flat collector. **07**  
 (b) How solar pond utilizes the solar energy? **07**
- OR**
- (b) Define: solar constant, beam radiation, global radiation, diffuse radiation **07**
- Q.3** (a) Classify the OTEC power plants and explain closed cycle OTEC system with its advantages over open cycle system. **07**  
 (b) Discuss in details about the factors which affect the biogas production. **07**
- OR**
- Q.3** (a) Write on construction and working of a floating drum type KVIC biogas plant with the help of neat sketch. **07**  
 (b) Discuss on power duration and velocity duration characteristics of a wind with neat sketch. **07**
- Q.4** (a) Write on advantages and disadvantages of wind energy conversion system over other renewable energy conversion system. **07**  
 (b) Write on working of MHD system with neat sketch. **07**
- OR**
- Q.4** (a) Discuss on various factors for site selection of wind power plant. **07**  
 (b) Write on working of double basin tidal power generation system with neat sketch. **07**
- Q.5** (a) How fuel cells are classified? Explain about Phosphoric Acid Fuel Cell. **07**  
 (b) Which are the different types of geothermal resources available in the globe? Which are the merits and demerits of geothermal energy? **07**
- OR**
- Q.5** (a) Write on energy economics, energy audit and energy planning. **07**  
 (b) Explain power in ocean wave. Enlist the various wave energy converters? Write advantages and disadvantages of wave energy. **07**

\*\*\*\*\*