

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016**

**Subject Code: 170505****Date: 18/11/2016****Subject Name: Energy Technology ( Department Elective-I )****Time: 10:30 AM to 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) Classify different types of renewable energy sources. **06**  
 (b) Differentiate between: **08**  
 (i) Proximate and Ultimate analysis of coal.  
 (ii) Nuclear fusion and nuclear fission.
- Q.2** (a) Explain in details the functioning of a wind turbine. **07**  
 (b) What is fuel cell? List the different types of fuel cells and their applications. **07**  
**OR**  
 (b) Explain the process of collecting solar energy. Explain any one type of solar collectors in detail. **07**
- Q.3** (a) Describe various methods of coal washing. **07**  
 (b) Discuss various factors that affect the generation of biogas. **07**  
**OR**
- Q.3** (a) Classify different types of coal and their applications. **07**  
 (b) Explain the principle and working of hydrogen – oxygen fuel cell. **07**
- Q.4** (a) Explain Magneto Hydro-Dynamic (MHD) Power Generation in detail. **07**  
 (b) What is geothermal energy? List various types of geothermal energy resources. **07**  
**OR**
- Q.4** (a) Explain operation of tidal power plants with various component details. **07**  
 (b) Describe fossil fuel methods for production of hydrogen. **07**
- Q.5** (a) Write short note on: **08**  
 (i) energy audit and its importance  
 (ii) energy plantation.  
 (b) What are the problems associated with nuclear waste disposal? **06**  
**OR**
- Q.5** (a) Write short note on: **08**  
 (i) calorific value of fuel.  
 (ii) Fast breeder reactor.  
 (b) Write a short note on design of biogas plant. **06**