

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(OLD) • EXAMINATION – WINTER 2016

Subject Code:141904

Date:24/11/2016

Subject Name: Non – Conventional Energy Sources

Time:02:30 PM to 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) Explain need for alternate energy sources. State advantages and disadvantages of non conventional energy sources. **07**
- (b) Which instruments are used for solar radiation measurements? Explain construction and working of pyrheliometer. **07**
- Q.2** (a) Classify different types of solar thermal collectors and show the constructional details of a flat plate collector. **07**
- (b) What is the solar still? Explain it in detail with sketch. **07**
- OR**
- (b) Calculate the number of daylight hours in Delhi on 22 December 1995. Take latitude= $28^{\circ}35' N$. **07**
- Q.3** (a) List advantages and disadvantages of wind energy conversion system. Explain main applications of wind power. **07**
- (b) Describe the working of a floating drum type KVIC biogas plant with the help of neat sketch. **07**
- OR**
- Q.3** (a) State the different types of geothermal energy resources. Explain the hot dry rock geothermal resource and their utilizations. **07**
- (b) Discuss the factors affecting the biogas production in details. **07**
- Q.4** (a) Explain the principle of open cycle OTEC system with suitable diagram. **07**
- (b) State different types of wave energy conversion devices and explain any one. **07**
- OR**
- Q.4** (a) State MHD principal. Explain open MHD plant with neat sketch. **07**
- (b) Give advantages and disadvantages of MHD power generation. **07**
- Q.5** (a) Explain in brief: Scope of alternate energy sources in India. **07**
- (b) What are the basic sources of waste heat? How it utilized to increase the energy economic? **07**
- OR**
- Q.5** (a) Discuss briefly hydrogen as alternative fuel for vehicle. **07**
- (b) Write hydrogen production methods and explain any one in details. **07**
