

GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER-IV • EXAMINATION – SUMMER 2015

Subject Code: 742101**Date: 01/05/2015****Subject Name: Non-Conventional Energy Conversion Systems****Time: 2:30 pm to 5:00 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) Define seven solar angles. **07**
(b) Explain three stages of anaerobic digestion. Give effect of P^H , temperature and carbon to nitrogen ratio on biogas production. **07**
- Q.2** (a) Explain principle of MHD power generation. Draw line diagram of closed cycle MHD. **07**
(b) Explain storage and transportation of Hydrogen. **07**
OR
(b) Explain hydrogen as alternative fuel for vehicles. **07**
- Q.3** (a) Explain analysis of thermo-electric materials and their selections. **07**
(b) Write short note on solar radiation measurement. **07**
OR
- Q.3** (a) Explain the term solar constant. Explain estimation of average solar radiation. **07**
(b) Draw neat sketch of horizontal wind electric generating mill. Give the function of different components. **07**
- Q.4** (a) Enlist solar energy applications. Draw neat sketch of solar cell. **07**
(b) Explain solar collectors in brief. **07**
OR
- Q.4** (a) Discuss the scope of renewable energy utilization in India. **07**
(b) Discuss the factors affecting site selection of wind mills. **07**
- Q.5** (a) Explain principle of operation and design consideration of fuel cells. **07**
(b) Explain thermo electric power generation. Explain different thermo electric effects. **07**
OR
- Q.5** (a) Explain thermionic generator with its analysis. **07**
(b) What is biogas? Name different biogasifiers. Explain working of any one. **07**
