

Code: EE8T1

IV B.Tech-II Semester–Regular/Supplementary Examinations–April 2017

**NONCONVENTIONAL ENERGY SOURCES
(ELECTRICAL & ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) What is Solar Constant? Discuss various instruments for measuring solar radiation. 7 M
- b) Compare and contrast extraterrestrial and terrestrial solar radiation. 7 M
2. a) Discuss various types of flat plate & concentrating collectors of solar energy. 7 M
- b) Discuss methods of orientation of the solar energy collectors. 7 M
3. a) Compare and contrast latent heat and sensible heat storage methods of solar energy. 7 M
- b) Discuss how solar energy can be used to produce cooling. 7 M

4. a) Compare the poly crystalline and Amorphous silicon solar Cells. 7 M
- b) Discuss how an array of solar panels is tested for faults. 7 M
5. a) Discuss various types of wind turbines. 7 M
- b) What is a Betz criterion? 7 M
6. a) Discuss the construction of various types of bio-gas Reactors. 7 M
- b) Discuss the Anaerobic / aerobic digestion. 7 M
7. a) Describe various methods of extracting energy from Geothermal sources of energy. 7 M
- b) Discuss with neat diagram the process of ocean thermal energy conversion (OTEC). 7 M
8. a) Describe the working of MHD power generation systems. 7 M
- b) Discuss the merits and demerits of different types of fuel cells. 7 M