

B.Tech III Year II Semester (R13) Supplementary Examinations December 2016

NON CONVENTIONAL SOURCES OF ENERGY

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

PART - A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What are the instruments used for measuring solar radiation?
 - (b) How to classify renewable energy sources?
 - (c) What are concentrating collector?
 - (d) What are flat plate solar energy collectors?
 - (e) What is the problem with salt hydrates for solar energy storage?
 - (f) What is the maximum energy that can be extracted from a wind steam?
 - (g) What are the various problems and constraints for biogas developments?
 - (h) How can geothermal energy be used?
 - (i) What are the possible environmental effects as a result of an operation of OTEC plant?
 - (j) What is DEC? What is the need for DEC?

PART - B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2 Discuss the construction and working of a pyranometer with neat sketches.
- OR**
- 3 Discuss the use of sunshine recorder to measure the duration of bright sunshine.

UNIT - II

- 4 How to classify concentrating collector? Discuss the orientation of a flat plat collector to get the maximum output.
- OR**
- 5 Discuss a method for solar collector performance testing.

UNIT - III

- 6 Discuss the wind characteristics, performance and limitations of energy conversion system.
- OR**
- 7 What are the various methods to store solar energy? Discuss in detail any two processes.

UNIT - IV

- 8 Discuss in-detail how the bio-mass is converted into electrical energy.
- OR**
- 9 Explain with the neat sketch, the working of geothermal power plants. How the environment is affected due to operation of these plants?

UNIT - V

- 10 Explain the following:
- (a) Working of fuel cell.
 - (b) Technology used for ocean thermal energy conversion.
- 11 What is MHD power plant? Discuss the principle and working of MHD power plant.
