Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ME) (E-I 2011 Onwards) (Sem.–6)

NON CONVENTIONAL ENERGY RESOURCES

Subject Code : DE/ME-1.3

Paper ID : [A2404]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Answer briefly :

a) What do you mean by renewable energy resources?

b) Define attenuation.

c) Distinguish between beam and diffuse radiation.

d) *"Solar photovoltaic power generation is not commercially viable"*. Comment on this statement.

e) Explain the principle of wind energy.

f) State the merits of wind energy.

g) List the limitations of geothermal energy.

h) What is the function of a magnetic hydrodynamic generator?

i) What is bio-mass? Give examples.

j) Distinguish between tidal and wave energy.

SECTION-B

2. Briefly discuss the need of non-conventional energy resources for the future power needs of India.

3. Describe the principle and working of a solar pond with neat sketch.

4. Give the detailed classification of wind machine. Explain anyone type of wind machine with neat sketch.

5. Explain the principle and working of a Magnetic Hydrodynamic Generator with the help of neat sketch.

6. What is a direct energy conversion system? Explain the working of thermionic converter with a neat sketch.

SECTION-C

7. a) Define solar constant. What are the reasons for variation in solar radiation reaching the earth than received at the outside of atmosphere?

   b) Describe in brief, the different energy storage methods used in the solar system.

8. a) Explain the working of fuel cell and their applications.

   b) Explain anyone type of biogas plant with neat sketch.

9. Write brief notes on the following :

   a) Single basin and double basin tidal power plants.

   b) Economic aspects of various direct energy conversion systems.