PVP 14

Code: ME7T4D

IV B.Tech - I Semester – Regular Examinations – October 2017

ALTERNATIVE SOURCES OF ENERGY
(MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11x 2 = 22 M

1. a) List any four limitations of renewable energy resources.
   b) Define the terms solar constant and declination angle.
   c) Give two applications of solar heating and cooling.
   d) What is the effect of Intensity of solar radiation on efficiency of solar collector?
   e) List the advantages tracking systems.
   f) Define lift coefficients of wind turbine.
   g) What are the parameters which effects the biogas generation.
   h) Mention the different types of geothermal energy Sources.
   i) List out the various energy extraction technologies used with hydrothermal resources?
   j) Explain the principle of thermo electric effect.
   k) Types of fuel cell.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks. 3 x 16 = 48 M

2. a) Discuss briefly the estimation of average solar radiation. 8 M

   b) With neat Sketch explain the Working principle of Pyreheliometer. 8 M

3. a) Explain briefly about the performance characteristics of liquid Flat plate collector. 8 M

   b) With neat Sketch explain the working principle of Linear Fresnel lens focusing type of collectors. 8 M

4. a) Give the detailed classification of wind turbines. 8 M

   b) Discuss various components of vertical axis wind mill with neat sketch. 8 M

5. a) Explain the working principle of batch type of bio digester plant with neat sketch. 8 M

   b) With neat sketch explain double basin tidal energy power plant. 8 M

6. a) Define “faradays law” and explain give the variation between conventional and MHD generator. 8 M

   b) Discuss advantages and disadvantages of Thermo-electric power generation. 8 M