PVP 14

Code: ME7T4D

IV B.Tech - I Semester – Regular/Supplementary Examinations
October – 2018

ALTERNATIVE SOURCES OF ENERGY
(MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks
11 x 2 = 22 M

1.

a) Discuss briefly about the limitations of renewable energy sources.
b) Distinguish between flat plate and concentrating collectors.
c) Define photo voltaic effect.
d) List out the various components present in a wind turbine.
e) What are the main applications of geothermal energy?
f) Explain the combustion characteristics of bio gas.
g) Write the disadvantages of fuel cells.
h) Explain the principles of Direct energy conversion.
i) Write a short note on types of basins used in tidal energy.
j) Define Betz criteria.
k) Explain the principle of solar pond.

PART – B

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

2. a) Define the terms: Hour angle, Declination, Zenith angle and Solar Azimuth angle. 8 M

   b) Explain working of solar heating and water heating with neat line diagram. 8 M

3. a) Give classification of wind turbines and explain horizontal axis wind turbines. 8 M

   b) Explain the working of bio gas plants with schematic diagram. 8 M

4. a) What are the different sources of geothermal energy? Describe them in brief. 8 M

   b) Explain the working principle of open cycle and closed cycle OTEC systems with suitable. 8 M

5. a) Explain the working of PEM fuel cell with neat sketch . 8 M

   b) Explain the working of oscillating water column type wave energy power generation. 8 M

6. a) With the help of neat sketch explain working of MHD generators. 8 M

b) How would you summarize the principle and working of PFAC? 8 M