

Roll No.

Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(Pow Engg.) (E-III) (Sem.-3)
NON-CONVENTIONAL ENERGY SOURCES
Subject Code : PEE-521
Paper ID : [E0494]

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

- 1) What are the prospects of Renewable Energy Sources in India? Discuss in detail, the classification of Energy Sources. Compare the performance of Renewable Energy Systems with that of Conventional Energy Systems.
- 2) a) What are the reasons for variation in solar radiation reaching the earth than received at the outside of the atmosphere? Also, define the following terms: solar constant, tilt angle and solar pond.
b) Enumerate the different types of concentrating type collectors. Describe a collector used in power plant for generation of electrical energy.
- 3) Discuss with the help of block diagrams, the working of WEC systems using synchronous generator and induction generator.
- 4) Discuss the principles of working of MHD systems. Also, describe the constructional details and working of an open cycle MHD system.
- 5) Discuss the operating principle of a thermo-electric generator. Discuss the constructional details of a multi-stage thermo-electric generator. How is it different from a single stage thermo-electric generator?
- 6) Discuss about the working, construction and applications of a Redox cell.
- 7) Clearly, explain about the Seebeck Effect, Peltier effect and Thomson effect. Also, discuss about the application areas of these effects.
- 8) Write short notes on the following :
 - a) Biomass Conversion Technologies.
 - b) Site selection considerations for WEC systems.
 - c) Carbon footprint from energy sources.
 - d) Biomass as a source of energy .