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10EE836

Eighth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Renewable Energy Sources

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. Explain clearly Energy Consumption concern with Indian Energy Scenario. (10 Marks)
 b. Explain why it is necessary to develop non – conventional method of generating Electrical energy. (10 Marks)
- 2 a. Explain briefly about the Solar Radiation on Tilted Surfaces. (06 Marks)
 b. Define and explain the following terms with respect to Solar Radiation :
 i) Direct and Diffused Radiation ii) Declination iii) Solar Constant. (06 Marks)
 c. Calculate the angle made by beam radiation with the normal to a flat collector on December 1 at 9.00 AM. Solar time for location at 28° 35' N. The collector is tilted at an angle of latitude plus 10°, with the horizontal and is pointing due south. (08 Marks)
- 3 a. What are the main components of a flat plate collector? (08 Marks)
 b. What is Solar Still? Explain working of a Solar still. (06 Marks)
 c. State the advantages and disadvantages of concentrating collectors over Flat plate collectors. (06 Marks)
- 4 a. Explain with a neat block diagram of a Photo – Voltaic system for Electrical Power Generation. (10 Marks)
 b. State the applications, advantages and limitations of Photovoltaic System. (10 Marks)

PART – B

- 5 a. What is the basic principle of Wind Energy Conversion System? Derive an expression for power in the wind. (10 Marks)
 b. Describe with a neat block diagram about the workings of a Wind Energy Conversion System (WECS) with their main components. (10 Marks)
- 6 a. Explain the process of Biogas Generation Technology. Explain briefly about the main factors affecting the production of biogas power generation system. (10 Marks)
 b. With a neat sketch, explain KVIC Biogas plant and write its advantages and limitations. (10 Marks)
- 7 a. Explain the Basic principle of Tidal Power Generation. (10 Marks)
 b. With a neat sketch, explain the working principle of Closed – Cycle Ocean Thermal Energy Conversion System. (10 Marks)
- 8 Explain with a neat block diagram of following Energy Conversion Systems with their advantages and disadvantages :
 a. Fuel cell. (10 Marks)
 b. Wave Energy Conversion system. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.