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06EE843

Eighth Semester B.E. Degree Examination, June 2012
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. List the differences between renewable and non – renewable energy sources. **(08 Marks)**
b. What are the advantages and limitations of renewable energy sources? **(06 Marks)**
c. Explain briefly the Indian Energy Scenario. **(06 Marks)**

2 a. With a neat diagram, explain the working principle of pyranometer used for measuring global radiation. **(08 Marks)**
b. Define the following terms related to solar radiation geometry : **(12 Marks)**
i) Declination ii) Hour angle iii) Local solar time iv) Solar constant.

3 a. With a neat diagram, explain the working principle of solar water heater. **(08 Marks)**
b. With a neat diagram, explain the working principle of solar still and solar cooker. **(12 Marks)**

4 a. Explain clearly the advantages and disadvantages of concentrating collector over flat plate collectors. **(10 Marks)**
b. With a neat diagram, explain the solar water pumping system. **(10 Marks)**

PART – B

5 a. With a block diagram, explain the basic components of wind energy conversion system. **(10 Marks)**
b. Derive an expression for power in the wind. **(10 Marks)**

6 a. With a neat diagram, explain the working principle of biogas plant. **(10 Marks)**
b. List and explain the factors affecting biogas generation. **(10 Marks)**

7 a. With a neat diagram, explain the principle of tidal power. **(10 Marks)**
b. With a neat diagram, explain the principle of ocean thermal energy conversion system. **(10 Marks)**

8 Write short notes on the following :
a. Wave energy.
b. Wind energy.
c. Solar cell fundamentals.
d. Fuel cell. **(20 Marks)**

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