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Eighth Semester B.E. Degree Examination, May/June 2010
Renewable Energy Sources

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. Describe briefly the conventional and non-conventional energy sources. (10 Marks)
b. What are the advantages and limitations of renewable energy sources? Explain the prospects on non-conventional energy sources in India. (10 Marks)
- 2 a. What is the difference between a pyrheliometer and pyranometer? Describe the principle of Angstrom type pyrheliometer. (10 Marks)
b. Define the terms: i) Altitude angle ii) Zenith angle iii) Declination angle. (06 Marks)
c. Calculate the sunset hour angle and day length at location latitude of 35°N on February 14th. (04 Marks)
- 3 a. State the advantages and disadvantages of concentrated collector over flat plate collector. (04 Marks)
b. What are the main components of a flat plate solar collector? Explain the function of each. (10 Marks)
c. Classify solar energy storage systems. Describe in brief any one of the different storage systems. (06 Marks)
- 4 a. With the help of a neat diagram, explain the construction and working principle of a solar pond. (10 Marks)
b. With a neat sketch, describe the construction and operation of a solar cooker. (06 Marks)
c. What are the major advantages and disadvantages of solar PV system? (04 Marks)

PART – B

- 5 a. Classify the wind energy conversion systems. (04 Marks)
b. With a suitable block diagram, explain the functions of different components of WECS. (10 Marks)
c. State and briefly explain the factors that determine the output power from wind energy. (06 Marks)
- 6 a. With a suitable diagram, explain the working of Janatha model fixed dome digester. (10 Marks)
b. Define biomass. Give a descriptive classification of biomass resources. (05 Marks)
c. Describe the process of biogas generation. List the factors affecting the generation of gas. (05 Marks)
- 7 a. With a suitable diagram, explain open cycle OTEC system for ocean thermal energy. (10 Marks)
b. Explain the working of single basin tidal power plant. (10 Marks)
- 8 a. Describe the classification of fuel cells. (05 Marks)
b. Explain the principle of operation of an alkaline fuel cell. (08 Marks)
c. Explain various methods of production of hydrogen for use as energy carrier. (07 Marks)

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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.