

B.Tech Degree VIII Semester Examination April 2012

EE 804 (B) RENEWABLE SOURCES OF ENERGY (2006 Scheme)

Time : 3 Hours

Maximum Marks : 100

PART A

(Answer ALL questions)

(8 x 5 = 40)

- I. (a) Discuss the causes and effects of global warming.
(b) List and explain the main components in a solar thermal collector.
(c) Explain with a block diagram, the process of photovoltaic conversion system.
(d) Discuss the various materials used for solar cell production.
(e) Compare the Savonius and Darriens types of rotors used in vertical axis wind turbines.
(f) Discuss the advantages and disadvantages of wave energy.
(g) List out the main applications of fuel cells.
(h) Explain the principle of MHD power generation.

PART

(4 x 15 =60)

- II. (a) Distinguish between renewable and non-renewable energy sources with examples. (6)
(b) Discuss the operation of absorption refrigerator. How is it different from compressor refrigerator? (9)

OR

- III. (a) Explain the working of flat plate collectors for solar water heaters. How can its performance be enhanced? (9)
(b) Write briefly on thermal storage. (6)

- IV. (a) Draw and explain the equivalent circuit and V-I characteristics of a silicon PV cell. (9)
(b) Explain the terms beam radiation, diffuse radiation and total radiation. (6)

OR

- V. Explain with necessary illustrations the two different types of instruments used for solar radiation measurement. (15)

- VI. (a) Explain the basic components of a wind energy conversion system (WECS). (9)
(b) Discuss the wave energy conversion by floats. (6)

OR

- VII. (a) Distinguish between horizontal axis and vertical axis wind turbines. (9)
(b) Discuss the site selection criteria for wind power plant installation. (6)

- VIII. Explain the different biomass conversion technologies. (15)

OR

- IX. Distinguish between open cycle and closed cycle ocean thermal energy conversion systems. (15)