Code No: H4305/R13

M. Tech. II Semester Regular/ Supplementary Examinations, July-2016

RENEWABLE ENERGY SYSTEMS

(Common to PE, P & ID, PE & ED, PE & D and EM & D)

Time: 3 Hours   **Max. Marks: 60**

Answer any FIVE Questions
All Questions Carry Equal Marks

1. a Illustrate Basic elements of solar water heater and differentiate natural circulation, forced circulation heaters with necessary diagrams.   6
   b List out instruments for measuring different radiation parameters and explain any two instruments used for measuring the intensity of direct solar radiation at normal incidence.   6

2. a Derive equation of power in wind and explain variation of wind with height and time.   6
   b Determine the average value of solar radiation in MKS units on a horizontal surface for October 18, at the latitude of 10^0N,if constants a and b are given as equal to 0.60 and 0.53 respectively, and ratio $\frac{\bar{n}}{N}$ =0.55   6

3. a Explain elaborately about Wind Energy Conversion System with neat diagram.   6
   b Mention clearly about Rotor design considerations of wind turbines.   6

4. a Discuss about biochemical and agrochemical systems with neat diagrams.   6
   b Explain about Ethanol production process and its applications.   6

5. a Define Lambert's law of absorption and explain OTEC Principle.   6
   b Explain thermo chemical process with suitable examples.   6

6. a Explain about Open cycle and closed cycle OTEC plants with neat diagrams.   6
   b Explain any two wave energyconversion devices with neat diagrams.   6

7. a Define geothermal energy and explain its power generation process with neat diagrams.   6
   b Explain about dry rock and hot aquifer energy analysis.   6

8. a Explain any three solar energy applications with diagrams.   6
   b Explain about anaerobic digestion for biogas.   6

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