

R17

Code No: 5402AZ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M. Tech I Semester Examinations, January - 2018

RENEWABLE ENERGY SYSTEMS

(Common to AMS, CAD/CAM, CN&IS, CSE, DFM, DECS, DSCE, ES, ED, EE, HVAC, HE, MD, MWRE, SE, TE, VLSI System Design, WMC)

Time: 3hrs

Max.Marks:75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

5 × 5 Marks = 25

- 1.a) Define diffused and global radiation. Explain the importance of solar energy in the present day energy crisis. [5]
- b) What is the principle of MHD Generation? What are the advantages and disadvantages of wind energy system? [5]
- c) What are the basic differences between tidal-range power plant and tidal-current power plant? [5]
- d) Classify the geothermal sources? Mention some organic materials used in bio-mass plant? [5]
- e) Illustrate about the description of batteries in brief. [5]

PART - B

5 × 10 Marks = 50

2. What are the advantages and disadvantages of PV solar energy conversion? [10]
- OR**
3. Write short notes on:
a) Solar pumping b) Solar Cooking c) Solar arrays. [10]
4. Explain the generator performance of ideal MHD with necessary equations. [10]
- OR**
- 5.a) List out the differences between horizontal and vertical axis windmills.
b) Derive that the maximum power that can be extracted from a horizontal axis wind turbine is only 59.5%. [5+5]
6. How does OTEC power potential vary with the temperature difference of surface and deep water? [10]
- OR**
7. What are the properties of waves and power content? Explain in detail. [10]
 8. Explain how thermo electric energy conversion takes place in geothermal energy. [10]
- OR**
9. Briefly discuss the pollution generated by coal and explain its preventive measures. [10]

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10. Explain about various fuel cells and its applications.

[10]

OR

11.a) Explain the working principle of batteries.

b) Explain the various types of batteries.

[5+5]

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