R18

Code No: 157DN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, February/March - 2022
RENEWABLE ENERGY SOURCES
(Common to ME, MCT)

Time: 3 Hours **Max. Marks: 75**

Answer Any Five Questions
All Questions carry equal marks
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1.a) Analyze the potential of Renewable energy sources with reference to India.
b) Are renewable energy sources are clean energy sources? Analyze. [8+7]

2.a) How are electricity produced in different parts of our globe? What kind of energy sources are utilized maximum for this? Why?
b) Give examples for Conventional and Non-Conventional and Renewable and Non-Renewable energy sources. [7+8]

3.a) Compare and Contrast between Flat panel collectors and concentrating collectors.
b) Derive an expression for efficiency and power production by PV cell. Explain the various factors that affect the performance of cell. [8+7]

4.a) Calculate the i) Zenith angle and ii) Solar azimuth angle for a place with latitude 22^0 at 11.00 AM solar time on December 31.
b) Explain the working of a Solar furnace with the help of a neat sketch. [7+8]

5.a) Discuss the prospects and status of wind energy in India.
b) Give a brief description on types of wind turbines. [8+7]

6.a) Find the tip – speed ratio if a 10m diameter rotor has rotation of 15 rpm and the wind speed is 5m/s. What is the implication of tip speed ratio?
b) Find the maximum power output of a turbine if wind speed is 15 m/sec, air density as 1.5 Kg/m^3 and rotor diameter as 75m. [8+7]

7.a) Analyze the advantages of floating drum over fixed dome bio gas plant.
b) Design a biogas plant for a small community comprising 500 people and write its strength and weakness. [8+7]

8.a) How the site for a tidal energy has been selected? Explain.
b) Explain how the electric power is generated from hydro Power with necessary equations. [8+7]

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