

R16

Code No: 138GW

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, July - 2021

RENEWABLE ENERGY SOURCES

(Common to CE, ME, ECE, MMT)

Time: 3 hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

1.a) Classify the renewable energy resources. What are the factors affecting energy resource development?

b) Discuss the global and Indian renewable energy usage and availability. [8+7]

2.a) What are the primary and secondary energy sources?

b) Discuss briefly the prospects of non-conventional energy sources in India. [7+8]

3.a) Define: (i) Direct radiation (ii) Diffuse radiation (iii) Solar constant (iv) Zenith angle (v) Altitude angle.

b) Classify the instruments used for measurement of solar radiation and discuss in brief. [7+8]

4.a) Describe with a neat sketch the working of wind energy conversion system with main components.

b) Explain how to locate the potential sites for establishing a wind farm. [8+7]

5.a) With a neat sketch explain the types of wind turbines.

b) What is the Betz limit and how is it applied to wind turbines? [8+7]

6.a) Explain with a neat sketch the working of thermo chemical conversion of biomass.

b) Discuss the possible energy conversion routes and products from biomass. [8+7]

7.a) Explain with a neat sketch the working of anaerobic digestion process.

b) Explain the advantages and uses of Biogas. [8+7]

8.a) Explain the principle of ocean thermal energy conversion (OTEC).

b) Distinguish between single basin and double basin arrangement for generation of electricity from tidal energy. [7+8]

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