

Code No: 158DR

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech IV Year II Semester Examinations, July/August - 2022

NON-CONVENTIONAL SOURCES OF ENERGY

(Common to CE, ECE, MMT, MIE, PTM)

Time: 3 Hours

Max.Marks:75

**Answer any five questions
All questions carry equal marks**

- 1.a) What are primary and secondary energy sources, explain them briefly.
b) What is extra-terrestrial, terrestrial solar radiation? Explain. [7+8]
2. Define solar constant? What are the reasons for variation in solar radiation reaching the earth than received at the outside of the atmosphere? [15]
3. Define the following terms with suitable sketches.
a) Altitude angle b) Zenith angle c) Latitude angle. [5+5+5]
- 4.a) Classify methods of solar energy storage systems in detail.
b) With neat and suitable sketch, explain thermal energy storage system. [5+10]
5. With the help of neat and suitable sketch, explain horizontal axis wind mill? Write its advantages and disadvantages. [15]
- 6.a) What is the difference between biogas and biomass? How the biogas plants are classified? List out.
b) What is meant by wet fermentation and dry fermentation? Explain in detail. [7+8]
- 7.a) What are the advantages, disadvantages, applications of geothermal energy?
b) Give note on prospects of geothermal energy with respect to India conditions. [8+7]
- 8.a) What is basic principle of Ocean thermal energy conversion? What are various types of OTEC power plants?
b) Write difference between MHD generators, MHD engine. [10+5]

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