

CBCS SCHEME



USN

21EE652

Sixth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

Renewable Energy Resources

Time: 3 hours

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain briefly the factors affecting energy resources development. (10 Marks)
- b. Explain briefly the solution of energy scarcity. (06 Marks)
- c. List the difference between renewable and non-renewable energy sources. (04 Marks)

OR

- 2 a. Explain the following :
 - i) Zenith angle (θ_z)
 - ii) Hour Angle (ω)
 - iii) Angle of declination (δ)
 - iv) Solar altitude angle (α)
 - v) Solar Azimuth angle (γ).
- b. Explain briefly with figure layer of the Sun. (10 Marks)

Module-2

- 3 a. Explain briefly with figure of flat plate collectors. (10 Marks)
- b. Explain briefly working of Brayton Heat Engine. (10 Marks)

OR

- 4 a. Explain briefly solar pond with a neat diagram. (10 Marks)
- b. Explain briefly Direct Radiation Cooker. (10 Marks)

Module-3

- 5 a. Explain benefits, advantages and disadvantages problems associated with Hydrogen energy. (10 Marks)
- b. With neat diagram explain wind mill and list the advantages and disadvantages. (10 Marks)

OR

- 6 a. With a neat sketch explain geothermal based electric power generation and list the problems associated to it. (10 Marks)
- b. Explain waste recovery management scheme, list the advantages and disadvantages of waste recycling. (10 Marks)

Module-4

- 7 a. Explain briefly the Biomass gasification and list the applications of biomass gasifier. (10 Marks)
b. Explain the construction details and working of KVIC digester. (10 Marks)

OR

- 8 a. Explain with a neat sketch the construction of biogas production. (10 Marks)
b. Explain the process of Anaerobic digestion. (06 Marks)
c. Explain the problems faced in exploiting Tidal energy. (04 Marks)

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Module-5

- 9 a. Explain briefly with a neat sketch the closed cycle OTEC plant. (10 Marks)
b. Explain the devices for harnessing wave energy. List the advantages and disadvantages of wave power. (10 Marks)

OR

- 10 a. Explain briefly the principle of floating power plant of OTEC plant. (10 Marks)
b. Explain application of OTEC in addition to produce electricity, list advantages and disadvantages of OTEC. (10 Marks)

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