

CBCS SCHEME



18ME651

Sixth Semester B.E. Degree Examination, June/July 2025

Non-Conventional Energy Sources

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Elaborate India's production and reserves of commercial energy sources. (10 Marks)
- b. With neat sketch explain nuclear power plant. (10 Marks)

OR

- 2 a. Write the classification of energy sources and explain briefly. (10 Marks)
- b. With a neat sketch explain pyranometer. (10 Marks)

Module-2

- 3 a. Define the following by using solar geometry:
i) Zenith angle ii) Declination angle iii) Hour angle (10 Marks)
- b. With a neat sketch explain liquid flat plate collectors. (10 Marks)

OR

- 4 a. Calculate an angle made by beam radiation with normal to a flat plate collector on December 1 at 9.00 am, solar time for a location at $28^{\circ} 35' N$. The collector is tilted at an angle of latitude plus 10° , with the horizontal and is pointing due south. (10 Marks)
- b. With neat sketch explain solar energy water heating. (10 Marks)

Module-3

- 5 a. Explain transmissivity of the cover system and absorptivity product. (10 Marks)
- b. With neat sketch explain Photovoltaic conversion. (10 Marks)

OR

- 6 a. List and discuss the various parameters effect the performance of the collector. (10 Marks)
- b. Explain conversion efficiency and characteristics of a solar cell. (10 Marks)

Module-4

- 7 a. What is wind energy and explain the major problems associated with wind energy. (10 Marks)
- b. With neat sketch explain single basin and double basin type tidal energy. (10 Marks)

OR

- 8 a. With neat sketch explain open cycle OTEC plant system. (10 Marks)
- b. List the advantages and disadvantages of Tidal plants. (10 Marks)

Module-5

- 9 a. With neat sketch explain steam dominated geothermal system. (10 Marks)
- b. List the advantages and disadvantages of geothermal energy. (10 Marks)

OR

- 10 a. Write any five differences between Biomass and Biogas. (10 Marks)
- b. With neat sketch explain electrolysis of water. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. $42+8=50$, will be treated as malpractice.