

ROLL No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Total number of pages:[2]

B.Tech. || CE || 5th Sem
New & Renewable Energy Sources
Subject Code: BTCH-904A

Time allowed: 3 Hrs

Max Marks: 60

Important Instructions:

- All questions are compulsory
- Assume any missing data

PART A (10x 2marks)

Q. 1. Short-Answer Questions:

- What is meant by the term New & renewable energy sources? Comment on the growth of the energy sector in India.
- Define Solar constant? What is its standard value?
- State the principle of Pyreheliometer?
- Classify the methods of solar energy storage.
- What is the difference between beam and diffuse radiation?
- Write the expressions for kinetic energy and power output for a wave.
- What are main types of OTEC power plants?
- Enlist the types of geothermal wells.
- Give a list of materials used for biogas generation?
- What is meant by isodynes and isovents?

PART B (5x8marks)

- Q. 2. a. What are the prospects of non-conventional sources in India? CO₁
b. What are the advantages and limitations of renewable energy sources?

OR

Explain how renewable energy is spreading wings in India. What is the potential of solar and wind energy in our country? Give details. CO₁

- Q. 3. Explain the working of solar water heater with a neat sketch as an application of Solar thermal system. CO₂

OR

Discuss the principle and operation of photovoltaic system with a neat sketch CO₂

- Q. 4. Distinguish between Fixed and Float drum Biodigesters. Design a biogas system for running IC engines. CO₃

OR

Explain how tides are formed and how it can be converted in to Tidal Energy. Also sketch the velocity duration, power duration and frequency duration curves. CO₃

- Q. 5. (a) Draw the block diagram of wind electric system mentioning its basic components. CO₃
(b) Differentiate between horizontal axis and vertical axis aero-generators. Describe

18
one of them in detail.

OR

Describe the operation of close cycle OTEC system. How does it differ from open CO₃ cycle system?

- Q. 6. Differentiate between the focusing and non-focusing solar collectors. Discuss the CO₄ construction and working of Liquid flat plate collector with a neat sketch. Explain the various parameters that affect the performance of collector.

OR

- (a) Explain the working of mini hydel power plant with a neat layout diagram. CO₄
(b) List out various types of Geothermal resources. How can geothermal energy be harnessed?