

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech.

Branch: Automobile/ Production/Mechanical Engineering.

Semester : VIII

Subject Code: BTMEC801F/ BTAMC801F

Max Marks: 60

Subject Name: Non-Conventional Energy Resources

Date: 07/07/2022

Duration: 3.45 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

Q.1 Solve Any Two of the following.

- A) What is fossil fuel? What are different alternatives for fossil fuel?
- B) Explain national energy strategies and National energy plan
- C) Explain energy consumption as a measure of prosperity and world energy future.

(Level/CO) Marks

6  
6  
6

Q.2 Solve Any Two of the following.

- A) Explain solar energy as alternative energy source.
- B) Explain solar energy conversion systems and their applications.
- C) Explain with neat sketch solar flat plate collector as solar air heater.

6  
6  
6

Q.3 Solve Any Two of the following.

- A) Explain the following terms
  1. Solar constant.
  2. Solar spectrum.
  3. Clarity Index.
  4. Declination angle.
  5. Zenith angle.
  6. Day length hours.
- B) Explain principle of working of a solar cell.
- C) Explain various types of commercial solar cells.

6  
6  
6

Q.4 Solve Any Two of the following.

- A) What is wind data and energy estimation in wind energy?
- B) What are various types of rotors in wind mill? Draw a neat labelled sketch of propeller type of wind machine.
- C) What is principle of OTEC? Draw neat labelled sketch of open cycle OTEC power plant.

6  
6  
6

Q.5 Solve Any Two of the following.

- A) Explain principle of MHD power generation.
- B) Write design and principle of operation of a fuel cell.
- C) Explain with neat sketch working of Lithium ion Batteries.

6  
6  
6

\*\*\* End \*\*\*