Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech. (CSE / EE / ECE / IT / ME / CE) (Sem.–7,8)

NON-CONVENTIONAL ENERGY RESOURCES

Subject Code : BTME 615-18

M.Code : 90483

Date of Examination : 05-01-2023

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a) Enumerate the various conventional energy resources.

b) What is solar constant?

c) What is meant by solar green house?

d) Explain the classification of wind mills.

e) Explain anaerobic digestion.

f) Why horizontal axis wind turbines are preferred over vertical axis wind turbines?

g) Distinguish between the biomass and biogas systems.

h) Explain the environmental effect of utilization of alcohol fuels.

i) What is the principle of fuel cell?

j) Explain the advantages and applications of hydrogen energy.

SECTION-B

2. Classify the various non-conventional energy sources and their availability with reference to Indian context.

3. Describe in briefly the different energy storage methods used in the solar system.

4. What is a community biogas plant? Explain the problems encountered in it.

5. Write on factors which affect site selection to establish wind power plant.

6. Explain the principle of working of a fuel cell with reference to $H_2 - O_2$ cell with the help of a neat diagram.

SECTION-C

7. a) Explain factors affecting on performance of flat plate collector.

   b) Describe working of Solar Pond as energy storage with the help of neat sketch.

8. a) Explain the advantages and limitations of wind energy conversion systems.

   b) What alcohols fuels are derived from biomass? Explain the methods for alcohol production.

9. a) What is the source of Tidal Energy? What is the minimum tidal range required for the working of a tidal plant? How much is the potential in tides?

   b) State and explain various methods used in practice for storage of hydrogen and problems associated with it.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.