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

Total No. of Questions : 09

B.Tech. (CSE/EE/ECE/ME/CE) (Sem.–7)

RENEWABLE ENERGY SOURCES

Subject Code : OEE-104-18

M.Code : 90586

Date of Examination : 17-01-2023

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) How does wind energy affect the carbon cycle?

b) Which energy source generates the least greenhouse gases?

c) What limitations affect electricity production using geothermal energy?

d) Why is it important to conserve oil and find alternative sources of energy?

e) Define zenith angle and azimuth angle.

f) Give the classification of small hydro Power stations.

g) What is the principle collection of solar energy used in a non-convective solar pond?

h) '*Sea waves are irregular in amplitude'*. How significant wave height is defined?

i) What are the techniques suggested for maintaining bio-gas production?

j) Define renewable and non-renewable sources of energy with suitable examples.

SECTION-B

2. Explain about the Organic Rankine Cycle for thermodynamic modelling using suitable diagram.

3. Explain the working principle of PV generation with the help of suitable diagram.

4. What are the main components of a flat plate solar collector, explain the function of each?

5. Explain about the wet and hot water geothermal energy systems.

6. Explain the variation of output of a wind turbine with tip speed ratio of the rotor.

SECTION-C

7. Draw the line diagram and explain the working of hybrid OTEC cycle with the help of a suitable diagram.

8. Derive the equation for solar energy balance equation and collector efficiency by mentioning their advantages and limitations.

9. Write note on :

   (a) Bio-gas energy utilized for cooking

   (b) Solar distillation and drying.

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.