Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Electrical & Electronics)/(Electrical Engineering)/
(Electronics & Electrical) (Sem.–5)

RENEWABLE ENERGY SOURCES

Subject Code : BTEE-504D-18

M.Code : 78706

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION 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

Answer briefly :

1) Define solar constant.

2) What is the latest status of renewable energy in India?

3) What is the difference between altitude angle and incident angle?

4) a) Define a solar collector. Classify its various types.

   b) Explain in brief the passive solar water heating systems.

5) Draw the electrical equivalent of a single solar PV cell.

6) What are the possible areas of use of hydrogen energy in near future in India?

7) What are the various sources and types of solid waste?

8) What is the difference between bio mass and bio gas?

9) What do you understand by tidal range?

10) Draw the schematic diagram of Dolphin-type wave generator.

SECTION-B

11) Explain the absorption and scattering phenomenon of solar radiation in earth's atmosphere.

12) What are the main components of a flat plate solar collector? Explain the function of each.

13) Explain the operation of aerodynamic lift force on blade cross-section of wind turbine. Draw the schematic.

14) What is a biogas plant? Explain any one type of biogas plant with the help of its schematic diagram.

15) Explain five each merits and demerits of wave energy.

SECTION-C

16) What is geothermal energy? How can geothermal energy is utilized for electric power generation? What are associated problems and environmental effects?

17) Write short notes on the following types of concentrating collectors:

a) Plane receiver with plane collector

b) Compound parabolic collector

c) Cylindrical parabolic collector

d) Fresnel lens collector

18) Enlist advantages and disadvantages of tidal power production. What are the problems faced in exploiting tidal energy?

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.