6TH SEM. / ELECTRICAL / 2023(S)

TH4 Renewable Energy

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10

   a. Define (i) Solar PV Array (ii) Non-renewable energy
   b. What are the applications of biodiesel?
   c. How the speed of wind turbines is controlled by Yaw control mechanism?
   d. What are the importance of renewable sources of energy.
   e. Write an example of (i) Line focus (ii) Point focus solar collectors?
   f. Define solar irradiance and state its SI unit.
   g. Name any two types of biogas digester.
   h. What are the characteristics of wind power plant?(any two)
   i. What do you mean by Hybrid Energy system? Give an example.
   j. What is wood gasifier?

2. Answer **Any Six** Questions 6 x 5

   a. Describe about the Maximum Power Point Tracker (MPPT) briefly with a neat diagram.
   b. Explain the characteristics of induction generator making it suitable for use in wind turbines.
   c. Describe the thermo-chemical process of pyrolysis briefly.
   d. What are the advantages of anaerobic digestion?
   e. Explain about the barrage tidal power systems briefly.
   f. Write a short note on sustainable design and development.
   g Explain the double output system associated with wind turbines with a neat diagram.

3 Write a short note on(i)Combustion And Fermentation(ii) Liquid flat –plate solar collector 10

4 Describe the method of Ocean Thermal Energy Conversion (OTEC) and its types with a neat diagram. 10

5 Write a short note on (i) Solar Charger (ii)Vertical Axis Wind Turbine 10

6 Explain the pitch angle control and Stall (α) control mechanisms of wind turbine control systems in details. 10

7 Explain the present scenario of conventional and renewable sources of energy in India and World. 10