6TH SEM./ELECTRICAL ./2024(S)

Th-4 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 altitude angle, zenith angle.
   b. What are the types of tidal power plant?
   c. What are the limitations of renewable energy sources?
   d. How does the barrage be constructed in tidal power plant?
   e. Differentiate between beam and diffuse radiation.
   f. What are the different forms of biomass available as biofuels?
   g. What is Pyrolysis?
   h. What do you mean by retention time in biomass?
   i. What are the factors that affect the generation of biogas?
   j. What is the need of hybrid system?

2. Answer **Any Six** Questions 6 x 5
   a. With a simple line diagram explain solar flat plate collector.
   b. Explain the advantages and disadvantages of wind energy systems.
   c. Draw the line diagram and explain the working of OTEC cycle.
   d. What are differences between anaerobic digestion and ethanol fermentation?
   e. Write short notes on fluidized bed gasifier with neat diagram.
   f. Explain aerodynamic operation of wind turbine.
   g Draw and explain the electrical equivalent circuit model and current-voltage characteristics of solar cell.

3 With a simple line diagram explain main components of Horizontal axis wind turbine (HAWT). 10

4 Explain briefly with neat diagram, the construction and working of floating drum type biogas plant. State also its advantages and disadvantages. 10

5 Explain with block diagram about geothermal process and its process of generation. 10

6 Write short notes on 10
(a) Diesel-PV
(b) Microhydel-PV

7 Write short notes on 10
(a) Wind power
(b) Solar Cooker