[Apr-24]

GITAM (Deemed to be University)
[MECH2201]
GST/GSS/GSB/GSHS Degree Examination

VI SEMESTER

SOLAR ENERGY

(Effective from the admitted batch 2021-22)

Time: 2 Hours **Max. Marks: 30**

Instructions: All parts of the unit must be answered in one place only.

Section-A

1. **Answer all questions:** **(5×1=5)**

   a) Explain the difference between thermal conductivity and thermal diffusivity.
   b) What is Fermi level?
   c) How does the collection of solar energy is affected by tilting a flat plate collector with respect to ground?
   d) Mention the parameters that influence the efficiency of PV system.
   e) What is the relation between present value and future value of a solar energy conversion system?

Section-B

Answer the following: **(5×5=25)**

UNIT-I

2. Illustrate the present and future scope of solar energy with examples.

OR

3. Discuss the availability and use of solar energy on the Earth with suitable examples.

UNIT-II

4. What is organic photovoltaics? Mention their advantages and problems associated with them?

OR

5. What is a PN junction? Explain their characteristics?

UNIT-III

6. Discuss the working principle and treatment efficiency of Solar water DIS infection (SODIS).

OR

7. Explain the working principle of Solar cooker with neat sketch. What are the advantages and limitations of solar cookers?

UNIT-IV

8. Explain the design and usage of Solar dryer using a case study.

OR

9. Compare and contrast between Grid connected and standalone PV systems.

UNIT-V

10. Explain the following terms w.r.t the time value of money for a solar energy system: i) Future Value, ii) Present worth, ii) Nominal depreciation, iv) Avoided fuel costs, and v) Fuel savings.

OR

11. Discuss the fixed and variable costs associated with a solar energy conversion system.