[Apr-24]

GITAM (Deemed to be University)
[MECH2201]

GST/GSS/GSB/GSHS Degree Examination
II 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) What is the difference between forced convection and natural convection?
   b) Define doping of semiconductors.
   c) Outline examples of low temperature solar heat collectors.
   d) Define efficiency of PV unit.
   e) Define the terms: i) Carbon Credit, and ii) Direct carbon footprint.

Section-B

Answer the following: **(5×5=25)**

UNIT-I

2. Describe any three methods of using solar energy.

OR

3. Explain the following with a neat diagram: a) Winter solstice, b) Perihelion, c) Vernal Equinox, d) Summer solstice, and e) Aphelion

UNIT-II

4. What are the effects of cell temperature on cell efficiency and how does it affect the efficiency of the Solar cell? Explain.

OR

5. Compare and contrast between p-n cells, Si cells, and thin film cells.

UNIT-III

6. Describe the applications of solar ponds.

OR

7. Differentiate between Solar Thermal energy and Solar PV Energy Conversion.

UNIT-IV

8. Explain the working principle, advantages and disadvantages of using a solar water pumping system.

OR

9. Classify PV systems and Explain all PV systems.

UNIT-V

10. Discuss the Life Cycle Assessment of solar energy systems for the provision of electricity in buildings.

OR

11. Explain the procedure for the calculation of electricity cost of a PV solar system.