

2112E035

**BACHELOR OF VOCATION**  
**Solar Technology**  
**Subject: Solar Thermal Technology-II**  
**Subject Code: ST-702**  
**Semester: Fifth**  
**December 2021**  
**Theory (External): 70 Marks**  
**Time: 03 Hours**

**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 2 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

**Roll Number**

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**SECTION -A (SHORT/OBJECTIVE TYPE QUESTIONS)**  
(10x2=20 Marks)

- A. Define Solar Ration also write the wave length for solar radiation.
- B. Define solar time.
- C. Write the formula of efficiency of a collector.
- D. Differentiate between concentrating and non- concentrating collectors.
- E. Define the terms Heat, Power, Work and Energy.
- F. Define term COP for Refrigerator and Air- conditioner.
- G. Define PV systems and their utility.
- H. Write the name of Psychometric properties and explain any two in brief.
- I. Define shadow factor.
- J. Draw Carnot refrigeration cycle.

**SECTION -B (ESSAY TYPE QUESTIONS)**  
(5x10=50 Marks)

1. Write principle of Pyranometers with the help of suitable diagram and explain detail the working procedure.
2. Define in detail with the help of schematic of concentrating collectors.
3. Define following terms related to a collector
  - a) useful energy gain
  - b) energy losses
  - c) Efficiency
4. Define non - concentrating collectors and explain in detail it's applicability in Seawater desalination.
5. With the help of neat diagram define Rankine cycle air conditioning system.
6. Explain
  - (a) coating materials to enhance the collector efficiency 5
  - (b) concept of Dehumidification 5
7. Write short note on
  - (a) PV systems 5
  - (b) Sun-Earth geometry 5
8. Explain the need of Carbon credit of solar energy system. Explain the procedure to evaluate it.

===END OF PAPER===