

501

2112E006

**BACHELOR OF VOCATION**  
**Solar Technology**  
**Subject: Design of Solar Energy Systems**  
**Subject Code: ST-705**  
**Semester: Fifth**  
**December 2021**  
**Theory (External): 35 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 1 mark.
3. Section B comprises 8 essay-type questions out of which students need to do any 5. Each question carries 5 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									

**SECTION -A (SHORT/OBJECTIVE TYPE QUESTIONS)**  
(10x1=10 Marks)

- A. Define beam radiation and diffused radiation?
- B. Name the major components of solar PV system?
- C. Mention any one benefit and application of solar energy?
- D. What is thermal mass? Give its example.
- E. Define heliostats?
- F. Define integral collector storage systems.
- G. Define sensible heat storage systems.
- H. Where are Phase Change Materials used?
- I. What is a pyranometer ?
- J. Give one major difference between active and passive solar water heating system

**SECTION -B (ESSAY TYPE QUESTIONS)**  
(5x5=25 Marks)

1. Explain solar space heating with a schematic diagram.
2. What is solar thermal power generation? Give its advantages and disadvantages.
3. What is a solar collector? What are its type?
4. Describe solar thermal energy storage technology? Also give its types?
5. Describe F-chart method for used for sizing of space heating systems.
6. What is solar space cooling? Give its merits and demerits.
7. Describe the term thermo-syphon and explain its application with diagram.
8. Describe with application off-grid Solar Photovoltaic systems?

—END OF PAPER—