

2209T166

B.Voc Solar Technology
Subject: Solar Thermal Energy Conversion -1
Subject Code: ST-604
Semester: Third
September 2022
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

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

- A. Write the diode current formula?
- B. Differentiate between PN and Schottky junction?
- C. What are the advantages of solar angles for receiving solar radiation?
- D. What is the effect of partial shading on performance of PV module?
- E. What is difference between solar cell and module?
- F. A module in a solar panel refers to
- Series arrangement of solar cells.
 - Parallel arrangement of solar cells.
 - (Series and parallel arrangement of solar cells.
 - None of the above.
- G. Which of the following type of collector is used for low temperature systems?
- Flat plate collector
 - Line focussing parabolic collector
 - Paraboloid dish collector
 - All of the above
- H. A pyranometer is used for measurement of
- Direct as well as diffuse radiation
 - Direct radiation only
 - Diffuse radiation only
 - None of the above
- I. Most widely used solar material is
- Arsenic
 - Silicon

- c. Cadmium
d. Steel
- J. To how many types are flat plate collectors divided depending on the type of heat transfer fluid?
- 3
 - 2
 - 4
 - 5

SECTION B: ESSAY TYPE QUESTION
(5x5=25)

- Explain the V-I characteristics of PV cells with figure.
- Explain construction and working of solar air heater system with neat diagram.
- Explain any three solar angles for PV plant installation.
- Explain the advantages and disadvantages of monocrystalline and polycrystalline PV cells/modules in details.
- Discuss about solar irradiance, solar constant, extra-terrestrial and terrestrial radiations.
- What are the advantages of photovoltaic thermal collector over convectional flat plate collector?
- Discuss solar cooling by absorption systems.
- Explain solar buildings and its types.

"END OF THE PAPER"