

IF

2207E065

BACHELOR OF VOCATION

Solar Technology

Subject: Solar Radiation

Subject Code: ST-605

Semester: Fourth

July 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. Define the terms:
- Zenith angle,
 - Solar azimuth angle
- B. Define the hour angle
- C. Define the thermal radiation and insulation.
- D. Define solar constant?
- E. What is performance ratio in solar?
- 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. Global radiation =
- Direct radiation – Diffuse Radiation

- Direct radiation + Diffuse Radiation
- Direct radiation / Diffuse Radiation
- Diffuse Radiation / Direct radiation

- J. The ratio of the beam radiation flux falling on a tilted surface to that falling on a horizontal surface is called the
- Radiation shape factor
 - Tilt factor
 - Slope
 - None of the above

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

- What do you mean by diffuse and beam radiation on a horizontal surface and how it can be measure on inclined surface?
- Define solar irradiance, solar constant, extraterrestrial and terrestrial radiations. What is the standard value of solar constant?
- Explain the factors affecting the distribution of solar radiation on surface.
- Factors Affecting the Distribution of Solar Radiation.
- Establish the relation between daily and hourly sunshine.
- What are the 4 main effects of solar radiation on Earth? Explain in details.
- Define greenhouse effect. Explain its working for solar dryer.
- Explain different solar thermal energy storage systems and applications.

"END OF THE PAPER"