8. What is solar declination? How do we calculate solar declination? What is the range over which the sun's declination varies? Insert suitable data wherever required.

===END OF PAPER===

B.Voc Solar Technology
Subject: Solar Radiation
Subject Code: ST-605
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

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

A. What is an electromagnetic wave and how it is related to light or radiation?

B. How solar radiations are responsible for winds on earth?

C. What is the effect of sun-earth distance on the intensity of radiations falling on the earth surface?

D. What is total global radiation?

E. Define solar azimuth angle and declination angle.

F. What is the difference between terrestrial and solar radiation?

G. What do you understand by diffuse spectral irradiance?

H. What are thermal radiations?

I. What is relative optical aerosol mass?

J. What is Mie scattering?

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

1. What is the difference between black body and grey body? What is the emissive power of black body? How we can estimate the wavelength of emitted radiations from a surface by measuring its temperature?

2. What is meant by solar constant? How is it calculated? What is the solar constant for Earth? What are the factors affecting the solar constant?

3. What is meant by optical path? How is optical path length different from actual path length? How is optical path length measured?

4. What is greenhouse effect? Explain with suitable diagrams. How much solar radiation reaches the earth?

5. What is Rayleig's theory about radiation scattering? How Rayleig's theory is important in radiation analysis?

6. What are the major applications of the solar energy? How solar energy can be harnessed? Explain with suitable data and diagrams.

7. What is difference between radiation and irradiation? What is the effect of cloudy sky on the radiations reaching to earth surface from the sun?