

SUBJECT CODE : 16VS/VM/PV26

B. Voc. DEGREE EXAMINATION, APRIL 2022
SUSTAINABLE ENERGY MANAGEMENT
SECOND SEMESTER

COURSE : MAJOR CORE

PAPER : FUNDAMENTALS OF PHOTOVOLTAICS

TIME : 6 HOURS

MAX. MARKS : 100

(Theory: 50marks +Practical: 50 marks)

SECTION – A

ANSWER ALL QUESTIONS

(20 X 1 = 20)

I. CHOOSE THE CORRECT ANSWER

1. What is the target of rooftop solar PV under India's National Solar Mission 2022?
a. 55 GW b. 100 GW c. 225 MW d. 20 GW
2. Specify the quantum of voltage produced by a solar cell?
a. 1 V b. 1.5V c. 0.5 V d. 2 V
3. What is the tilt angle of the photovoltaic (PV) array installed in Chennai
a. 20° b. 13° c. 10° d. 15°
4. Capacity of solar Rooftop power plant is calculated based on the
a. available shadow free Roof top area
b. annual energy consumption by the building
c. Both
d. None of the above

II. FILL IN THE BLANKS

5. The leaf hiding a PV panel is _____ shading.
6. The direction the solar panels to get the most energy when you are in Southern Hemisphere is _.
7. The work required to bring an electron from the Fermi level of the material to the vacuum a level is called the_____
8. Condition for a Schottky barrier is _____
9. The PPE to protect a person while handling electrical equipments is _____

III. SAY TRUE OR FALSE

10. Solar Integrated Units are expensive
11. The installation of a PV installation cabling should be water proof
12. The maximum voltage occurs when there is a break in the circuit
13. A solar panel's efficiency is limited by Influence of light
14. The windows are part of BIPV

IV. ANSWER IN A SENTENCE OR TWO

15. One Advantage and disadvantage of solar car
16. Types of MSJ –
17. Formula to calculate number of batteries
18. Draw the symbol of photoconductive cell
19. Expand – BIPV
20. Expand – BOM

SECTION – B**Answer any SIX questions:****(6x3= 18)**

21. Explain the extrinsic semiconductors with the required energy band diagram
22. Differentiate on – grid and off- grid systems
23. What are the various shadows which affect the performance of a PV system?
24. Write a short note Solar cars
25. Write short notes on homo and hetero junctions
26. Define Maximum power and fill factor of a solar cell with a necessary formula
27. Classify the semiconductors with suitable examples
28. Explain the various parameters affecting the performance on a PV panel.
29. Explain the Metal semiconductor junction with the required energy band diagram
30. Write short note on
 - a. Inverters
 - b. Batteries

SECTION – C**Answer any TWO questions:****(2x6 = 12)**

31. Write the steps to design of a solar PV systems and to estimate the cost of installation of a PV system
32. Explain the safety measures to be followed while installing a PV panel
33. What are the various applications of PV panels and explain any one in detail
34. Explain MSJ and its different types with necessary conditions
