STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI- 86
(For candidates admitted during the academic year 2016 – 17 & thereafter)

SUBJECT CODE : 16VS/VM/PV26

B. Voc. DEGREE EXAMINATION, APRIL 2019
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. Photovoltaic Cells are made of
   (a) metals (b) semiconductors (c) insulators (d) conductors

2 The unit of efficiency is
   (a) watt (b) current (c) voltage (d) no unit

3. Intensity of solar radiation decides this character of solar cell,
   (a) current (b) power (c) voltage (d) both (a) and (b)

4. The efficiency of solar cell depends on,
   (a) fill factor (b) short circuit current(c) open circuit voltage (d) all the above

5. A battery stores electricity in the form of,
   (a) dc (b) ac (c) both (a) and (b) (d) neither (a) not (b)

6. In a solar cell,
   (a) light is converted into heat (b) light is converted into electricity
   (c) heat is converted into electricity (d) wind is converted into light

7. An array in a solar panel refers to
   (a) Series connections of solar cells (b) Parallel connections of solar cells
   (c) Series and parallel connections of solar cells (d) None of the above.

8. Photovoltaic is not best suited for,
   (a) mobile charging (b) heating (c) lighting (d) motor cars

9. A pyranometer measures
   (a) amount of light energy in sun (b) amount of heat energy solar
   (c) solar radiation flux density (d) total radiation of sun

10. The major disadvantage(s) of energy from solar cell is,
    (a) seasonal variance (b) low efficiency (c) unavailability in night (d) all the above

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II. Fill in the Blanks:

11. The device that converts dc in to ac is_____.
12. The type of bond in most of the semiconductors is_____.
13. PV arrays should be ideally installed in a _____ free location.
14. The radiation of Sun is maximum in the _____region of earth.
15. The device that measures the total inward and outward flow of power is called_____.

III. Answer in a sentence or two:

16. What is dark current?
17. What is figure of merit?
18. What is fill factor?
19. What is utility grid?
20. What is band gap energy?

SECTION – B

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

21. Explain the working of a PV cell.
22. What are homo and hetero junctions?
23. What is reliability of a solar cell?
24. What are charge controlled units?
25. Discuss how the efficiency of solar cell is calculated.
26. Write short notes on storage devices.
27. Give the block diagram of PV system for home lighting.
28. How do PV systems find application is satellites?
29. What are the advantages of a solar car?
30. What is hybrid PV system?

SECTION – C

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

31. Explain the installation aspects of a solar panel.
32. What is a net power meter? Explain how it works.
33. How do we calculate the energy consumption in a building?
34. Discuss about any one instrument for measuring radiation of Sun on surface of Earth.

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