

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

SUBJECT CODE: 16VS/VM/PD56

B.Voc. DEGREE EXAMINATION, NOVEMBER 2018
SUSTAINABLE ENERGY MANAGEMENT
FIFTH SEMESTER

COURSE : MAJOR CORE

PAPER : SOLAR POWER PLANT DESIGNING

TIME : 6 HOURS

MAX.MARKS:100

(Theory: 50 marks + Practical: 50 marks)

SECTION – A

ANSWER ALL QUESTIONS:

(20x1=20)

I. Choose the correct answer:

1. If the number of turns of coil in AC generator is increased, the emf produced by it,
a) decreases b) remains same c) increases d) becomes zero
2. When a coil is rotated in magnetic field, the induced current developed in it,
a) remains constant b) remains zero c) varies sinusoidal d) varies randomly
3. The conductivity in earthing is affected by,
a) moisture content in soil
c) concentration of salts in soil
b) chemical composition
d) all the above
4. Which of the following do/does not change in a transformer?
a) current b) voltage c) frequency d) all the above
5. A low voltage circuit breaker has rated voltage of less than,
a) 220V b) 400V c) 1000V d) 10,000V
6. All the protection equipments are installed in,
a) switchgear b) combiner box c) switchyard d) transformers
7. The component used as a sensor with circuit breaker for automatic operation is,
a) fuse b) circuit breaker c) relays d) switch
8. The instrument used for measuring terrestrial radiation is,
a) pyradiometer b) pyrgeometer c) pyrheliosimeter d) pyranometer
9. The total power across 4 PV cells of 0.5V connected in parallel when $I = 0.6A$ is,
a) 2.0W b) 0.9W c) 0.3W d) 1.0W

II. Fill in the blanks:

10. _____ is used to control the battery from over charging or discharging.
11. _____ inverter is the most common type of inverter for residential and small commercial PV systems.
12. The number of solar panels needed for a 5KW system with 200W panels is _____.
13. If a PV cell produces 0.5V then six PV cells connected in a series will produce _____ V.
14. _____ is a basic principle of a transformer.

III State whether True or False:

15. The Inverter electronically converts AC power to DC Power.
16. Insolation can be measured with digital pyreometer.
17. We choose the combiner box according to the panel strings.
18. Parallel connected solar panels gives more current.
19. Series connected solar panel gives more voltage.
20. It is not necessary to use PPE during a solar plant installation.

SECTION – B**ANSWER ANY SIX QUESTIONS:****(6x3=18)**

21. Draw the three phase emf wave diagram?
22. Write any three essential parts of an AC generator with its working?
23. Explain any three faults in solar panel?
24. What is fuse and how it works?
25. What is a solar string?
26. Give the wire and cable design in PV system.
27. What is a solar roof top system?
28. Mention the types of face and eye protectors?
29. Define earthing pits?
30. Write a note on lightning arrestor.

SECTION – C**ANSWER ANY TWO QUESTIONS:****(2x6=12)**

31. Explain in detail the principle and working of single phase AC generator?
32. State the efficiency factors to be considered while designing the solar system?
33. Explain the design plan for switchyard?
34. Elaborate the safety measures to be taken while installing solar PV power plant?
