

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 2019
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. All the protection equipment are installed in,
(a) switch gear (b) combiner box
(c) switch yard (d) transformers
2. 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) does not change
3. Earthing conductivity is affected by
(a) Moisture content in soil (b) chemical composition
(c) Concentration of salts in soil (d) all the above
4. The following does not change in a transformer.
(a) current (b) frequency
(c) voltage (d) none
5. This mA current can paralyze muscles and cause a fall on a jobsite.
(a) 10 (b) 30
(c) 50 (d) 75

II. Fill in the blanks:

6. Device that allows current to flow in one direction only, _____.
7. Device that breaks the electrical circuit if too much current flows is,_____.
8. Device used to prevent from over charging or discharging is, _____.
9. The number of solar panels needed for a 5 kW system (250W panel) is, _____.
10. Basic principle of a transformer is,_____.

III State whether True or False:

11. The inverter electronically converts AC power to DC Power.
12. We choose the combiner box according to the panel strings.
13. Parallel connected solar panels gives more current.
14. Series connected solar panel gives more voltage.
15. A circuit breaker is an electrical device.

IV. Answer in a sentence or two.

16. How are solar cells better than conventional sources?
17. What is standalone SPV system?
18. What is grid connected SPV system?
19. What is standard test condition?
20. What is solar array?

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

21. Write any three essential parts of an AC generator with its working.
22. What is the principle and working of a transformer.
23. Explain any three faults in solar panel.
24. Write any three features of underground cables.
25. What is fuse and how does it work?
26. What is the function of circuit breaker and give its types?
27. Explain the function of substation.
28. Calculate the battery requirement for a 1 Kwp PV system
29. Explain the importance of PPE and briefly elucidate the use of one.
30. Write a note on earthing pits used for PV systems

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

31. Explain in detail the design of PV system.
32. Explain the design plan for Lightning arrestors.
33. Explain the design plan for switchyard?
34. Choose an inverter which has a 12 V battery with appropriate rating for a house that has the following AC loads rated at 230V. (i) three 60W lights, (ii) two 90W fans, (iii) A 60 W laptop.
