

**B.Voc. DEGREE EXAMINATION - NOVEMBER 2024**  
**SUSTAINABLE ENERGY MANAGEMENT**  
**FIFTH SEMESTER**

**COURSE : MAJOR CORE**  
**PAPER : SOLAR POWER PLANT DESIGNING**  
**SUBJECT CODE : 16VS/VM/PD56**  
**TIME : 6 HOURS**

**MAX. MARKS: 100**  
**(Theory: 50 Marks + Practical: 50 Marks)**

**SECTION – A**

**ANSWER ALL QUESTIONS:**

**(20 x 1 = 20)**

**I. Choose the correct answer:**

1. A substation used for voltage level change is known as \_\_\_\_\_.  
(a) Transformer substation                      (b) Indoor substation  
(c) Outdoor substation                          (d) Frequency changer substation
2. The material used for fuse wire should have the following characteristics \_\_\_\_\_.  
(a) low melting point, high conductivity      (b) high melting point, low conductivity  
(c) high resistance, low melting point        (d) none of the above
3. The capacity of battery is expressed as \_\_\_\_\_.  
(a) Volts                      (b) Watts                      (c) Ampere                      (d) Ampere hours (Ah)
4. \_\_\_\_\_ is the hearing protection that should be fitted by a professional as personal protective equipment on site.  
(a) Helmet                      (b) Molded earplugs                      (c) Earmuffs                      (d) Earphones
5. 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 neutral

**II. Fill in the blanks:**

6. Device used to prevent from over charging or discharging is, \_\_\_\_\_.
7. The instrument used for measuring terrestrial radiation is \_\_\_\_\_.
8. The number of solar panels needed for a 3kW system (250W panel) is, \_\_\_\_\_.
9. The component used as a sensor with circuit breaker for automatic operation is \_\_\_\_\_.
10. \_\_\_\_\_ is used for orienting a solar photovoltaic panel towards sun's position.

**III. State True or False:**

11. The layer of charcoal and salt helps to maintain high resistance for earth fault currents.
12. Series connected solar panel gives more voltage.
13. Insolation can be measured with digital pyrometer.
14. A circuit breaker is an electrical device.
15. The inverter electronically converts AC power to DC power.

**IV. Answer in a sentence or two:**

16. What is a solar array?
17. Expand DoD.
18. What is standalone SPV system?
19. Define earthing pit.
20. What is the function of surge diverter?

**SECTION – B****ANSWER ANY SIX QUESTIONS:****(6 x 3 = 18)**

21. Define transformer with its types.
22. How many units will a 2kW plant generate in a month?
23. Identify the safety precautions of batteries.
24. Differentiate micro inverter and hybrid inverter.
25. What are the parts of a solar street light?
26. What is fuse? How does it work?
27. Explain any three faults in solar panel.
28. Draw the three phase emf wave diagram.
29. Expand PPE and elucidate the use of any one equipment.
30. Explain the function of substation.

**SECTION – C****ANSWER ANY TWO QUESTIONS:****(2 x 6 = 12)**

31. Explain the design plan for Lightning arrestors.
32. Describe the various steps carried out for a site survey.
33. Write a brief note on the selection of the solar modules.
34. Elaborate the safety measures to be taken while installing solar PV power plant.

\*\*\*\*\*