

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2016-17& thereafter)

SUBJECT CODE: 16VS/VM/PD56
B. Voc. DEGREE EXAMINATION, NOVEMBER 2021
SUSTAINABLE ENERGY MANAGEMENT

COURSE : MAJOR CORE
PAPER : SOLAR POWER PLANT DESIGNING
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A **(20 MARKS)**

ANSWER ALL QUESTIONS: **(10 X 1 =10)**

I CHOOSE THE CORRECT ANSWER:

1. High voltage circuit breaker have rated voltage up to
a) 2,200V b) 4,000KV
c) 1,200V d) 1,200KV
2. Earthing conductivity is affected by
a) Moisture content in soil b) Chemical composition
c) Concentration of salts in soil d) All the above
3. The material is used as the fusing element for a current up to 10A?
a) Copper b) Silver
c) Alloy of lead and tin d) Zinc
4. The current generated from an array if the positive and negative output terminals are connected to one another is called _____
a) Current voltage b) Open circuit voltage
c) Short circuit current d) Maximum system voltage
5. The component requires more often maintenance in a stand-alone PV system
a) Solar Panel b) Battery c) Inverter d) Charge controller

II FILL IN THE BLANKS:

6. Grounded conductors carry _____ in earthing.
7. The basic principle of an AC generator is _____.
8. The reference point for different electric power sources _____.
9. If apparent power of load is 100mW and power factor is 0.8 then actual power is _____W
10. The size of the inverter should be similar to the DC rating of _____ system

ANSWER ALL QUESTIONS:**(5 X 2 =10)****III ANSWER IN A SENTENCE:**

11. Advantages of solar string inverter
12. Switch yard
13. 2 difference between single axis solar tracking and dual axis solar tracking system
14. AC power
15. Name the types of hearing protectors in solar PV installation site.

SECTION - B**ANSWER ANY TWO QUESTIONS:****(2×15 = 30)**

16. a. How to design the earthing pit for solar PV system
b. State wire and cable design in solar PV system
17. Explain Mechanical structure and mounting of solar PV modules
18. Explain the substation and Transformer functions.
19. State the fabrication steps of box type solar cooker and write the suggestions to improve the efficiency of box type solar cooker.

SECTION – C**ANSWER ANY TWO QUESTIONS:****(2×25 =50)**

20. a. Measure the maximum power point tracking of a solar panel under sunlight from the table and find the Isc and Voc values from the given data

S. No	Current in mA	Voltage in V
1	100	0
2	75	2
3	50	10
4	25	10.4
5	0	10.4

21. Find the power and efficiency of the solar cooker from the given table.

S. No	Mass of the water (kg)	Initial temperature(K)	Final temperature (K)	Time period (s)
1	0.170	307	316	600
2	0.178	306	318	1200

22. a. Explain about solar street lighting system and mentions its advantages

23. a. Explain in detail the function of array combiner box.

b. Write the advantages of off-grid solar PV system.
