

Final Exam
Solar Power Part V
Installing Systems - an Introduction

1. For any installation, what will you need?

- ☐ a. Design plans
- ☐ b. Wire
- ☐ c. Multi-meter
- ☐ d. All of the above

2. True or False: Regardless of the manufacturer, all solar panels will have a positive lead, a negative lead, and all will require a grounding connection.

- ☐ a. True
- ☐ b. False

3. Ground mount installations _____.

- ☐ a. Should be avoided
- ☐ b. Require more panels
- ☐ c. Should be fenced
- ☐ d. All of the above

4. True or False: The installation of a solar powered system must begin with the solar panels and follow the current path.

- ☐ a. True
- ☐ b. False

5. Most solar arrays are mounted on _____.

- ☐ a. A pole
- ☐ b. On the ground
- ☐ c. On a roof
- ☐ d. None of the above

6. If two rails are being connected to create a longer mount rail, the rails must _____.

- ☐ a. Be greased where they connect
- ☐ b. Be properly grounded together
- ☐ c. Be painted afterwards
- ☐ d. All of the above

7. True or False: If a WEEB clip is removed for any reason, it must be discarded and a new clip used to insure there is a positive ground connection.

- ☐ a. True
- ☐ b. False

8. You should check the mount rails for the proper angle with a _____.

- ☐ a. Laser level
- ☐ b. Inclinator
- ☐ c. Multi-meter
- ☐ d. MC4 tool

9. Each solar panel's performance should _____ the listed specifications for the short-circuit amperage (Isc) and the open-circuit voltage (Voc).

- ☐ a. Be less than
- ☐ b. Match
- ☐ c. Be more than
- ☐ d. Be different from

10. If you're installing a solar panel that has a junction box with a drain hole, ensure the panel is installed with the junction box located at the _____ end when mounted to allow the drain hole to function properly.

- ☐ a. Lower
- ☐ b. Higher
- ☐ c. Either

11. True or False: The NEC code requires that solar wiring connectors not be capable of being opened or disconnected by hand without a tool.

- ☐ a. True
- ☐ b. False

12. You will be wiring solar panels together in series to increase the voltage. These connections are made how?

- ☐ a. Panel 1 positive to Panel 2 negative
- ☐ b. Panel 1 positive to Panel 2 positive
- ☐ c. Panel 1 negative to Panel 2 negative
- ☐ d. Panel 1 negative to ground

13. True or False: Typically, a bonding or toothed washer is required when making the grounding connection to the solar panel frame.

- ☐ a. True
- ☐ b. False

14. If you're using non-metal junction boxes in the array wiring, remember to _____.

- ☐ a. Use non-metal conduit
- ☐ b. Use soldered connections inside the box
- ☐ c. Maintain the grounding path across the junction
- ☐ d. None of the above

15. The solar system components should be in a location that _____.

- ☐ a. Minimizes the wiring runs from the solar arrays
- ☐ b. Is easily accessible
- ☐ c. Is well ventilated and dry
- ☐ d. All of the above

16. A PV combiner box is not a requirement in a small structure but is recommended because it _____.

- ☐ a. Allows you to isolate each solar array for troubleshooting
- ☐ b. Allows you to isolate each solar array for solar panel replacements
- ☐ c. Provides a convenient test location of the solar array performance
- ☐ d. All of the above

17. There will be three wires from each array which are _____.
☐ a. Positive, negative, ground
☐ b. Positive, negative, neutral
☐ c. Positive, negative, AC
18. The ideal location for the surge protector installation is at the _____?
☐ a. Charge Controller
☐ b. PV Combiner Box
☐ c. Batteries
☐ d. Electrical Disconnect Box
19. Which wire is NOT connected to the Master Battery Disconnect Switch?
☐ a. A wire from the Battery Bank positive terminal
☐ b. A wire from the Charge Controller
☐ c. A wire from the Inverter
☐ d. A wire from the PV Combiner
20. The Charge Controller's Remote Temperature Sensor wire is connected to the _____.
☐ a. Inverter
☐ b. Batteries
☐ c. Room thermostat
☐ d. Outdoor air
21. The battery location should be _____.
☐ a. In close proximity to the Inverter
☐ b. Easily accessible for maintenance and monitoring
☐ c. In a dry location
☐ d. All of the above
22. True or False: The Inverter should be located near the Electrical Disconnect Box and the batteries.
☐ a. True
☐ b. False
23. When wiring an AC breaker box using a single 120-volt inverter, the positive wire will be connected to _____.
☐ a. The left hot bus terminal
☐ b. The right hot bus terminal
☐ c. Both hot bus terminals
☐ d. None of the above
24. True or False: Never mix voltages in a single box.
☐ a. True
☐ b. False
25. To meet code, the ground rod must be ____ inch in diameter if not UL listed.
☐ a. 1/4
☐ b. 1/2
☐ c. 5/8
☐ d. 3/4