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Continuing Education Course #155
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

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