

EEIP Inspector Test

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NAME ERIC KAWAKAMI

GRADE -4 (16)

Pass: Yes / No (min 16/20)

1. When performing a ground bond test, you attach one clamp to the cord ground prong. Where should you place the other test clamp?
 - a. On the phase prong
 - b. On the neutral prong
 - c. On the metal casing
 - d. On the ground bar inside the enclosure

2. What is the function of a GFCI?
 - a. It protects the equipment from an overcurrent condition
 - b. It protects the equipment from an arc flash
 - c. It protects the user from a fatal electrical shock
 - d. It protects the cord from an overvoltage condition

3. What is the minimum wire size for a 15 Amp circuit?
 - a. 12 AWG
 - b. 14 AWG
 - c. 16 AWG
 - d. 18 AWG

4. What is the maximum fuse rating for a 12 AWG conductor?
 - a. 15 Amps
 - b. 20 Amps
 - c. 10 Amps
 - d. 30 Amps

5. Would you expect the equipment to continue functioning even if the ground prong is removed from the cord?
 - a. Yes
 - b. No

6. You have used a digital multimeter to test the continuity between the casing and the ground prong of the cord. The test indicates that there is good continuity. Why should you still perform a ground bond test?
- a. The ground bond tester uses high voltage to verify the bonding is adequate under fault conditions
 - ✓ b. The ground bond tester uses high current to verify the bonding is adequate under fault conditions
 - c. The continuity test is a good indicator and the ground bond test is not necessary
 - d. The contact resistance of the digital multimeter probes is too high
7. The GFCI will limit shock current to what amount?
- a. 100 mA
 - b. 15 A
 - ✓ c. 10 mA
 - d. 5 mA
8. You inspect equipment that has been received from another lab. Although all circuits are properly rated and protected for overcurrent, you believe that the overall workmanship is shoddy and careless. In fact the interior of the enclosure is a rat's nest of wires, and you notice clippings and other questionable installation methods. Should you fail the inspection just because of your subjective opinion?
- ✓ a. Yes
 - b. No
9. During your inspection rounds, you come across equipment that has not been surveyed. There is no NRTL marking on the equipment. As you proceed to perform a survey and apply a bar code, the scientist enters the room and asks what you are doing. He then claims that since there is a CE marking you should not bother with the survey. What do you respond?
- a. The CE marking is for Canadian Equipment and is a very low hazard, but you will proceed with the survey. You tell the scientist that no inspection will be required.
 - b. The CE marking might be an acceptable marking, you will go back and check the list again
 - c. The CE marking stands for Certified Electrical, therefore the scientist is correct
 - ✓ d. The CE marking is a manufacturer self-declaration of conformity to European standards and does not meet OSHA third-party NRTL requirements

10. You are inspecting equipment powered from a two-conductor 208 VAC cord with ground (3 wires). There are two fuses, one for each of the conductors. Should you:

- a. Accept the condition
- b. Fail the equipment and require removal of the neutral fuse
- c. Replace the neutral fuse with a jumper and accept the condition
- X d. Fail the equipment and require removal of the phase fuse

11. What is the proper color for the equipment grounding conductor?

- a. White
- b. Red
- c. Black
- ✓ d. Green

12. What is the proper color for the neutral conductor?

- ✓ a. White
- b. Red
- c. Black
- d. Green

13. Should the neutral conductor be connected to the ground bar inside the casing?

- ✓ a. Yes
- b. No

14. What is the proper setting for the ground bond tester?

- a. Anywhere between 15 and 20 Amps
- b. 5 mA
- ✓ c. Twice the rated load current but no more than 10 Amps
- d. 100 mA

15. What is the maximum allowable test resistance for a ground bond test?

- a. 200 Ohms
- b. 100 Ohms
- ✓ c. 100 mOhms
- d. 10 mOhms

16. Why does the test resistance need to be low?

- ✓ a. To ensure high enough fault current, which will trip the circuit breaker immediately
- b. To reduce the voltage on the casing as much as possible
- c. To allow the GFCI to function properly
- d. To prevent overheating of the circuits

17. What is the purpose of the ground wire in the cord?
- a. It provides a good ground reference for the sensitive instrumentation
 - b. It ensures a low resistance fault current path to trip the breaker
 - X c. It carries the unbalanced load current
 - d. It does not serve a purpose in 120 VAC equipment
18. You see equipment with that already has an LBNL AHJ barcode sticker applied. This indicates that:
- ✓ a. The equipment has been surveyed only
 - b. The equipment has been inspected and passed
 - c. The equipment has been identified but not surveyed
 - d. The equipment has been inspected but a green sticker is needed to know if it passed
19. You suspect that the ventilation louvers on top of a casing are probably not sufficient to prevent access. What is the best way to check this requirement?
- a. Attempt to touch the inside with the multimeter probe tip
 - b. Use a ruler to measure the distances and compare to Table 20.1 in the UL 508A standard?
 - ✓ c. Use an approved UL 508A jointed test finger
 - d. Attempt to stick your fingers in the enclosure
20. You have decided to fail a particular piece of equipment that presented several issues: improper fusing, damaged cord, and missing top cover such that energized parts are left exposed during operation. What should you tell the owner?
- a. Keep operating the equipment for now, it's important to keep doing science. Put a makeshift cover over the gear to prevent inadvertent access. Add a prominent warning sign about the shock hazard.
 - b. Confiscate the apparatus and turn it in to the EEIP Manager. Send an email to the scientist informing him of the fact.
 - ✓ c. Talk to the scientist about the issues. Ask the scientist to shut down the equipment and place a red "Out Of Service" label on the operating panel. Inform the scientist about how to schedule a repair.
 - d. Wait for the scientist to finish his daily trial run and repair the equipment yourself on the spot.