

ELECTRICAL SAFETY – TEST A

EMPLOYEE NAME _____ DATE: _____

This is an “Open Book” test. You should refer to the Electrical Safety information available on the Safety Webpage.

Select the choice that best answers each of the following questions.

30 Questions (7 pages)

Passing Score: 70% (21 or more correct; up to 9 incorrect allowed)

1. True or False? The only hazard from working with live electrical current is from electrocution.
 - A. True
 - B. False

2. Which of the following is a causal factor in electrical hazards?
 - A. Damaged or faulty electrical equipment
 - B. Unsafe work practices
 - C. An attitude that “it won’t happen to me”
 - D. All of the above

3. True or False? Normally we think that amps will kill us. However, higher voltage, wetness and longer time of current flow lessens skin resistance and can kill you.
 - A. True
 - B. False

4. Select all of the following which are requirements for a Qualified Person permitted to work on or near exposed energized parts?
 - A. Authorized in writing by the Supervisor
 - B. Can determine nominal voltage for exposed parts of equipment and knows approach distances, required PPE and tools and follows safe work practices.
 - C. Must work under direct supervision when exposed to live equipment.
 - D. Safety Office issues a required certificate of training valid for 5 years.

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5. True or False? Your first priority in working with electrical equipment is to make it safe by de-energizing the equipment.
 - A. True
 - B. False

6. True or False? Verification of the de-energization of electrical equipment means the equipment has been turned off using its normal operating control(s), the electrical energy sources have been disconnected (isolated), stored energy in capacitors is removed, and a test instrument was used to determine the equipment is no longer energized and has no residual electrical energy.
 - A. True
 - B. False

7. Current flows through the human body when one part contacts an electrically:
 - A. Energized part and another part contacts a non-conductive surface
 - B. De-energized part and another part contacts a conductive surface
 - C. De-energized part and another part contacts a non-conductive surface
 - D. Energized part and another part contacts a conductive surface

8. Which trait does a material have if it is an insulator?
 - A. Offers little resistance to the flow of electric current.
 - B. Has high resistance to the flow of electric current.

9. Which of the following situation is more likely to result in electrocution when working near energized equipment?
 - A. Wiring in a raceway 10 feet off of the floor.
 - B. Insulated wiring
 - C. Wet skin (i.e., from sweating, rain, water leak).
 - D. Equipment grounding

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10. What type of circuit protection device trips when the current going into and out of the equipment exceeds more than a set amount, i.e., 6 milliamps?
- A. Circuit breaker
 - B. Ground Fault Circuit Interrupter
 - C. Fast-Blow Fuse
 - D. Slow-Blow Fuse
11. Which of the following is not a proper work practice?
- A. Reset a circuit breaker or replace a fuse the first time
 - B. Replace a fuse with the same rating
 - C. Reset a circuit breaker or replace a fuse after multiple “trips / blows”
 - D. Immediately de-energize a circuit if there is smoke, heat or unusual odor
12. True or False? Bridging is allowed when a fuse keeps blowing.
- A. True
 - B. False
13. To prevent electrocution when excavating you should identify where the underground utilities are located by calling the Palmetto Utility Protection System (PUPS) at (telephone number) _____ at least 3 work days prior to the dig.
- A. 2-1-1
 - B. 4-1-1
 - C. 8-1-1
 - D. 9-1-1
14. When placing an extension ladder or when in the raised bucket of a bucket truck, be sure to stay at least _____ away from overhead power lines.
- A. 4 inches
 - B. 10 inches
 - C. 4 feet
 - D. 10 feet

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15. When is work on live (energized) equipment allowed?
- A. At all times
 - B. When shutting down equipment introduces financial or customer comfort considerations
 - C. All equipment must be de-energized prior to working on it
 - D. When doing diagnostics and testing or there is a problem due to equipment design, operational limitations or increased hazard
16. What procedure is to be used to make equipment safe when you have to do preventive or corrective maintenance and you can expect the equipment to startup and/or have the release of stored energy?
- A. Equipment Isolation Procedure
 - B. Normal Turn Off of Equipment
 - C. Lockout and Tagout of Equipment
 - D. No special safety procedure is required; work on energized equipment is normal
17. What is the purpose of a Live Work Permit?
- A. It describes the work to be done and how long it should take to do the job
 - B. It designates the workers to do the job
 - C. It lists the normal and emergency procedures and the tools necessary for the job
 - D. All of the Above
18. What does NFPA 70E, the Standard for Electrical Safety in the Workplace, require to be posted on electrical equipment that is likely to require examination, adjustment servicing or maintenance while energized?
- A. An Arc Flash and Shock Hazard Field Warning Label
 - B. Field Marked with a label listing the point of contact information for Facilities Management
 - C. Field Marked with an “Authorized Employees Only” label
 - D. No field marking is required

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19. When turning off and restoring power, how can you protect yourself from a potential arc flash?
- A. Wear appropriate personal protective equipment
 - B. Stand to the side of the equipment and sideways
 - C. Use one hand to turn off/on the equipment
 - D. All of the Above
20. What should be done before using a multi-meter to test for residual current in equipment to be worked on?
- A. Test on a known live electrical source to ensure the meter is functional
 - B. Ensure the capacitors are charged
 - C. Set the meter to the lowest scale then go up, as required, to ensure not to damage the meter
 - D. All of the Above
21. Which of the following conditions is *NOT* considered as working on live (energized) electrical equipment, i.e., the electrical equipment is made safe?
- A. Placing an electrical conductor or circuit part in the Off position
 - B. Installing Lockout-Tagout
 - C. Voltage testing (to ensure proper LOTO)
 - D. None of the Above
22. The most severe burn injuries from an arc flash incident is due to ____ .
- A. The heat from the arc flash (with temperatures up to 35,000⁰ F)
 - B. The explosion from the arc blast with molten metal slag
 - C. Ignited clothing that continues to burn after the arc flash
 - D. The sound blast (up to 140 dB) from the arc blast
23. True or False? All arc-rated uniform materials are fire resistant and all fire resistant uniform materials are arc-rated.
- A. True
 - B. False

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24. True or False? Facilities Management Trades Specialists dealing with electrical work of 240 volts or less only have to wear their cotton uniform, which is not arc rated, safety glasses and appropriate safety footwear.
- A. True
 - B. False
25. What protective clothing are Facilities Management Trades Specialists to wear when dealing with electrical work of over 240 volts but less than 600 volts?
- A. Normal work uniform
 - B. Flame Resistant (FR) Coverall (Arc Rating of 8) worn over work uniform
 - C. FR Coverall (Arc Rating of 8) worn over work uniform with clothing materials underneath made of natural materials
 - D. Arc-rated (40) flash suit
26. Which of the following material is Flame Resistant (will not continue to burn when the heat source is removed)?
- A. Cotton
 - B. Nylon
 - C. Polyester-Rayon
 - D. Synthetic blend
27. What is the greatest burn hazard from wearing clothing made of synthetic materials?
- A. Catches fire easily
 - B. Burns Rapidly
 - C. Melts into your skin
 - D. Clothing made from synthetic materials are safer than natural materials
28. As a minimum, what type of hard hat should be worn when around or doing electrical work?
- A. A Type 1 – Class C hardhat
 - B. A Type 1 – Class G hardhat
 - C. A Type 2 – Class E hardhat
 - D. Hardhats are not required for electrical work

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29. Rubber insulated gloves and insulated tools are required to be used when working with electrical equipment of over _____ volts.
- A. 50
 - B. 120
 - C. 480
 - D. 600
30. The purpose of the Arc Flash Protection Boundary is this is the closest distance one can approach energized electrical equipment (50 volts or more) _____. The actual distance depends on the equipment's fault level and duration.
- A. Without fear of getting fatal burns from an arc flash
 - B. Without wearing required arc-rated personal protective equipment
 - C. If an "Unqualified" worker
 - D. Without using insulated gloves and tools

REMINDER: Turn this completed test into the Safety Office for grading and to receive credit for the course. Safety will inform you of your test results.