

BUILDING INDUSTRY TECHNOLOGY ACADEMY: YEAR TWO CURRICULUM

Electrical Unit Final

"A" frame	Electron	12 feet	OSHA	Positive
44 inches	3-way switch	Stamped	One	Arc-fault interrupter
Negative	Sub-panel	Milliamps	Non-metallic	Silver screws
Type	Single gang box	Resistance	Circuit	Electrical current
Location	American Wire Gauge	Receptacle	Black	

Directions: Fill in the blanks using the words from the word bank.

1. The Greek word for amber was _____.
2. Benjamin Franklin coined the terms _____ and _____ when describing the attraction and repulsion between items, and vice-versa.
3. It would take only 2 _____ to kill the average man.
4. Named for the German scientist Georg S. Ohm, the ohm is a measure of _____ to current flow.
5. When the symbol on the plans, usually by a doorway or opening, is "S3" it is calling for a _____.
6. Electrical symbols represent and indicate the _____ and _____ of ceiling outlets, switches, receptacles and other electrical equipment on the wiring plan.
7. A conductor is any material that allows _____ to flow through it.
8. Wire sizes are categorized according to the _____ system.
9. 9. When an electrical box can hold only one switch or receptacle, it is referred to as a _____.
10. When you are laying out for the plugs in a room, the maximum distance between boxes should not exceed _____.
11. The standard height of a dwelling electrical switch is _____ to the center of the box.
12. If you have too many circuits in one dwelling, you will have to install a _____.
13. The neutral (white) wire attaches to the _____ on a receptacle.
14. You need at least _____ receptacle in both the front and back of a house.
15. When "making up" a two-conductor cable, the _____ is the hot wire.
16. If a circuit is exposed to too much power, it creates an overload. An _____ protects each circuit in case of overloads, by shutting the circuit off.
17. If you see "NM" on a set of electrical plans, it is referring to _____ cable.

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18. When the building inspector shows up to inspect, you must show him an approved _____ set of plans.
19. Wearing safety glasses is a law enforced by _____.
20. An _____ ladder should never be leaned against a building to work off.

Part II Directions: Circle the correct answers to the questions below.

21. What is the most important rule concerning electrical safety?
a. Lock-out/tag-out b. Always work with one hand c. Keep the key d. THINK!
22. What is a Ground Fault?
a. When a crack in the earth's crust opens, causing an earthquake.
b. When an electrical path to ground, other than the intended path is established.
c. When an electrical system comes in direct contact with the sky, causing a short.
d. Amperage divided by the total voltage equals a ground fault.
23. Which statement is true?
e. One electrical horsepower = 746 watts
f. One kilowatt = 1000 watts
g. One
h. Both A and B
24. A dull tool is a
i. a. safe tool b. dangerous tool c. neutral tool d. good tool
25. The force that pushes current through a conductor is
j. a. voltage b. amperage c. dark side of the force d. opposition
26. Ohm's Law
k. is a very good law
l. was named for Thomas "O" Edison
m. was part of the original Constitution
n. states that it takes 1 volt to push 1 amp through 1 ohm
27. To find the layout of the electrical system on a set of plans, how will the page be labeled?
o. a. front page b. back page c. information page d. "E" page
28. When laying out the locations for outlets and receptacles, you see SD in a circle in front of a bedroom door, you know it is a
a. system designator b. smoke detector c. structural detail d. student discount

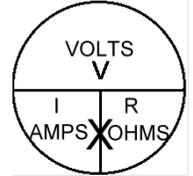
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29. Non-metallic sheathed cable must be stapled within 12" from a _____ to meet code.
- p. a. doorway b. window c. electrical box d. corner
30. In walls constructed of wood or other combustible surface material; boxes, plaster rings, extension rings, or extenders shall be installed flush with the
- q. finished surface b. stud, joist or rafter c. sub-surface d. top plates
31. The bedroom switch shall not be place closer than 3 inches from
- r. a. a window b. the open side of the door
s. c. the sliding closet door d. the hinge side of the door
32. A common switch used at both the top and bottom of a set of stairs is a
- t. dimmer switch b. timed switch c. 3-way switch d. willow switch
33. Which wire attaches to the bronze screw on a receptacle?
- u. a. the white wire b. the blue wire c. the green wire d. the black wire
34. Kitchen outlets shall be spaced no more than _____ along the countertop.
- v. 6 inches b. 12 inches c. 18 inches d. 24 inches
35. When you are laying out for receptacles in a room, do you measure through an opening or doorway?
- w. a. yes b. no c. maybe d. sometimes
36. The first practical incandescent light bulb was patented in 1879 by
- x. a. Benjamin Franklin b. William Gilbert c. Barack Obama d. Thomas Edison
37. The National Electrical Code was first published in 1897 to
- y. a. teaches everyone about electricity b. give a reason to hire inspectors
z. c. set standards for safe electrical installation d. keep the code secret
38. The testing of electrical equipment for compliance recognized standards of safety falls to groups such as:
- a. The Warren Commission b. Underwriters Laboratories c. The Test Kitchen d. Cal-OHSA

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39. The green ground wire shall be terminated at the
a. service panel b. ground rod c. sub-panel d. breaker
40. Most modern-day houses are wired with
a. Romex b. Rolex c. Metal conduit d. Aluminum wire

Part III Directions: Solve the Ohm's Law equations. Show your work.



41. When volts and ohms are known: Find the current of a 120-volt circuit with a resistance of 60 ohms. Answer: _____
42. Calculate the voltage supply needed to produce a current of 12 amps with a 48-ohm resistor. Answer: _____
43. When watts and volts are known: A 120 volts circuit has a 1440-watt load. Determine the current. Answer: _____
44. How many volts will a circuit possess if it has a resistance of 5 ohms, and a current flow of 17 amps? Answer: _____
45. What value of resistor would be used to permit a current of 0.2 amps to flow using a 6-volt supply? Answer: _____
46. Calculate the voltage across a 300-ohm resistor when a current of 0.004 amps flows through it. Answer: _____
47. If a circuits resistance is 7 ohms, at 115 volts, how many amps will flow through it? Answer: _____
48. How many ohms of resistance will a circuit possess if it has a current flow of 15 amps, and a voltage of 230 volts? Answer: _____
49. When ohms and watts are known: Determine the current where a circuit consumes 625 watts through a 12.75-ohm resistor. Answer: _____