

TRUE/FALSE

1. Schedule 40 rigid polyvinyl chloride (Type PVC) conduit has a smaller inside diameter than Schedule 80 rigid nonmetallic PVC conduit.

ANS: F

The outside diameters are the same while the inside diameter of schedule 80 is smaller than schedule 40.

PTS: 1 OBJ: 2-7

2. On a duplex receptacle, the silver screw is used to terminate the white grounded conductor of a 120-volt residential branch circuit.

ANS: T PTS: 1 OBJ: 2-8

3. On a GFCI receptacle, the incoming power is connected to the line terminals.

ANS: T PTS: 1 OBJ: 2-8

4. Manufacturers of nonmetallic sheathed cable color code a 12/2 Type NM cable with the color orange.

ANS: F

12/2 cable is yellow.

PTS: 1 OBJ: 2-5

5. A wirenut is the most common wire connector used by electricians to splice together two or more conductors.

ANS: T PTS: 1 OBJ: 2-6

6. Staples are the most common item used to secure and support cables in residential wiring.

ANS: T PTS: 1 OBJ: 2-11

7. AHJs usually base their approval of electrical equipment on whether it is listed and labeled by a nationally recognized testing laboratory (NRTL).

ANS: T PTS: 1 OBJ: 2-1

8. Boxes with mounting ears are typically called new work boxes; boxes without mounting ears are referred to as old work boxes.

ANS: F

With ears are old work boxes, without ears are new work boxes.

PTS: 1 OBJ: 2-3

9. In the American Wire Gauge system: the smaller the number, the smaller the conductor; and the larger the number, the larger the conductor.

ANS: F

Smaller number means bigger wire, larger number means smaller wire.

PTS: 1

OBJ: 2-5

MULTIPLE CHOICE

1. The _____ is a scale of specified diameters and cross sections for wire sizing and is the standard wire sizing scale for the United States.
- American Wire Gauge
 - Metric system
 - United States measuring system
 - None of the above

ANS: A

PTS: 1

OBJ: 2-5

2. An accidental connection of a “hot” conductor and a grounded piece of equipment or the grounded conductor is called a(n) _____.
- open circuit
 - grounding conductor
 - ground fault
 - complete circuit

ANS: C

PTS: 1

OBJ: 2-8

3. A low resistance path, which results in a high value of current that flows around, rather than through, a circuit is called a(n) _____ circuit.
- open
 - short
 - grounded
 - grounding

ANS: B

PTS: 1

OBJ: 2-8

4. It is the _____ who has the job of approving the electrical materials used for a residential electrical installation.
- electrician
 - foreman
 - architect
 - authority having jurisdiction

ANS: D

PTS: 1

OBJ: 2-1

5. The _____ is an organization that develops electrical equipment standards that all member groups follow when designing and producing electrical equipment.
- Underwriters Laboratories
 - Canadian Standards Association
 - National Electrical Manufacturers Association
 - National Electrical Code*®

ANS: C

PTS: 1

OBJ: 2-2

6. The *National Electrical Code*® requires Type NM cable to be secured no more than _____ inches from single-gang nonmetallic device boxes.
- a. 6
 - b. 8
 - c. 10
 - d. 12

ANS: B PTS: 1 OBJ: 2-5

7. When nonmetallic device boxes that are 2-gang or more are used, the installed Type NM cable must be secured no more than _____ inches from the box.
- a. 8
 - b. 10
 - c. 12
 - d. 18

ANS: C PTS: 1 OBJ: 2-5

8. When using aluminum conductors, _____ size conductor must be used to carry the same amount of current as a copper conductor.
- a. a smaller
 - b. the same
 - c. a larger
 - d. the same or larger

ANS: C PTS: 1 OBJ: 2-5

9. Which of the following conductors is the largest?
- a. 8 AWG
 - b. 10 AWG
 - c. 12 AWG
 - d. 14 AWG

ANS: A PTS: 1 OBJ: 2-5

10. The _____ circuit conductor in a 120-volt residential branch circuit is used as the grounded conductor and returns current from the load back to the source.
- a. black
 - b. white
 - c. red
 - d. green

ANS: B PTS: 1 OBJ: 2-5

11. Type _____ cable is used for underground installations of branch and feeder circuits.
- a. NM
 - b. NM-B
 - c. SE
 - d. None of the above

ANS: D
Type UF

PTS: 1 OBJ: 2-5

12. Type _____ cable is used for underground service entrance installations.

- a. SE
- b. UF
- c. USE
- d. NM-B

ANS: C PTS: 1 OBJ: 2-5

13. The NEC® requires rigid metal conduit to be supported within _____ feet of each box and then no more than every _____ feet thereafter (general rule).
- a. 3, 8
 - b. 5, 10
 - c. 2, 10
 - d. 3, 10

ANS: D PTS: 1 OBJ: 2-7

14. The ungrounded “hot” conductor of a 120-volt residential branch circuit is terminated to the _____ terminal on a duplex receptacle.
- a. brass
 - b. silver
 - c. green
 - d. black

ANS: A PTS: 1 OBJ: 2-8

15. CO/ALR marked on a receptacle indicates that _____ conductors may be terminated to it.
- a. copper
 - b. copper-clad aluminum
 - c. aluminum
 - d. All of the above
 - e. a and b only

ANS: D PTS: 1 OBJ: 2-8

16. A switch that is used on 240-volt residential branch circuits to control a load from one location is called a _____ switch.
- a. single-pole
 - b. double-pole
 - c. occupancy
 - d. combination

ANS: B PTS: 1 OBJ: 2-8

17. Which of the following switches has ON/OFF marked on the switch handle?
- a. Three way
 - b. Double pole
 - c. Four way
 - d. None of the above

ANS: B PTS: 1 OBJ: 2-8

18. _____ are the most often used type of overcurrent protection device used in residential wiring.
- a. Circuit breakers
 - b. Edison-base fuses
 - c. Plug fuses
 - d. Cartridge fuses

ANS: A

PTS: 1

OBJ: 2-9

19. _____ plug fuses are considered nontamperable and are used in new installations requiring plug fuses.
- a. Edison-base
 - b. Type S
 - c. Cartridge
 - d. Plug

ANS: B

PTS: 1

OBJ: 2-9

20. A part of an electrical box that is designed to be removed so that a cable or raceway can be connected to the box is called a _____.
- a. knockout
 - b. mounting bracket
 - c. cable clamp
 - d. plaster ear

ANS: A

PTS: 1

OBJ: 2-3

21. When two or more electrical device boxes are joined together for the purpose of holding more than one device it is called _____.
- a. fitting
 - b. ganging
 - c. sticking
 - d. boxing

ANS: B

PTS: 1

OBJ: 2-3

22. Romex is a trade name used by electricians to refer to _____.
- a. armored cable
 - b. metal-clad cable
 - c. underground feeder cable
 - d. nonmetallic sheathed cable

ANS: D

PTS: 1

OBJ: 2-5

23. A GFCI circuit breaker is easily recognizable by the “push-to-test” button and the _____.
- a. yellow body
 - b. length of white wire attached to it
 - c. larger operating handle
 - d. smaller body size

ANS: B

PTS: 1

OBJ: 2-8

24. If a switching device has the marking CU ONLY on it, an electrician can use only _____ wire with the device.
- a. copper
 - b. copper-clad aluminum
 - c. aluminum
 - d. Any of the above

ANS: A

PTS: 1

OBJ: 2-8

25. The _____ is the device that is inserted into a receptacle to establish a connection between the conductors of the attached flexible cord and the conductors connected to the receptacle.
- a. outlet
 - b. fuse
 - c. connector
 - d. attachment plug

ANS: D PTS: 1 OBJ: 2-8

26. Almost all 15 or 20-amp, 125-V receptacles required in a house must be _____.
- a. tamper resistant
 - b. terminated
 - c. color coded
 - d. self-grounding

ANS: A PTS: 1 OBJ: 2-8

27. A _____ is a type of electrical panel that contains the main disconnecting means for the residential service entrance as well as the fuses or circuit breakers used to protect circuits and equipment like electric water heaters, ranges, dryers, and lighting.
- a. safety switch
 - b. load center
 - c. subpanel
 - d. meter socket

ANS: B PTS: 1 OBJ: 2-10

28. A weatherproof enclosure designed to give protection from falling dirt, rain, snow, sleet, and windblown dust is classified as a _____ enclosure and will need to be installed for outside applications.
- a. NEMA 1
 - b. NEMA 2
 - c. NEMA 3R
 - d. NEMA 12

ANS: C PTS: 1 OBJ: 2-10

29. A _____ is described as a factory assembly of two or more conductors that has an overall outer sheathing that can be nonmetallic or metallic.
- a. wire
 - b. conductor
 - c. cable
 - d. None of the above

ANS: C PTS: 1 OBJ: 2-5

COMPLETION

1. All _____ boxes must be accessible after they are installed.

ANS: junction

PTS: 1 OBJ: 2-3

2. The _____ of a conductor refers to its ability to carry current.

ANS: ampacity

PTS: 1 OBJ: 2-5

3. In residential wiring, the NEC[®] requires a _____-ampere circuit breaker or fuse to be used with 12 AWG copper conductors.

ANS: 20

PTS: 1 OBJ: 2-9

4. Electricians often refer to Type AC cable as _____ cable.

ANS: BX

PTS: 1 OBJ: 2-5

5. A(n) _____ is a point on the wiring system at which current is taken to supply equipment.

ANS: outlet

PTS: 1 OBJ: 2-8

6. _____ devices are used when more than one device is needed at one location.

ANS: Combination

PTS: 1 OBJ: 2-8

7. A _____ is an overcurrent device that opens a circuit when a fusible link is melted away by the extreme heat caused by an overcurrent.

ANS: fuse

PTS: 1 OBJ: 2-9

8. _____ plug fuses cannot be used in new installations.

ANS: Edison-base

PTS: 1 OBJ: 2-9

9. _____ is a measure of how much a fastener is being tightened and is measured in foot-pounds or inch-pounds.

ANS: Torque

PTS: 1 OBJ: 2-11

10. A single-pole breaker is used on a circuit voltage of _____ volts and a two-pole breaker is used on a circuit voltage of _____ volts in residential wiring.

ANS: 120, 240

PTS: 1 OBJ: 2-9

11. In certain locations in the United States, the AHJ may not allow nonmetallic sheathed cable in residential construction. The alternative wiring method most often used is _____.

ANS:
armored-clad
metal-clad cable
conduit

PTS: 1 OBJ: 2-5

12. Section _____ states that only qualified electrical testing labs can test, evaluate, and then list electrical products.

ANS: 110.3(C)

PTS: 1 OBJ: 2-2

SHORT ANSWER

1. Explain how a product gets listed.

ANS:
Product meets a set of designated standards set up by a Nationally Recognized Testing Laboratory.

PTS: 1 OBJ: 2-2

2. Explain the purpose of an antioxidant in electrical wiring.

ANS:
Used with aluminum conductors to prevent oxidation and maintain a good electrical connection.

PTS: 1 OBJ: 2-5

3. Describe a situation when three-way switches are used in a residential lighting circuit.

ANS:
When one or more light fixtures on a circuit are to be controlled from two locations.

PTS: 1 OBJ: 2-8