

Continuing Education, For UDC Electrical Inspectors, Commercial Electrical Inspectors, Master Electricians and Journeyman Electricians.

The following test is for Continuing Education Credits for the above-mentioned Licenses and Credentials, All answers are found in the 2008 NEC. Please call Brett at (920) 740-4348 with any questions or concerns with this or any other issue you may have.

All questions have a correct answer that can be found in the codebook, when your test is completed read the information at the bottom of the page and send the proper items in to obtain your credit.

Electrical Continuing Ed Test 5

Article 250: Grounding and Bonding

1. Where more than one separately derived system is installed, it shall be permissible to connect a _____ from each separately derived system to a common grounding electrode conductor.

- a. Wire
- b. Tap
- c. Busbar
- d. Feeder

2. This connection shall be not made at the same point on the separately derived system where the system bonding jumper is installed.

- a. True
- b. False

3. A ground ring encircling the building or structure, in direct contact with the earth, consisting of at least _____ feet of bare copper conductor not smaller than 2 AWG.

- a. 20
- b. 12
- c. 25
- d. 15

4. The following systems and materials shall not be used as grounding electrodes:

- a. Zinc Coated steel
- b. Metal underground gas piping systems
- c. Aluminum
- d. b and c

5. Rod, pipe, and plate electrodes shall be free from _____ coatings such as paint or enamel.

- a. Moisture resistant
- b. Conductive
- c. Nonconductive
- d. Permanent

6. _____ electrodes shall not be installed not less than 750 mm below the surface of the earth.

- a. Rod
- b. Plate
- c. Pipe
- d. a and c

7. The grounding electrode conductor shall be of copper, aluminum, or copper-clad aluminum. the conductor shall be:

- a. Solid or stranded
- b. Insulated
- c. Covered or bare
- d. All of the above

8. _____ aluminum or copper clad aluminum grounding conductors shall not be used where in direct contact with masonry or the earth or where subject to corrosive conditions.

- a. Covered
- b. Bare
- c. Insulated
- d. Solid

9. Where exposed, a grounding electrode conductor or its enclosure shall be securely fastened to the surface on which it is _____.

- a. Carried
- b. Terminated
- c. Installed
- d. Bonded

10. Grounding electrode conductor(s) shall be installed in one continuous length without a splice or joint except as permitted in which of the following:

- a. Splicing shall be permitted only by irreversible compression-type connectors listed as grounding and bonding equipment or by the exothermic welding process.
- b. Sections of busbars shall be permitted to be connected together to form a grounding electrode conductor.
- c. a OR b
- d. a AND b

11. Ferrous metal enclosures shall be required to be electrically continuous.

- a. True
- b. False

12. The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of which of the following:

- a. Rigid metal conduit
- b. Intermediate metal conduit
- c. Electrical metallic tubing
- d. All of the above

13. The terminal for the connection of the equipment grounding conductor shall be identified by all of the following EXCEPT:

- a. A green, hexagonal, readily removable terminal nut
- b. A green, not readily removable terminal screw with a hexagonal head
- c. A green pressure wire connector
- d. If the terminal for the grounding conductor is not visible, the conductor source of separately derived systems shall be made in accordance with 250.30(A)(1).

Article 280: Surge Arresters, Over 1kV

14. A surge arrester shall not be installed where the rating of the surge arrester is _____ the maximum continuous phase to ground power frequency voltage available at the point of application.

- a. Greater than
- b. Equal to
- c. Less than
- d. None of the above

15. Where used at a point on a circuit, a surge arrester shall be connected to _____ ungrounded conductor (s).

- a. A single
- b. Each
- c. The identified
- d. Energized

16. Surge arresters shall be permitted to be located:

- a. Indoors
- b. Outdoors
- c. a and b
- d. In accessible locations to unqualified persons

17. The arrester grounding conductor shall be connected to which one of the following:

- a. Ungrounded service conductor
- b. Grounding electrode conductor
- c. Grounding electrode for the service
- d. b and c

18. In urban water-pipe areas where there are at least _____ water-pipe connections on the neutral conductor and not fewer than _____ such connections in each mile of neutral conductor, the metallic interconnection shall be permitted to be made to the secondary neutral conductor with the omission of the direct grounding connection at the surge arrester.

- a. Two
- b. Three
- c. Four
- d. Five

Article 300: Wiring Methods

19. Conductors of _____ circuits, rated 600 volts, nominal, or less, shall be permitted to occupy the same equipment wiring enclosure, cable, or raceway.

- a. ac
- b. ac and dc
- c. dc
- d. The same

20. Where subject to physical damage, conductors shall be _____.

- a. Insulated
- b. Concealed
- c. Exposed
- d. Protected

21. In both exposed and concealed locations where nonmetallic-sheathed cables pass through either factory- or field punched, cut, or drilled slots or holes in metal members, the cable shall be protected by listed bushings or listed _____ covering all metal edges that are securely fastened in the opening prior to installation of the cable.

- a. Spinners
- b. Grommets
- c. Clamps
- d. Rivets

22. A cable- or raceway-type wiring method, installed in exposed or concealed locations under sheet roof decking, shall be installed and supported so the nearest outside surface of the cable or raceway is not less than 38 mm from the nearest surface of the _____ roof decking.

- a. Plywood
- b. Metal-corrugated
- c. Oriented strand board
- d. Tongue and groove

23. The interior of enclosures or raceways installed underground shall be considered to be a _____ location.
- a. Dry
 - b. Wet
 - c. Enclosed
 - d. Concealed
24. Where the enclosure or raceway is subject to physical damage, the conductors shall be installed in:
- a. Rigid metal conduit
 - b. Intermediate metal conduit
 - c. Schedule 40 PVC conduit
 - d. a and b
25. Where exposed to sunlight, the materials shall be listed as _____ resistant or shall be identified as _____ resistant.
- a. Moisture
 - b. Heat
 - c. Light
 - d. Sunlight
26. Direct-buried conductors or cables shall be permitted to be spliced or tapped without the use of _____.
- a. Transformer box pads
 - b. Secondary pedestals
 - c. Switchgear pads
 - d. Splice boxes
27. Where subject to exposure to chemical solvents, vapors, splashing, or immersion, materials or coatings shall either be _____ resistant to chemicals based on their listing or be identified for the specific chemical reagent.
- a. Inherently
 - b. Basically
 - c. Mainly
 - d. Mostly
28. Where raceways are installed in wet locations abovegrade, the _____ of these raceways shall be considered to be a wet location.
- a. Peripheral
 - b. Exterior
 - c. Interior
 - d. Innermost

29. Wiring located within the cavity of a fire-rated floor-ceiling or roof-ceiling assembly shall not be secured to, or supported by, the ceiling _____, including the ceiling support wires.

- a. Assembly
- b. Suspension
- c. Mount
- d. Frame

30. Metal or nonmetallic raceways, cable armors, and cable sheaths shall be continuous between cabinets, boxes, fittings, or other enclosures or _____.

- a. Receptacles
- b. Switches
- c. Outlets
- d. Sockets

31. An integral _____ or wiring compartment as part of approved equipment shall be permitted in lieu of a box.

- a. Junction box
- b. Cable
- c. Conduit
- d. Tray

32. The number and size of conductors in any raceway shall not be more than will permit _____ of the heat and ready installation or withdrawal of the conductors without damage to the conductors or to their insulation.

- a. Dissipation
- b. Expansion
- c. Extension
- d. Contraction

33. Raceways, other than busways or exposed raceways having _____ or removable covers, shall be installed complete between outlet, junction, or splicing points prior to the installation of covers.

- a. Jointed
- b. Bridged
- c. Approved
- d. Hinged

34. Metal raceways shall not be supported, terminated, or connected by _____ to the raceway unless specifically designed to be or otherwise specifically permitted to be in this Code.

- a. Soldering
- b. Brazing
- c. Welding
- d. Joining

35. Where conductors carrying alternating current are installed in _____ metal enclosures or _____ metal raceways, they shall be arranged so as to avoid heating the surrounding _____ metal by induction.

- a. Nonferrous
- b. Molybdenum
- c. Cobalt
- d. Ferrous

36. Electrical installations in which of the following shall be made so that the possible spread of fire or products of combustion will not be substantially increased:

- a. Ventilation or Air Handling Ducts
- b. Hollow Spaces
- c. Vertical Shafts
- d. All of the above

37. No wiring systems of any type shall be installed in ducts used to transport _____, loose stock, or flammable vapors.

- a. Dirt
- b. Dust
- c. Sand
- d. Soil

38. No wiring systems of any type shall be installed in ducts used to transport dust, loose stock, or _____ vapors.

- a. Flammable
- b. Water
- c. Dangerous
- d. Toxic

39. Electrical wiring in air-handling areas beneath _____ floors for information technology shall be permitted in accordance with Article 645.

- a. Floating
- b. Sprung
- c. Raised
- d. Glass

40. Cables, raceways, and equipment installed behind panels designed to allow access, including _____ panels, shall be arranged and secured so as to allow the removal of panels and access to the equipment.

- a. Solar
- b. Integrated
- c. Control
- d. Suspended ceiling

41. Suitable covers shall be installed on all boxes, fittings, and similar enclosures to prevent accidental contact with _____ parts or physical damage to parts or insulation.

- a. Activated
- b. Supplied
- c. Energized
- d. Inactivated

42. The conductor shall not be bent to a radius less than _____ times the overall diameter for nonshielded conductors or 12 times the overall diameter for shielded or lead-covered conductors during or after installation.

- a. 2
- b. 4
- c. 6
- d. 8

43. Where a raceway enters from an underground system, the end within the building shall be _____ with an identified compound so as to prevent the entrance of moisture or gases, so it shall be so arranged to prevent moisture from contacting live parts.

- a. Sealed
- b. Preserved
- c. Reinforced
- d. Marked

Article 310: Conductors for General Wiring

44. The paralleled conductors in each phase, polarity, neutral, grounded circuit conductor, or equipment grounding conductor shall comply with all of the following EXCEPT:

- a. Be the same length
- b. Have the same conductor voltage
- c. Be terminated in the same manner
- d. Have the same insulation type

45. Conductors exposed to oils, greases, vapors, gases, fumes, liquids, or other substances having a _____ effect on the conductor or insulation shall be of type suitable for the application.

- a. Harmful
- b. Poisonous
- c. Safe
- d. Deleterious

46. Where run in separate cables or raceways, the cables or raceways with conductors shall have the _____ number of conductors and shall have the same electrical characteristics.

- a. Same
- b. Corresponding
- c. Correct
- d. Approved

47. A type letter or letters used _____ shall indicate a single insulated conductor.

- a. Together
- b. Alone
- c. Simultaneously
- d. Repeatedly

48. All conductors and cables contained in Chapter 3 shall be permitted to be surface marked to indicate special _____ of the cable materials.

- a. Characteristics
- b. Qualities
- c. Traits
- d. Flaws

49. Equipment grounding conductors shall be permitted to be sectioned within a listed multiconductor cable, provided the _____ circular mil area complies with 250.122.

- a. Total
- b. Collective
- c. Individual
- d. Combined

50. Where more than one calculated or tabulated ampacity could apply for a given circuit length, the _____ value shall be used.

- a. Highest
- b. Lowest
- c. Mean
- d. Median

51. Where bare or covered conductors are installed with insulated conductors, the temperature rating of the bare or covered conductor shall be _____ to the lowest temperature rating of the insulated conductors for the purpose of determining ampacity.

- a. Comparable
- b. Appropriate
- c. Adjusted
- d. Equal

52. _____ means any of the electrical conduits recognized in Chapter 3 as suitable for use underground; other raceways round in cross section, listed for underground use, and embedded in earth or concrete.

- a. Thermal Resistivity
- b. Grounded Shields
- c. Selection of Ampacity
- d. Electrical Ducts

53. _____ means the heat transfer capability through a substance by conduction.

- a. Electrical Ducts
- b. Grounded Shields
- c. Thermal Resistivity
- d. Selection of Ampacity

Article 312: Cabinets, Cutout Boxes, and Meter Socket Enclosures

54. In walls of concrete, tile, or other noncombustible materials, cabinets shall be installed so that the front edge of the cabinet is not set back of the finished surface more than _____ mm.

- a. 6
- b. 4
- c. 8
- d. 6.5

55. In walls constructed of _____ or other combustible material, cabinets shall be flush with the finished surface or project therefrom.

- a. Wood
- b. Drywall
- c. Nonmetals
- d. None of the above

56. Noncombustible surfaces that are broken or incomplete shall be repaired so there will be no gaps or open spaces greater than _____ mm at the edge of the cabinet or cutout box employing a flush-type cover.

- a. 3
- b. 4
- c. 2
- d. 1

57. Cabinets and cutout boxes shall have sufficient space to accommodate all conductors installed in them without _____.

- a. Competing
- b. Jamming
- c. Crowding
- d. Obstruction

58. Metal enclosures within the scope of this article shall be protected both inside and outside against _____.

- a. Oxidization
- b. Corrosion
- c. Deterioration
- d. Weakening

Article 314: Outlet, Device, Pull, and Junction Boxes, etc.

59. Cast, sheet metal, nonmetallic, and other boxes such as FS, FD, and larger boxes are not classified as conduit bodies.

- a. True
- b. False

60. _____ boxes shall not be used where conduits or connectors requiring the use of locknuts or bushings are to be connected to the side of the box.

- a. Junction
- b. Round
- c. Nonmetallic
- d. Metal

61. _____ boxes shall be permitted only with open wiring on insulators, concealed knob-and-tube wiring, cabled wiring methods with entirely nonmetallic sheaths, flexible cords, and nonmetallic raceways.

- a. Junction
- b. Round
- c. Nonmetallic
- d. Metal

62. _____ boxes shall be grounded and bonded in accordance with PARTS I, IV, V, VI, VII, and X of Article 250 as applicable, except as permitted in 250.112 (I).

- a. Junction
- b. Round
- c. Nonmetallic
- d. Metal

63. Surface extensions shall be made by mounting and _____ securing an extension ring over the box.

- a. Manually
- b. Mechanically
- c. Professionally
- d. Automatically

Article 320: Armored Cable: Type AC

64. Type AC cable shall be permitted in all of the following EXCEPT:

- a. For feeders and branch circuits in both exposed and concealed work
- b. In cable trays
- c. Embedded in plaster finish on brick or other masonry (dry)
- d. In damp or wet conditions

65. Type AC cable shall NOT be used as follows EXCEPT:

- a. In dry locations
- b. Where subject to physical damage
- c. Where exposed to corrosive fumes or vapors
- d. In damp or wet conditions

Article 322: Flat Cable Assemblies: Type FC

66. Flat cable assemblies shall be permitted in all of the following EXCEPT:

- a. Where installed for exposed work
- b. In hoistways or on elevators or escalators
- c. In locations where they will not be subjected to physical damage.
- d. As branch circuits to supply suitable tap devices for lighting, small appliances, or small power loads.

67. Flat cable assemblies shall NOT be used in all of the following EXCEPT:

- a. In surface metal raceways identified for the use.
- b. Where subject to corrosive vapors unless suitable for the application.
- c. In any hazardous location.
- d. Outdoors or in wet or damp locations unless identified for the use.

68. Flat cable assemblies shall consist of _____ conductors:

- a. Two or three
- b. Four or five
- c. Both a and b
- d. Neither a or b

69. Flat cable assemblies shall have conductors of 10 AWG special stranded _____wires.

- a. Aluminum
- b. Copper
- c. Sheathed
- d. Insulated

Article 324: Flat Conductor Cable: Type FCC

70. _____ means a protective layer that is installed between the floor and Type FCC flat conductor cable to protect the cable from physical damage and may or may not be incorporated as an integral part of the cable.

- a. Cable Connector
- b. Bottom Shield
- c. FCC System
- d. Top Shield

71. _____ means an insulator designed to electrically insulate the end of a Type FCC cable.

- a. Insulating End
- b. Transition Assembly
- c. Metal shield connections
- d. FCC System

72. Use of FCC systems shall be permitted in all of the following EXCEPT::

- a. General purpose circuits
- b. Appliance branch circuits
- c. Multiple branch circuits
- d. Individual branch circuits

73. Voltage between ungrounded conductors and the grounded conductor shall not exceed _____ volts.

- a. 200
- b. 150
- c. 300
- d. None of the above

74. Use of FCC systems shall be permitted in all of the following EXCEPT:

- a. Outdoors or in wet locations
- b. Damp locations
- c. Hard or sound floor surfaces
- d. Smooth or continuous floor surfaces

75. FCC systems shall not be used in all of the following locations EXCEPT:

- a. Residential buildings
- b. School buildings
- c. On wall surfaces in surface metal raceways
- d. Hospital buildings

Article 326: Integrated Gas Spacer Cable: Type IGS

76. Type IGS cable shall be permitted for use under ground, including direct burial in the earth in which of the following:

- a. Exposed in contact with buildings
- b. Service-entrance conductors
- c. Feeder or branch-circuit conductors
- d. b and c

Article 328: Medium Voltage Cable: Type MV

77. Type MV cable shall be permitted for use on power systems rated up to 35,000volts nominal in all of the following EXCEPT:

- a. Exposed to direct sunlight
- b. In wet locations
- c. In dry locations
- d. In raceways

Article 330: Metal-Clad Cable: Type MC

78. Type MC cable shall be permitted in all of the following EXCEPT:

- a. Indoors
- b. Outdoors
- c. Where subject to physical damage
- d. As aerial cable on a messenger

79. Unless the metallic sheath or armor is resistant to the conditions or is protected by material resistant to the conditions, type MC cable shall not be used in which of the following:

- a. Where exposed to any of the destructive corrosive conditions when direct buried in the earth or embedded in concrete
- b. Where exposed to any of the destructive corrosive conditions when exposed to cinder fills, strong chlorides, caustic alkalis, or vapors of chlorine or of hydrochloride acids.
- c. both a and b
- d. neither a or b

Article 332: Mineral Insulated, Metal-Sheathed Cable, Type MI

80. Type MI cable shall be permitted in all of the following EXCEPT:

- a. In underground runs unless protected from physical damage, where necessary
- b. For services, feeders, and branch circuits
- c. For power, lighting, control, and signal circuits
- d. Indoors or outdoors

Article 334: Nonmetallic-Sheathed Cable: Types NM, NMC, and NMS

81. _____ means insulated conductors enclosed within an overall nonmetallic jacket.

- a. NM
- b. NMC
- c. NMS
- d. All of the above

82. _____ means insulated conductors enclosed within an overall, corrosive resistant , nonmetallic jacket.

- a. NM
- b. NMC
- c. NMS
- d. None of the above

83. _____ means insulated power or control conductors with signaling, data, and communications conductors within an overall nonmetallic jacket.

- a. NM
- b. NMC
- c. NMS
- d. All of the above

84. Type NM, Type NMC, and Type NMS cables shall be permitted to be used in all of the following EXCEPT:

- a. One-and two-family dwellings
- b. Exposed in dropped or suspended ceilings in other than one-and-two family and multifamily dwellings
- c. Multifamily dwellings permitted to be of Types III, IV, and V construction except as prohibited in 334.12
- d. Cable trays in structures permitted to be Types III, IV, or V where the cables are identified for the use.

85. Type NM cable shall be permitted in which of the following:

- a. Exposed work in normally dry locations except as prohibited in 334.10 (3)
- b. Concealed work in normally dry locations except as prohibited in 334.10 (3)
- c. To be installed or fished I air voids in masonry block or tile walls
- d. All of the above

86. Types NM, NMC, and NMS cables shall not be permitted in all of the following EXCEPT:

- a. Other structures permitted to be of Types III, IV, and V construction except as prohibited in 334.12.
- b. In motion picture studios
- c. In storage battery rooms
- d. As service entrance cable

87. Types NM and NMS cables shall not used in all of the following conditions or locations EXCEPT:

- a. In wet or damp locations
- b. In normally dry locations
- c. Where exposed to corrosive fumes or vapors
- d. Where embedded in masonry, concrete, adobe, fill, or plaster

88. In addition to the insulated conductors, the cable shall have a(n)_____ equipment grounding conductor:

- a. Insulated
- b. Covered
- c. Bare
- d. All of the above

89. The overall covering for Type NMC shall be:

- a. Flame retardant
- b. Moisture and fungus resistant
- c. Corrosion resistant
- d. All of the above

Article 336: Power and Control Tray Cable: Type TC

90. Type TC cable shall be permitted to be used in all of the following EXCEPT:

- a. Where exposed to direct rays of the sun, unless as identified as sun resistant
- b. In cable trays
- c. In raceways
- d. For power, lighting, control, and signal circuits

91. Type TC tray cable shall not be installed or used in all of the following EXCEPT:

- a. Where it will be exposed to physical damage
- b. Outside a raceway or cable tray system, except as permitted in 336.10 (7)
- c. In outdoor locations supported by a messenger wire
- d. Direct buried, unless identified for such use

Article 400: Flexible Cords and Cables

92. Flexible cords and cables shall be used for all of the following EXCEPT:

- a. Pendants
- b. Where attached to building surfaces
- c. Elevator cables
- d. Wiring of cranes and hoists

93. Unless specifically permitted in 400.7, flexible cords and cables shall not be used in all of the following EXCEPT:

- a. Wiring of luminaires
- b. As a substitute for the fixed wiring of a structure
- c. Where run through holes in walls, structural, suspended, dropped ceilings or floors
- d. Where run through doorways, windows, or similar openings

94. Where a single conductor is used for both equipment grounding and to carry unbalanced current from other conductors, as provided for in 250.140 for electric ranges and electric clothes dryers, it shall not be considered as a _____ conductor.

- a. Silver
- b. Concrete
- c. Current-carrying
- d. Dirty-water

95. Flexible cords and cables shall be marked by means of a printed tag attached to the _____ or carton.

- a. Air Feed
- b. Straighteners
- c. Cradle
- d. Coil reel

96. Flexible cord shall be used only in continuous lengths without splice or _____ where initially installed in applications permitted by 400. 7 (A).

- a. Joint
- b. Thread
- c. Dies
- d. Tap

97. Flexible cords and cables shall be connected to devices and to fittings so that _____ is not transmitted to joints or terminals.

- a. Tension
- b. Pressure
- c. Weight
- d. Stress

98. Flexible cords not smaller than _____ AWG, and tinsel cords or cords having equivalent characteristics of smaller size approved for use with specific appliances, shall be considered as protected against overcurrent by the overcurrent devices described in 240.5.

- a. 12
- b. 18
- c. 20
- d. 15

99. Flexible cords and cables shall be protected by _____ or fittings where passing through holes in covers, outlet boxes, or similar enclosures.

- a. Bushings
- b. Lockscrews
- c. Clamps
- d. Sleeves

100. Flexible cords shall be examined and tested at the factory and _____ before shipment.

- a. Labeled
- b. Tagged
- c. Ticketed
- d. Marked

101. For jacketed cords furnished with appliances, one conductor having its insulation colored light _____, with the other conductors having their insulation of a readily distinguishable color other than white or gray.

- a. Blue
- b. Green
- c. Brown
- d. Yellow

102. One conductor having the individual strands tinned and the other conductor or conductors having the individual strands untinned for cords having insulation on the individual conductors integral with the _____.

- a. Conduit
- b. Jacket
- c. Cable
- d. Conductor

103. The conductors shall be _____ AWG copper or larger and shall employ flexible stranding.

- a. 18
- b. 12
- c. 15
- d. 20

104. Cables operated at over 2000 volts shall be _____.

- a. Protected
- b. Shielded
- c. Isolated
- d. Reinforced

105. All shields shall be _____ to an equipment grounding conductor.

- a. Coupled
- b. Joined
- c. Connected
- d. Attached

106. The minimum bending radii for _____ cables during installation and handling in service shall be adequate to prevent damage to the cable.

- a. Flexible
- b. Transportable
- c. Fixed
- d. Portable

107. Connectors used to connect lengths of cable in a run shall be of a type that _____ firmly together.

- a. Secures
- b. Fasten
- c. Attaches
- d. Locks

108. Portable cables shall not contain splices unless the splices are of the permanent molded, _____ types in accordance with 110.14 (B).

- a. Vulcanized
- b. Exposed
- c. Displaced
- d. Compressed

Article 402: Fixture Wires

109. No conductor shall be used under such conditions that its operating temperature exceeds the temperature specified in Table 402.3 for the type of _____ involved.

- a. Cable
- b. Conductor
- c. Insulation
- d. Wire

110. Thermoplastic insulated fixture wire shall be durably marked on the surface at _____ not exceeding 610 mm (24 in.).

- a. Spaces
- b. Breaks
- c. Gaps
- d. Intervals

111. Fixture wires shall not be used as branch-circuit conductors except as permitted elsewhere in the _____.

- a. Guidelines
- b. Specifications
- c. Code
- d. Regulations

Article 404: Switches

112. Three-way and four-way switches shall be wired so that all switching is done only in the _____ circuit conductor.

- a. Ungrounded
- b. Multiwire branch
- c. Grounded
- d. Motor

113. Switches and circuit breakers shall be of the externally operable type _____ in an enclosure listed for the intended use.

- a. Based
- b. Supported
- c. Grounded
- d. Mounted

114. _____ shall not be used as junction boxes, auxiliary gutters, or raceways for conductors feeding through or tapping off to other switches or overcurrent devices, unless the enclosure complies with 312.8.

- a. Rigid attachment connectors
- b. Enclosures
- c. Cable to cable connectors
- d. General use conductors

115. A surface mounted switch or circuit breaker in a damp or wet location shall be _____ in a weatherproof enclosure or cabinet that shall comply with 312.2.

- a. Wrapped up
- b. Supported
- c. Mounted
- d. Enclosed

116. A _____ mounted switch or circuit breaker in a damp or wet location shall be equipped with a weatherproof cover.

- a. Flush
- b. Horizontally
- c. Vertically
- d. Rotationally

117. _____ knife switches shall be placed so that gravity will not tend to close them.

- a. Snap
- b. Multipole Snap
- c. Double-throw
- d. Single-throw

118. _____ knife switches shall be permitted to be mounted so that the throw is either vertical or horizontal.

- a. Snap
- b. Multipole Snap
- c. Single-throw
- d. Double-throw

119. Single-throw knife switches and switches with butt contacts shall be connected such that their blades are _____ when the switch is in the open position.

- a. Energized
- b. Lighted
- c. De-energized
- d. Closed

120. Where these switch or circuit breaker handles are operated vertically rather than _____ or horizontally, the up position of the handle shall be the (on) position.

- a. Rotationally
- b. Cylindrically
- c. Linearly
- d. Non-rotationally

Electrical Continuing Ed Test 5 Answer Sheet

Circle or mark the correct answer

- | | | | | | | | | | | | | | | |
|-----|---|---|---|---|-----|---|---|---|---|------|---|---|---|---|
| 1. | a | b | c | d | 49. | a | b | c | d | 97. | a | b | c | d |
| 2. | a | b | c | d | 50. | a | b | c | d | 98. | a | b | c | d |
| 3. | a | b | c | d | 51. | a | b | c | d | 99. | a | b | c | d |
| 4. | a | b | c | d | 52. | a | b | c | d | 100. | a | b | c | d |
| 5. | a | b | c | d | 53. | a | b | c | d | 101. | a | b | c | d |
| 6. | a | b | c | d | 54. | a | b | c | d | 102. | a | b | c | d |
| 7. | a | b | c | d | 55. | a | b | c | d | 103. | a | b | c | d |
| 8. | a | b | c | d | 56. | a | b | c | d | 104. | a | b | c | d |
| 9. | a | b | c | d | 57. | a | b | c | d | 105. | a | b | c | d |
| 10. | a | b | c | d | 58. | a | b | c | d | 106. | a | b | c | d |
| 11. | a | b | c | d | 59. | a | b | c | d | 107. | a | b | c | d |
| 12. | a | b | c | d | 60. | a | b | c | d | 108. | a | b | c | d |
| 13. | a | b | c | d | 61. | a | b | c | d | 109. | a | b | c | d |
| 14. | a | b | c | d | 62. | a | b | c | d | 110. | a | b | c | d |
| 15. | a | b | c | d | 63. | a | b | c | d | 111. | a | b | c | d |
| 16. | a | b | c | d | 64. | a | b | c | d | 112. | a | b | c | d |
| 17. | a | b | c | d | 65. | a | b | c | d | 113. | a | b | c | d |
| 18. | a | b | c | d | 66. | a | b | c | d | 114. | a | b | c | d |
| 19. | a | b | c | d | 67. | a | b | c | d | 115. | a | b | c | d |
| 20. | a | b | c | d | 68. | a | b | c | d | 116. | a | b | c | d |
| 21. | a | b | c | d | 69. | a | b | c | d | 117. | a | b | c | d |
| 22. | a | b | c | d | 70. | a | b | c | d | 118. | a | b | c | d |
| 23. | a | b | c | d | 71. | a | b | c | d | 119. | a | b | c | d |
| 24. | a | b | c | d | 72. | a | b | c | d | 120. | a | b | c | d |
| 25. | a | b | c | d | 73. | a | b | c | d | | | | | |
| 26. | a | b | c | d | 74. | a | b | c | d | | | | | |
| 27. | a | b | c | d | 75. | a | b | c | d | | | | | |
| 28. | a | b | c | d | 76. | a | b | c | d | | | | | |
| 29. | a | b | c | d | 77. | a | b | c | d | | | | | |
| 30. | a | b | c | d | 78. | a | b | c | d | | | | | |
| 31. | a | b | c | d | 79. | a | b | c | d | | | | | |
| 32. | a | b | c | d | 80. | a | b | c | d | | | | | |
| 33. | a | b | c | d | 81. | a | b | c | d | | | | | |
| 34. | a | b | c | d | 82. | a | b | c | d | | | | | |
| 35. | a | b | c | d | 83. | a | b | c | d | | | | | |
| 36. | a | b | c | d | 84. | a | b | c | d | | | | | |
| 37. | a | b | c | d | 85. | a | b | c | d | | | | | |
| 38. | a | b | c | d | 86. | a | b | c | d | | | | | |
| 39. | a | b | c | d | 87. | a | b | c | d | | | | | |
| 40. | a | b | c | d | 88. | a | b | c | d | | | | | |
| 41. | a | b | c | d | 89. | a | b | c | d | | | | | |
| 42. | a | b | c | d | 90. | a | b | c | d | | | | | |
| 43. | a | b | c | d | 91. | a | b | c | d | | | | | |
| 44. | a | b | c | d | 92. | a | b | c | d | | | | | |
| 45. | a | b | c | d | 93. | a | b | c | d | | | | | |
| 46. | a | b | c | d | 94. | a | b | c | d | | | | | |
| 47. | a | b | c | d | 95. | a | b | c | d | | | | | |
| 48. | a | b | c | d | 96. | a | b | c | d | | | | | |

Name and Credential Number

Date

To obtain your WI continuing education credits follow the below instructions.

1. If taking the same quiz more than once per cycle, fill out the forms with different dates.
2. Fill in all fields applicable.
3. Include your credential or license number.
4. We take care of registering with the state and mailing back the test results.

FYI: The state allows a person to take the same course more than once (several times) per cycle.

Send by mail

1. Test answer sheets, fee, and the following form.
 2. Fill out this form below completely.
 3. Make check or Money Order to Brett Or Kathy Ward
 4. Mail to: Yourwicontinuinged.com P.O. Box 36 Kaukauna WI 54130.
- Questions call: 920-740-4348

-----Educational Course Attendance Verification Form -----

Attendee's Name _____
Address _____
Date _____

Credential Number _____
Phone# _____
Fax# _____

Course Title and Name Electrical Continuing Ed Test 5
Credited Hours 4 hrs
Email address _____

To be completed by Brett or Kathy Ward yourwicontinuinged.com

Course Password _____ Course ID# 10917

Attendee passed the correspondence quiz with greater than 70% score _____
Date

Instructor Signature _____