Instructions: www.garyklinka.com

1. Print these pages.
2. Circle the correct answers.
3. Page down to the last page for the verification forms and mailing instructions.
4. Use the 08 NEC code book as your reference guide.
5. 3 hours of continuing education for Journeyman & Master Electricians also UDC Electrical Inspectors & Commercial Electrical Inspectors.
6. Click here for the *Help Notes* on the last page that will assist you in answering the questions.

08 NEC Quiz_90

Practice questions in straight order-Articles 250.118(5) through 334.2

Use the 2008 *NEC* to answer the following questions.

1. Listed FMC can be used as the equipment grounding conductor if the length in any ground return path does not exceed 6 ft and the circuit conductors contained in the conduit are protected by overcurrent devices rated at _____ or less.

   (a) 15A
   (b) 20A
   (c) 30A
   (d) 60A

2. An equipment grounding conductor shall be identified by _____.

   (a) a continuous outer finish that is green
   (b) being bare
   (c) a continuous outer finish that is green with one or more yellow stripes
   (d) any of these

3. Conductors with the color _____ insulation shall not be used for ungrounded or grounded conductors.

   (a) green
   (b) green with one or more yellow stripes
   (c) a or b
   (d) white

4. When ungrounded circuit conductors are increased in size, the equipment grounding conductor must be proportionately increased in size according to _____ of the ungrounded conductors.

   (a) ampacity
   (b) circular mil area
   (c) diameter
   (d) none of these

5. Equipment grounding conductors for motor branch circuits shall be sized in accordance with Table 250.122, based on the rating of the _____ device.

   (a) motor overload
   (b) motor over-temperature
   (c) motor short-circuit and ground-fault protective
   (d) feeder overcurrent protection

6. On the load side of the service disconnecting means, the _____ circuit conductor can be ground meter enclosures if all meter enclosures are located near the service disconnecting means and ground-fault protection is not installed.

   (a) grounding
   (b) bonding
   (c) grounded
   (d) phase

7. A(n) _____ shall be used to connect the grounding terminal of a grounding-type receptacle to a grounded box.

   (a) equipment bonding jumper
   (b) grounded conductor jumper
   (c) a or b
   (d) a and b

8. Receptacle yokes designed and _____ as self-grounding can establish the grounding circuit between the device yoke and a grounded outlet box.

   (a) approved
   (b) advertised
   (c) listed
   (d) installed

9. The receptacle grounding terminal of an isolated ground receptacle shall be connected to a(n) _____ equipment grounding conductor run with the circuit conductors.

(a) insulated
(b) covered
(c) bare
(d) solid

10. A connection between equipment grounding conductors and a metal box shall be by a(n) _____.

(a) grounding screw used for no other purpose
(b) equipment listed for grounding
(c) a listed grounding device
(d) any of these

11. The conductors used to connect the surge protective device to ground shall not be any longer than _____ and shall avoid unnecessary bends.

(a) 6 in.
(b) 12 in.
(c) 18 in.
(d) necessary

12. Conductors of ac and dc circuits, rated 600V or less, can occupy the same _____ provided that all conductors have an insulation rating equal to the maximum voltage applied to any conductor.

(a) enclosure
(b) cable
(c) raceway
(d) all of these

13. Where cables or nonmetallic raceways are installed through bored holes in joists, rafters, or wood members, holes shall be bored so that the edge of the hole is _____ the nearest edge of the wood member.

(a) not less than 1¼ in. from
(b) immediately adjacent to
(c) not less than 1/16 in. from
(d) 90° away from

14. Cables laid in wood notches require protection against nails or screws by using a steel plate at least _____ thick, installed before the building finish is applied.

(a) 1/16 in.
(b) 1/8 in.
(c) ¼ in.
(d) ½ in.

15. Where Type NM cable passes through factory or field openings in metal members, it shall be protected by _____ bushings or _____ grommets that cover metal edges.

(a) approved
(b) identified
(c) listed
(d) none of these

16. Where Type NM cables pass through cut or drilled slots or holes in metal members, the cable shall be protected by _____ securely covering all metal edges fastened in the opening prior to installation of the cable.

(a) listed bushings
(b) listed grommets
(c) plates
(d) a or b

17. Where nails or screws are likely to penetrate nonmetallic-sheathed cable or ENT installed through metal framing members, a steel sleeve, steel plate, or steel clip not less than _____ in thickness shall be used to protect the cable or tubing.

(a) 1/16 in.
(b) 1/8 in.
(c) ½ in.
(d) ¾ in.

18. Cables or raceways installed under metal-corrugated sheet roof decking shall be supported so the nearest outside surface of the cable or raceway is not less than _____ from the nearest surface of the roof decking.

(a) ½ in.
(b) 1 in.
(c) 1½ in.
(d) 2 in.

19. Rigid metal conduit that is directly buried outdoors shall have at least _____ of cover.

(a) 6 in.
(b) 12 in.
(c) 18 in.
(d) 24 in.

20. When installing PVC conduit underground without concrete cover, there shall be a minimum of _____ of cover.

(a) 6 in.
(b) 12 in.
(c) 18 in.
(d) 22 in.

21. What is the minimum cover requirement for Type UF cable supplying power to a 120V, 15A GFCI-protected circuit outdoors under a driveway of a one-family dwelling?

(a) 6 in.
(b) 12 in.
(c) 16 in.
(d) 24 in.

22. Type UF cable used with a 24V landscape lighting system can be have a minimum cover of _____.

(a) 6 in.
(b) 12 in.
(c) 18 in.
(d) 24 in.

23. Where direct buried conductors and cables emerge from grade, they shall be protected by enclosures or raceways to a point at least _____ above finished grade.

(a) 3 ft
(b) 6 ft
(c) 8 ft
(d) 10 ft

24. Direct-buried service conductors that are not encased in concrete and that are buried 18 in. or more below grade shall have their location identified by a warning ribbon placed in the trench at least _____ above the underground installation.

(a) 6 in.
(b) 10 in.
(c) 12 in.
(d) 18 in.

25. Backfill used for underground wiring shall not _____.

(a) damage the wiring method
(b) prevent compaction of the fill
(c) contribute to the corrosion of the raceway
(d) all of these

26. All conductors of the same circuit shall be _____, unless otherwise specifically permitted in the *Code*.

(a) in the same raceway or cable
(b) in close proximity in the same trench
(c) the same size
(d) a or b

27. Cables or raceways installed using directional boring equipment shall be _____ for this purpose.

(a) marked
(b) listed
(c) labeled
(d) approved

28. Which of the following metal parts shall be protected from corrosion?

(a) ferrous metal raceways
(b) ferrous metal elbows
(c) ferrous boxes
(d) all of these

29. Aluminum raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, elbows, couplings, nipples, fittings, supports, and support hardware _____ shall be provided with supplementary corrosion protection.

(a) embedded or encased in concrete
(b) in direct contact with the earth
(c) likely to become energized
(d) a or b

30. Nonmetallic raceways, cable trays, boxes, cables with a nonmetallic outer jacket, fittings, and support hardware shall be _____.

(a) listed as sunlight resistant
(b) identified as sunlight resistant
(c) a and b
(d) a or b

31. Where nonmetallic wiring methods are subject to exposure to chemical solvents or vapors, they shall be inherently resistant to chemicals based upon their being _____.

(a) listed for the chemical
(b) identified for the chemical
(c) a and b
(d) a or b

32. An exposed wiring system for indoor wet locations where walls are frequently washed shall be mounted so that there is at least a _____ between the mounting surface and the *electrical* equipment.

(a) ¼ in. airspace
(b) separation by insulated bushings
(c) separation by noncombustible tubing
(d) none of these

33. Raceways or cable trays containing electric conductors shall not contain any pipe or tube for steam, water, air, gas, drainage, or any service other than _____.

(a) as permitted by the authority having jurisdiction
(b) electrical
(c) pneumatic
(d) as designed by the engineer

34. Metal raceways, cable armors, and other metal enclosures shall be _____ joined together into a continuous electric conductor so as to provide effective electrical continuity.

(a) electrically
(b) permanently
(c) metallically
(d) none of these

35. The independent support wires for wiring in a fire-rated ceiling assembly shall be distinguishable from fire-rated suspended-ceiling framing support wires by _____.

(a) color
(b) tagging
(c) other effective means
(d) any of these

36. Metal or nonmetallic raceways, cable armors, and cable sheaths _____ between cabinets, boxes, fittings or other enclosures or outlets.

(a) can be attached with electrical tape
(b) are allowed gaps for expansion
(c) shall be continuous
(d) none of these

37. Raceways and cables installed into the _____ of open-bottom equipment shall not be required to be mechanically secured to the equipment.

(a) bottom
(b) sides
(c) top
(d) any of these

38. Conductors in raceways shall be _____ between outlets, boxes, devices, and so forth.

(a) continuous
(b) installed
(c) copper
(d) in conduit

39. When the opening to an outlet, junction, or switch point is less than 8 in. in any dimension, each conductor shall be long enough to extend at least _____ outside the opening of the enclosure.

(a) 0 in.
(b) 3 in.
(c) 6 in.
(d) 12 in.

40. Raceways shall be _____ between outlet, junction, or splicing points prior to the installation of conductors.

(a) installed complete
(b) tested for ground faults
(c) a minimum of 80 percent completed
(d) none of these

41. Short sections of raceways used for _____ shall not be required to be installed complete between outlet, junction, or splicing points.

(a) meter to service enclosure connection
(b) protection of cables from physical damage
(c) nipples
(d) separately derived systems

42. A vertical run of 4/0 AWG copper shall be supported at intervals not exceeding _____.

(a) 40 ft
(b) 80 ft
(c) 100 ft
(d) 120 ft

43. Openings around electrical penetrations through fire-resistant-rated walls, partitions, floors, or ceilings shall _____ to maintain the fire-resistance rating.

(a) be documented
(b) not be permitted
(c) be firestopped using approved methods
(d) be enlarged

44. No wiring of any type shall be installed in ducts used to transport _____.

(a) dust
(b) flammable vapors
(c) loose stock
(d) all of these

45. Equipment and devices shall only be permitted within ducts or plenum chambers used to transport environmental air if necessary for their direct action upon, or sensing of, the _____.

(a) contained air
(b) air quality
(c) air temperature
(d) none of these

46. The space above a hung ceiling used for environmental air-handling purposes is an example of _____, and the wiring limitations of _____ apply.

(a) a plenum used for environmental air, 300.22(B)
(b) other space used for environmental air, 300.22(C)
(c) a duct used for environmental air, 300.22(B)
(d) none of these

47. Wiring methods permitted in the ceiling areas used for environmental air include _____.

(a) electrical metallic tubing
(b) FMC of any length
(c) RMC without an overall nonmetallic covering
(d) all of these

48. Where installed in raceways, conductors _____ AWG and larger shall be stranded.

(a) 10
(b) 8
(c) 6
(d) 4

49. In general, the minimum size conductor permitted for use in parallel installations is _____ AWG.

(a) 10
(b) 4
(c) 1
(d) 1/0

50. Parallel conductors shall have the same _____.

(a) length
(b) material
(c) cross-sectional area
(d) all of these

51. Parallel conductors shall _____.

(a) be the same length and conductor material
(b) have the same circular mil area and insulation type
(c) be terminated in the same manner
(d) all of these

52. The minimum size conductor permitted for branch circuits under 600V is _____ AWG.

(a) 14
(b) 12
(c) 10
(d) 8

53. There are four principal determinants of conductor operating temperature, one of which is _____ generated internally in the conductor as the result of load current flow.

(a) friction
(b) magnetism
(c) heat
(d) none of these

54. THWN insulated conductors are rated _____.

(a) 75°C
(b) for wet locations
(c) a and b
(d) not enough information

55. The ampacities listed in the Tables of Article 310.16 do not take _____ into consideration.

(a) continuous loads
(b) voltage drop
(c) insulation
(d) wet locations

56. The ampacity of a conductor can be different along the length of the conductor. The higher ampacity can be used beyond the point of transition for a distance of no more than _____ ft, or no more than _____ percent of the circuit length figured at the higher ampacity, whichever is less.

(a) 10, 10
(b) 10, 20
(c) 15, 15
(d) 20, 10

57. Where six current-carrying conductors are run in the same conduit or cable, the ampacity of each conductor shall be adjusted by a factor of _____ percent.

(a) 40
(b) 60
(c) 80
(d) 90

58. Conductor derating factors shall not apply to conductors in nipples having a length not exceeding _____

(a) 12 in.
(b) 24 in.
(c) 36 in.
(d) 48 in.

59. The ampacity adjustment factors of Table 310.15(B)(2) (a) does not apply to Type AC or Type MC cable without an overall outer jacket, if which of the following conditions are met?

(a) Each cable has not more than three current-carrying conductors.
(b) The conductors are 12 AWG copper.
(c) No more than 20 current-carrying conductors are bundled or stacked.
(d) all of these

60. Where conductors or cables are installed in conduits exposed to direct sunlight on or above rooftops, the ambient temperature shall be increased by _____ where the conduits are less than ½ in. from the rooftop.

(a) 30°F
(b) 40°F
(c) 50°F
(d) 60°F

61. A neutral conductor that carries only the unbalanced current from other conductors of the same circuit shall not be required to be counted when applying the provisions of 310.15(B)(2)(a).

(a) neutral
(b) grounded
(c) grounding
(d) none of these

62. Surface-type cabinets, cutout boxes, and meter socket enclosures in damp or wet locations shall be mounted so there is at least _____ airspace between the enclosure and the wall or supporting surface.

(a) 1/16 in.
(b) ¼ in.
(c) 1¼ in.
(d) 6 in.

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

(a) nonconductive
(b) porous
(c) fibrous
(d) combustible

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

(a) 1/32 in.
(b) 1/16 in.
(c) ⅛ in.
(d) ¼ in.

65. Openings in cabinets, cutout boxes, and meter socket enclosures through which conductors enter shall be _____.

(a) adequately closed
(b) made using concentric knockouts only
(c) centered in the cabinet wall
(d) identified

66. Nonmetallic cables can enter the top of surface-mounted cabinets, cutout boxes, and meter socket enclosures through nonflexible raceways not less than 18 in. or more than _____ ft in length if all of the required conditions are met.

(a) 3
(b) 10
(c) 25
(d) 100

67. Enclosures for switches or overcurrent devices used for conductors feeding through shall not fill all the wiring space at any cross section to more than ____ percent of the cross-sectional area of the space.

(a) 20
(b) 30
(c) 40
(d) 60

68. Nonmetallic boxes can be used with _____.

(a) nonmetallic cables
(b) nonmetallic raceways
(c) flexible cords
(d) all of these

69. The total volume occupied by two internal cable clamps, six 12 AWG conductors, and a single-pole switch is _____.

(a) 2.0 cu in.
(b) 4.50 cu in.
(c) 14.50 cu in.
(d) 20.25 cu in.

70. According to the *NEC* , the volume of a 3 x 2 x 2 in. device box is _____

(a) 8 cu in.
(b) 10 cu in.
(c) 12 cu in.
(d) 14 cu in.

71. When Type NM cable is used with nonmetallic boxes not larger than 2¼ x 4 in., securing the cable to the box shall not be required if the cable is fastened within _____ of that box.

(a) 6 in.
(b) 8 in.
(c) 10 in.
(d) 12 in.

72. In noncombustible walls or ceilings, the front edge of a box, plaster ring, extension ring, or listed extender employing a flush-type cover, shall be set back not more than _____ from the finished surface.

(a) ⅛ in.
(b) ¼ in.
(c) ⅜ in.
(d) ½ in.

73. In walls or ceilings constructed of *wood or* other combustible surface material, boxes, plaster rings, extension rings, or listed extenders shall _____.

(a) be flush with the surface
(b) project from the surface
(c) a or b
(d) be set back no more than ¼ in.

74. _____ can be used to fasten boxes to structural members of a building using brackets on the outside of the enclosure.

(a) Nails
(b) Screws
(c) Bolts
(d) a and b

75. A wood brace used for supporting a box for structural mounting shall have a cross-section not less than nominal _____.

(a) 1 x 2 in.
(b) 2 x 2 in.
(c) 2 x 3 in.
(d) 2 x 4 in.

76. Outlet boxes can be secured to suspended-ceiling framing members by mechanical means such as _____, or by other means identified for the suspended-ceiling framing member(s).

(a) bolts
(b) screws
(c) rivets
(d) all of these

77. Two intermediate metal or rigid metal conduits threaded wrenchtight into the enclosure can be used to support an outlet box containing devices or luminaires, if each raceway is supported within _____ of the box.

(a) 12 in.
(b) 18 in.
(c) 24 in.
(d) 36 in.

78. Boxes used at luminaire or lampholder outlets in a ceiling shall be designed for the purpose and shall be required to support a luminaire weighing a minimum of _____.

(a) 20 lb
(b) 30 lb
(c) 40 lb
(d) 50 lb

79. A wall-mounted luminaire weighing not more than _____ can be supported to a device box with no fewer than two No. 6 or larger screws.

(a) 4 lb
(b) 6 lb
(c) 8 lb
(d) 10 lb

80. A luminaire that weighs more than _____ can be supported by an outlet box that is listed and marked for the weight of the luminaire.

(a) 20 lb
(b) 30 lb
(c) 40 lb
(d) 50 lb

81. Floor boxes shall be _____ specifically for this application.

(a) identified
(b) listed
(c) marked
(d) none of these

82. Listed outlet boxes to support ceiling-suspended fans that weigh more than _____lb shall have their allowable weight marked on the box.

(a) 35 lb
(b) 50 lb
(c) 60 lb
(d) 70 lb

83. Equipment weighing less than 6 lb can be supported to any box or plaster ring secured to a box, provided the equipment is secured with at least two _____ or larger screws.

(a) No. 6
(b) No. 8
(c) No. 10
(d) self tapping

84. Pull boxes or junction boxes with any dimension over _____ shall have all conductors cabled or racked in an approved manner.

(a) 3 ft
(b) 6 ft
(c) 9 ft
(d) 12 ft

85. Listed boxes and handhole enclosures designed for underground installation can be directly buried when covered by _____, if their location is effectively identified and accessible.

(a) concrete
(b) gravel
(c) noncohesive granulated soil
(d) b or c

86. Handhole enclosures shall be designed and installed to withstand _____.

(a) 600 lb
(b) 3,000 lb
(c) 6,000 lb
(d) all loads likely to be imposed

87. Underground raceways and cable assemblies entering a handhole enclosure shall extend into the enclosure, but they are not required to be _____.

(a) bonded
(b) insulated
(c) mechanically connected to the handhole enclosure
(d) below minimum cover requirements after leaving the handhole

88. Handhole enclosure covers shall have an identifying _____ that prominently identifies the function of the enclosure, such as "electric."

(a) mark
(b) logo
(c) a or b
(d) manual

89. Handhole enclosure covers shall require the use of tools to open, or they shall weigh over _____.

(a) 45 lb
(b) 70 lb
(c) 100 lb
(d) 200 lb

90. When Type AC cable is run across the top of a floor joist in an attic without permanent ladders or stairs, substantial guard strips within _____ of the scuttle hole, or attic entrance, shall protect the cable.

(a) 3 ft
(b) 4 ft
(c) 5 ft
(d) 6 ft

Help Notes

1. 250.118(5)
2. 250.119
3. 250.119
4. 250.122(B)
5. 250.122(D)(1)
6. 250.142(B) Ex 2
7. 250.146
8. 250.146(B)
9. 250.146(D)
10. 250.148(C)
11. 285.12
12. 300.3(C)(1)
13. 300.4(A)(1)
14. 300.4(A)(2)
15. 300.4(B)(1)
16. 300.4(B)(1)
17. 300.4(B)(2)
18. 300.4(E)
19. 300.5, Table Column 2
20. 300.5, Table Column 3
21. 300.5, Table Column 4
22. 300.5, Table Column 5
23. 300.5(D)(1)
24. 300.5(D)(3)
25. 300.5(F)
26. 300.5(I) and 300.3(B)
27. 300.5(K)
28. 300.6(A)
29. 300.6(B)
30. 300.6(C)(1)
31. 300.6(C)(2)
32. 300.6(D)
33. 300.8
34. 300.10
35. 300.11(A)(1)
36. 300.12
37. 300.12 Ex 2
38. 300.13(A)
39. 300.14
40. 300.18(A)
41. 300.18(A) Ex
42. 300.19(A), Table
43. 300.21
44. 300.22(A)
45. 300.22(B)
46. 300.22(C) FPN
47. 300.22(C)(1)
48. 310.3
49. 310.4(A)
50. 310.4(B)
51. 310.4(B)
52. 310.5, Table
53. 310.10 FPN
54. 310.13(A), Table
55. 310.15(A)(1) FPN No. 1
56. 310.15(B)(2) Ex
57. 310.15(B)(2)(a), Table
58. 310.15(B)(2)(a) Ex 3
59. 310.15(B)(2)(a) Ex 5
60. 310.15(B)(2)(c), Table
61. 310.15(B)(4)(a)
62. 312.2
63. 312.3
64. 312.4
65. 312.5(A)
66. 312.5(C) Ex
67. 312.8
68. 314.3
69. 314.16(A), Table 314.16(B), and 314.16(B)(1)–(4)
70. 314.16(A),Table
71. 314.17(C) Ex
72. 314.20
73. 314.20
74. 314.23(B)(1)
75. 314.23(B)(2)
76. 314.23(D)(1)
77. 314.23(F)
78. 314.27(A)
79. 314.27(A) Ex
80. 314.27(B)
81. 314.27(C)
82. 314.27(D)
83. 314.27(E) Ex
84. 314.28(B)
85. 314.29 Ex
86. 314.30
87. 314.30(B)
88. 314.30(D)
89. 314.30(D)
90. 320.23(A)

To obtain your Continuing Education Credits follow the below instructions

1. Print out first.
2. Fill in all fields applicable.
3. Include your certification or license number.
4. We'll take care of crediting with the state and mailing back to you the quiz results.

Send by mail

1. Mail the quiz with answers circled or just the answer sheet and keep the quiz for your records.
2. Fill out this form below completely.
3. Applicable fees by check payable to Gary Klinka.
4. Mail to: Gary Klinka at 228 Mandella Ct Neenah WI 54956.

Questions call: 920-727-9200 office and fax or 920-740-6723 cell garyklinka@hotmail.com

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

Attendee's name_____Date_____

Address_____

Credential Number_____Phone#_____

Course Title and Name 08 NEC Quiz 90 Course ID# 10241

List the name of each credential held by attendee_____

_____Credited 3 hrs

Email address_____

Fax#_____Course Fee $30

To be completed by Gary Klinka www.garyklinka.com My credential #70172

Attendee passed the course with a greater than 70% score on date_____