Instructions: back to home page

1. Print these pages.
2. Circle the correct answers.
3. Page down to the last page for the verification forms and mailing instructions.

NEC code 90 question correspondence course based on the 2005 NEC.

1-25 Questions: Understanding the NEC

1. When rigid metal conduit is threaded in the field, a standard die with _____ shall be used.

A. 3/4 in. taper per foot
B. 1 in. taper per foot
C. 1/16 in. taper per foot
D. no taper

344.28

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2. Nails or screws can fasten boxes to structural members of a building using brackets on the outside of the enclosure, or they can pass through the interior within _____ of the back or ends of the enclosure. Screws are not permitted to pass through the box unless exposed threads in the box are protected using approved means to avoid abrasions of conductor insulation.

A. 1/8 in.
B. 1/16 in.
C. 1/4 in.
D. 1/2 in.

314.23(B)(1)

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3. IMC shall be firmly fastened within _____ of each outlet box, junction box, device box, fitting, cabinet, or other conduit termination.

A. 12 in.
B. 18 in.
C. 2 ft
D. 3 ft

342.30(A)

---

4. Live parts of electrical equipment operating at _____ or more shall be guarded against accidental contact by approved enclosures or by suitable permanent, substantial partitions, or screens arranged so that only qualified persons have access to the space within reach of the live parts.

A. 20V
B. 30V
C. 50V
D. 100V

110.27(A)(2)

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

A. 3,000 lb

B. 6,000 lb
C. all loads likely to be imposed
D. 600 lb

314.30

---

6. When ENT is installed concealed in walls, floors, and ceilings of buildings exceeding three floors above grade, a thermal barrier shall be provided having a minimum _____-minute finish rating as listed for fire-rated assemblies.

A. 5
B. 10
C. 15
D. 30

362.10(2)

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7. •When installing raceways underground in rigid nonmetallic conduit and other approved raceways, there shall be a minimum of _____ of cover.

A. 6 in.
B. 12 in.
C. 18 in.
D. 22 in.

Table 300.5, Column 3

---

8. All joints between lengths of ENT, and between ENT and couplings, fittings, and boxes shall be made by _____.

A. a qualified person
B. set screw fittings
C. an approved method
D. exothermic welding

362.48

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

A. as allowed by the authority having jurisdiction
B. electrical
C. pneumatic
D. as designed by the engineer

300.8

---

10. 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

314.30(B)

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11. The number of conductors allowed in ENT shall not exceed that permitted by the percentage fill specified in _____.

A. Chapter 9, Table 1
B. Table 250.66
C. Table 310.16
D. 240.6

362.22

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12. Raceways, cable trays, cable bus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, elbows, couplings, fittings, supports, and support hardware shall be of materials suitable for _____.

A. corrosive locations
B. wet locations
C. the environment in which they are to be installed
D. none of these

300.6

---

13. In the event the NEC requires new products, constructions, or materials that are not yet available at the time a new edition is adopted, the _____ may permit the use of the products, constructions, or materials that comply with the most recent previous edition of this NEC adopted by the jurisdiction.

A. electrical engineer
B. master electrician
C. authority having jurisdiction
D. permit holder

90.4

---

14. Equipment listed by a qualified electrical testing laboratory is not required to have the factory-installed _____ wiring inspected at the time of installation except to detect alterations or damage.

A. external
B. associated
C. internal
D. all of these

90.7

---

15. Type TC cable can be used _____.

A. for power and lighting circuits
B. in cable trays in hazardous (classified) locations
C. in Class 1 control circuits
D. all of these

336.10

---

16. For grounded systems, the electrical equipment and wiring, and other electrically conductive material likely to become energized, are installed in a manner that creates a permanent, low-impedance circuit capable of safely carrying the maximum ground-fault current likely to be imposed on it from where a ground fault may occur to the _____.

A. ground
B. earth
C. electrical supply source
D. none of these

250.4(A)(5)

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17. Concrete, brick, or tile walls are considered as _____, as it applies to working space requirements.

A. inconsequential
B. in the way
C. grounded
D. none of these

110.26(A)(1) and Table 110.26(A)(1), Condition 2

---

18. Electrical systems that are grounded shall be connected to earth in a manner that will _____.

A. limit voltages due to lightning, line surges, or unintentional contact with higher voltage lines
B. stabilize the voltage-to-ground during normal operation
C. facilitate overcurrent protection device operation in case of ground faults
D. a and b

250.4(A)(1)

---

19. The grounding conductor connection to the grounding electrode shall be made by _____.

A. listed lugs
B. exothermic welding
C. listed pressure connectors
D. any of these

250.70 and 250.8

---

20. Metallic boxes are required to be _____.

A. metric
B. installed
C. grounded
D. all of these

314.4

---

21. The wiring contained inside which of the following are required to be accessible?

A. Outlet boxes
B. Junction boxes

C. Pull boxes
D. all of these

314.29

---

22. When threadless couplings and connectors used in the installation of RMC are buried in masonry or concrete, they shall be of the _____ type.
A. raintight
B. wet and damp locations
C. nonabsorbent
D. concrete-tight

344.42(A)

---

23. The following systems shall be installed in accordance with the NEC:
A. signaling
B. communications
C. power and lighting
D. all of these

90.2(A)

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24. EMT shall not be used where _____.
A. subject to severe physical damage
B. protected from corrosion only by enamel
C. used for the support of luminaires
D. any of these

358.12

---

25. The grounding electrode conductor is the conductor used to connect the grounding electrode to the equipment grounding conductor and the grounded conductor at _____.
A. the service
B. each building or structure supplied by feeder(s)
C. the source of a separately derived system
D. all of these

100 Grounding Electrode Conductor

26-50 Questions: Understanding the NEC

26. All threaded conduits or fittings referred to in hazardous (classified) locations shall be threaded with a _____ taper per foot.
A. ½ in.
B. ¾ in.
C. 1 in.
D. all of these

500.8(D)

---

27. A Class III, Division_____ location is where easily ignitible fibers or combustible flying material are stored or handled but not manufactured.

A. 1
B. 2
C. 3
D. all of these

500.5(D)(2)

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28. Audio system equipment supplied by branch-circuit power shall not be located within _____ of the inside wall of a pool, spa, hot tub, fountain, or tidal high-water mark.

A. 2 ft
B. 10 ft
C. 5 ft
D. 18 in.

640.10(A)

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29. Conduits, cable trays, and open wiring used for intrinsically safe systems shall be identified by permanently affixed labels with the wording "Intrinsic Safety Wiring." The labels shall be visible after installation and the spacing between labels shall not exceed _____ ft.

A. 3
B. 10
C. 25
D. 50

504.80(B)

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30. For listed explosionproof equipment, factory threaded entries shall be made up with at least _____ threads fully engaged.

A. 4
B. 4½
C. 5
D. 6

500.8(D) Ex

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31. No seal is required if a conduit (without unions, couplings, boxes, or fittings) passes completely through a Class I, Division 2 location if the termination points of the unbroken conduit are in unclassified locations and it has no fittings less than _____ beyond each boundary of the classified location.

A. 6 in.
B. 12 in.
C. 18 in.
D. 24 in.

501.15(B)(2) Ex 1

32. Conductors and cables of intrinsically safe circuits not in raceways or cable trays shall be separated by at least _____ and secured from conductors and cables of any nonintrinsically safe circuits.
A. 6 in.
B. 2 in.
C. 18 in.
D. 12 in.

504.30(A)(3)

33. In Class I, Division 1 locations, all apparatus and equipment of signaling, alarm, remote-control, and communications systems, _____, shall be identified for Class I, Division 1 locations.
A. above 50V
B. above 100 volts-to-ground
C. regardless of voltage
D. except under 24V

501.150(A)

34. Intrinsically safe and associated apparatus are permitted to be installed in _____.
A. any hazardous (classified) location for which they have been identified
B. Class I locations
C. Class II locations
D. Class III locations

504.10(B)

35. In hazardous (classified) locations, intrinsically safe apparatus shall _____ in the hazardous (classified) location in accordance with 250.100.
A. be secured
B. be bonded
C. be painted
D. not be used

504.60(A)

36. Class II locations are those that are hazardous because of the presence of _____.
A. combustible dust
B. easily ignitible fibers or flyings
C. flammable gases or vapors
D. flammable liquids or gases

500.5(C)

37. ITC-HL cables with a gas/vaportight, continuous-corrugated metallic sheath, an overall jacket of suitable polymeric material, and provided with termination fittings listed for the application can be installed in Class I, Division 1 _____ establishments with restricted public access.

A. commercial
B. industrial
C. institutional
D. all of these

501.10(A)(1)(d)

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38. Boxes and fittings used for taps, joints, or terminal connections shall be _____ where installed in Class II, Division 1 hazardous (classified) locations.
A. explosionproof
B. identified for Class II locations
C. dusttight
D. weatherproof

502.10(A)(1)(4)

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39. Intrinsically safe conduit or cable runs that leave a Class I or II location shall be sealed. The seal shall be _____.
A. explosionproof or flameproof
B. flameproof
C. a and b
D. none of these

504.70

---

40. Equipment is required to be identified not only for the class of location but also for the explosive, combustible, or ignitible properties of the specific _____ that will be present.
A. gas or vapor
B. dust
C. fiber or flyings
D. all of these

500.8(A)(1)

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41. Electrical equipment installed in hazardous (classified) locations shall be constructed for the class, division, and group. An atmosphere containing _____ is classified as Group C.
A. hydrogen
B. ethylene
C. propylene oxide
D. all of these

500.6(A)(3) FPN

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42. An assembly of interconnected intrinsically safe apparatus, associated apparatus, and interconnecting cables designed so that those parts of the system used in hazardous (classified) locations are intrinsically safe circuits is a(n) _____.
A. intrinsically safe system
B. safe location
C. reclassified location

D. associated system

504.2

---

43. Loudspeakers of a permanent audio system which are installed in a fire-resistance rated partition, wall, or ceiling shall be listed for the purpose or installed in an enclosure or recess that _____.

A. maintains the fire-resistance rating
B. is no more than 4 in. deep
C. is no more than 6 ft 6 in. high
D. all of these

640.25

---

44. All threaded conduits or fittings referred to in hazardous (classified) locations shall be made wrenchtight in order to _____.

A. prevent sparking when a fault current flows
B. ensure the explosionproof or flameproof integrity of the conduit system
C. a and b
D. none of these

500.8(D)

---

45. Conductors of intrinsically safe circuits shall not be placed in any _____ with conductors of any nonintrinsically safe system.

A. raceway
B. cable tray
C. cable
D. any of these

504.30(A)(1)

---

46. Raceways permitted as a wiring method in Class II, Division 2 hazardous (classified) locations include _____.

A. rigid metal conduit and intermediate metal conduit
B. electrical metallic tubing
C. rigid nonmetallic conduit
D. a or b

502.10(B)(1)

---

47. Audio cables installed exposed on the surface of ceilings and walls shall be supported by the structural components of the building in such a manner that the cable will not be damaged by normal building use. Such cables shall be supported by _____ designed and installed so as not to damage the cable.

A. straps
B. staples
C. hangers
D. any of these

640.6

---

48. Audio system equipment (speakers) powered by a listed Class 2 power supply, or by the output of an amplifier listed for use with Class 2 wiring, shall only be restricted in its placement by _____.
A. the manufacturer's recommendations
B. 640.10(A), within 6 ft of water
C. the local authority having jurisdiction
D. the desires of the owner

640.10(B)

---

49. When seals are required for Class I locations, they shall comply with the following rule(s):
A. They shall be listed for Class I locations and shall be accessible.
B. The minimum thickness of the sealing compound shall not be less than the trade size of the sealing fitting and, in no case, less than 5/8 in.
C. Splices and taps shall not be made in the conduit seal.
D. all of these

501.15(C)(1), (2), (3), and (4)

---

50. Raceways permitted as a wiring method in Class II, Division 1 hazardous (classified) locations include _____.
A. threaded rigid metal conduit and intermediate metal conduit
B. rigid nonmetallic conduit
C. electrical metallic tubing
D. any of these

502.10(A)(1)

51-75 Questions: Basic Electrical Theory

51. Providing a path to the earth often helps reduce electrostatic charge.
A. True
B. False

---

52. Ferrous metals contain iron, therefore they cannot be magnetized.
A. True
B. False

---

53. The severity of an electric shock is dependent on the current flowing through the body, which is impacted by circuit voltage and contact resistance.
A. True
B. False

---

54. Ohmmeters measure the _____ or opposition to current flow of a circuit or component.
A. voltage
B. current
C. power
D. resistance

55. A holding relay is primarily used for worker convenience.
A. True
B. False

56. The best conductors, in order of their conductivity, are: gold, silver, copper, and aluminum.
A. True
B. False

57. What is the power loss in watts of a conductor that carries 24A and has a voltage drop of 7.2V?
A. 175W
B. 350W
C. 700W
D. 2,400W

58. What is the conductor power loss in watts for a 120V circuit that has a 3 percent voltage drop and carries a current flow of 12A?
A. 43W
B. 86W
C. 172W
D. 1,440W

59. Kirchoff's Voltage Law states that in a series circuit, the sum of the voltage drops across all of the resistors will equal the applied voltage.
A. True
B. False

60. When power supplies are connected in parallel, the voltage remains the same, but the current or amp-hour capacity will be increased.
A. True
B. False

61. Improper wiring or mishandling of multiwire branch circuits can cause _____ connected to the circuit.
A. overloading of the ungrounded conductors
B. overloading of the grounded (neutral) conductors
C. destruction of equipment because of overvoltage
D. b and c

62. Metal parts of premises wiring must be bonded to a low-impedance path designed so that the circuit protection device will quickly open and clear a ground fault.
A. True
B. False

63. Inverse-time breakers operate on the principle that as the current decreases, the time it takes for the device to open decreases.
A. True
B. False

64. Factors that impact the available short-circuit current include transformer _____.
A. voltage
B. kVA rating
C. impedance
D. all of these

---

65. Equipment must have a(n) _____ current rating that permits the protection device to clear a short circuit or ground fault without extensive damage to the components of the circuit.
A. overload
B. short circuit
C. ground fault
D. b or c

---

66. Severe electric shock or death can occur if a person touches the ungrounded and the grounded (neutral) conductors at the same time, even if the circuit is GFCI protected.
A. True
B. False

---

67. An AFCI protection device provides protection from an arcing fault by recognizing the characteristics unique to an arcing fault and by functioning to de-energize the circuit when an arc fault is detected.
A. True
B. False

---

68. Even when power is removed from the circuit, capacitors can store large amounts of energy for a long period of time. They can discharge and arc if inadvertently shorted or grounded out.
A. True
B. False

---

69. The expanding and collapsing magnetic field within the conductor induces a voltage in the conductors (CEMF) that repels the flowing electrons toward the surface of the conductor. This is called _____.
A. eddy currents
B. induced voltage
C. impedance
D. skin effect

---

70. AC inductive or capacitive reactive loads cause the voltage and current to be in-phase with each other.
A. True
B. False

---

71. Dual-voltage ac motors are made with two field windings. The field windings are connected in _____ for low-voltage operation and in _____ for high-voltage operation.
A. series, parallel
B. parallel, series
C. series, series
D. parallel, parallel

---

72. If the rotating part of the motor winding is jammed so that it cannot rotate, no CEMF will be produced in the motor winding. Result—the motor operates at _____ and the windings will be destroyed by excessive heat.
A. FLA
B. FLC
C. LRC
D. any of these

---

73. Swapping _____ of the line conductors can reverse a 3Ø ac motor's rotation.
A. one
B. two
C. three
D. none of these

---

74. Voltage induced in the secondary winding of a transformer is dependent on the number of secondary turns as compared to the number of primary turns.
A. True
B. False

---

75. Three-phase, _____ wye-connected systems can overheat because of circulating odd triplen harmonic currents.
A. 2-wire
B. 3-wire
C. 4-wire
D. none of these

76-90 Questions: Low-Voltage and Power-Limited Systems

76. Class 2, Class 3, and PLTC cable not terminated at equipment and not identified for future use with a tag is considered abandoned.
A. True
B. False

725.2

---

77. Class 1, 2, and 3 cables installed _____ to framing members shall be protected against physical damage from penetration by screws or nails by 1¼ in. separation from the framing member or by a suitable metal plate in accordance with 300.4(D).
A. exposed
B. concealed
C. parallel
D. all of these

725.8

---

78. All wiring for Class 1 circuits shall be installed in accordance with Article 300 and the other appropriate articles in Chapter 3.
A. True
B. False

725.25

79. Conductors of Class 2 and Class 3 circuits shall not be placed in any enclosure, raceway, cable, or similar fittings with conductors of Class 1 or electric light or power conductors, except when they are _____.
A. insulated for the maximum voltage present
B. totally comprised of aluminum conductors
C. separated by a barrier
D. all of these

725.55(B)

80. Class 2 or Class 3 cables, installed in vertical runs penetrating more than one floor or installed in a shaft, shall be type _____.
A. CL2R
B. CL3R
C. CL2P
D. any of these

725.61(B)

81. Type ITC cable is permitted to be installed with power, lighting, and Class 1 circuits.
A. True
B. False

727.5

82. All accessible portions of abandoned fire alarm cable shall be removed.
A. True
B. False

760.3(A)

83. Fire alarm circuits shall be identified at all terminal and junction locations in a manner that will unintentional interference with the signaling circuit during _____.
A. installation
B. testing and servicing
C. renovations
D. all of these

760.10

84. Nonpower-limited fire alarm circuit conductors of sizes _____ shall be of the types included in 760.27(B) or other types of insulation listed for nonpower-limited fire alarm circuit use. Conductors larger than 16 AWG shall comply with Article 310.
A. 16 and 18 AWG
B. 14 and 12 AWG
C. 14 AWG and larger

D. all of these

760.27(B)

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85. The listing requirements for power-limited fire alarm (PLFA) circuit sources are found in Tables 12(A) and 12(B) of _____.
A. Article 760
B. Chapter 9
C. Article 300
D. Annex C

760.41 FPN No. 1

---

86. Power-limited fire alarm (PLFA) cables can be supported by strapping, taping, or attaching to the exterior of a conduit or raceway.
A. True
B. False

760.58

---

87. Conductive optical fiber cables contain noncurrent-carrying conductive members such as metallic _____.
A. strength members
B. vapor barriers
C. armor or sheath
D. any of these

770.9(B)

---

88. Where exposed to contact with electric light or power conductors, the noncurrent-carrying metallic members of optical fiber cables entering buildings shall be _____.
A. grounded as close to the point of entrance as practicable
B. interrupted as close to the point of entrance as practicable by an insulating joint or equivalent device
C. a or b
D. a and b

770.93

---

89. Type OFNG, OFN, OFCG, and OFC optical fiber cables may be used as risers when _____.
A. encased in a metal raceway
B. located in a fireproof shaft having a firestop at each floor
C. a or b
D. none of these

770.154(B)(2)

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90. All accessible portions of abandoned communications cable shall be removed.

A. True
B. False

800.3(C)

NEC code 90 -Quiz Answer Sheet

1	a	b	c	d	31	a	b	c	d	61	a	b	c	d
2	a	b	c	d	32	a	b	c	d	62	a	b	c	d
3	a	b	c	d	33	a	b	c	d	63	a	b	c	d
4	a	b	c	d	34	a	b	c	d	64	a	b	c	d
5	a	b	c	d	35	a	b	c	d	65	a	b	c	d
6	a	b	c	d	36	a	b	c	d	66	a	b	c	d
7	a	b	c	d	37	a	b	c	d	67	a	b	c	d
8	a	b	c	d	38	a	b	c	d	68	a	b	c	d
9	a	b	c	d	39	a	b	c	d	69	a	b	c	d
10	a	b	c	d	40	a	b	c	d	70	a	b	c	d
11	a	b	c	d	41	a	b	c	d	71	a	b	c	d
12	a	b	c	d	42	a	b	c	d	72	a	b	c	d
13	a	b	c	d	43	a	b	c	d	73	a	b	c	d
14	a	b	c	d	44	a	b	c	d	74	a	b	c	d
15	a	b	c	d	45	a	b	c	d	75	a	b	c	d
16	a	b	c	d	46	a	b	c	d	76	a	b	c	d
17	a	b	c	d	47	a	b	c	d	77	a	b	c	d
18	a	b	c	d	48	a	b	c	d	78	a	b	c	d
19	a	b	c	d	49	a	b	c	d	79	a	b	c	d
20	a	b	c	d	50	a	b	c	d	80	a	b	c	d
21	a	b	c	d	51	a	b	c	d	81	a	b	c	d
22	a	b	c	d	52	a	b	c	d	82	a	b	c	d
23	a	b	c	d	53	a	b	c	d	83	a	b	c	d
24	a	b	c	d	54	a	b	c	d	84	a	b	c	d
25	a	b	c	d	55	a	b	c	d	85	a	b	c	d
26	a	b	c	d	56	a	b	c	d	86	a	b	c	d
27	a	b	c	d	57	a	b	c	d	87	a	b	c	d
28	a	b	c	d	58	a	b	c	d	88	a	b	c	d
29	a	b	c	d	59	a	b	c	d	89	a	b	c	d
30	a	b	c	d	60	a	b	c	d	90	a	b	c	d

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