1 Exam Prep

NFPA 70 - National Electrical Code Questions

(Electrical Contractors)

1. Equipment required and permitted by the National Electrical Code® shall be accepted when _____ .

A. warranted
B. approved
C. guaranteed
D. none of the above

2. The _____ has responsibility for granting exceptions to the National Electrical Code® with special permission.

A. authority having jurisdiction
B. owner
C. electrical engineer
D. fire Marshall office

3. A device which serves to regulate the electric power is called a _____.

A. controller
B. rectifier
C. switch
D. circuit breaker

4. A switch is a _____.

A. device
B. fixture
C. conductor
D. fitting

5. “Listed" as referred to in the National Electrical Code ® means _____ .

A. installed as per the manufacturers specifications
B. tested by a nationally recognized testing laboratory
C. national insurance underwriter approval
D. none of the above

6. No electrical equipment or conductors which shall be located in wet or Damp locations where exposed to gases , fumes, vapors, liquids or other agents having a deteriorating effect on the conductors or equipment, not where exposed to excessive temperatures unless _____.

A. approved
B. acceptable to the party having jurisdiction
C. listed
D. identified

7. An alarm panel mounted to 5/8" dry-wall would require the working space in front of the panel to be clear for:

A. 1 foot
B. 3 feet
C. 4 feet
D. 6 feet

8. Without applying any exceptions, which of the following grounded conductors would have to have a continuous white or natural gray outer finish along its entire length?

A. #6
B. #4
C. #2
D. any size grounded conductor can be taped white or gray at its terminations

9. An insulated grounded conductor of No. 6 or smaller shall be identified by:

A. a continuous white outer finish
B. a continuous gray outer finish
C. a continuous green outer finish
D. A or B

10. In a product intended to be connected to a grounded circuit, the lead intended for the connection for the grounded conductor shall be _____in color.

A. black
B. white or natural gray
C. green
D. orange

11. The grounded conductor in a low voltage system shall be _____.

A. white
B. black
C. pink
D. yellow

12. Instruments with plus (+) and minus (-) signs are said to be _____.

A. polarized
B. multimeters
C. AC
D. DC

13. All grounding conductors must be _____.

A. grounded conductors
B. grounded
C. neutral
D. white

14. Overhead branch circuits are required to have a minimum clearance of _____ feet over residential driveways, not subject to truck traffic where the voltage does not exceed 300 volts to ground.

A. 10 B. 12 C. 15 D. 18

15. Alternating-Current circuits of less than 50 volts need to not be grounded where supplied by _____.

A. a transformer whose supply system exceeds 150 volts to ground
B. a transformer whose supply system is ungrounded
C. a transformer whose supply voltage is 120v and the supply system is grounded
D. a transformer whose supply system is grounded and the secondary circuit is installed as overhead conductors outside of the building

16. The minimum size equipment grounding conductor for grounding a raceway is _____ .

A. 14 B. 12 C. 10 D. 8

17. If the service conductors are 500 kCM what is the required grounding electrode conductor size?

A. #6 B. #2 C. 1/0 D. 3/0

18. All of the following are types of equipment grounding conductors, except:

A. Rigid non-metallic conduit
B. Electrical metallic tubing
C. Rigid metal conduit
D. Intermediate metal conduit

19. An equipment grounding conductor can be identified by all the following except:

A. Continuous green color
B. Continuous green color with a yellow stripe
C. Continuous white color
D. Bare

20. What size copper equipment grounding conductor is needed for a 20 amp circuit?

A. #14 B. #12 C. #10 D. #8

21. A device terminal for the equipment grounding conductor can be marked "G" or "GR" only if:

A. the circuit is less than 20 amps
B. the terminal for the grounding conductor is not visible
C. the terminal is removable
D. the terminal is not hexagonal

22. A _____ is a protective device to limit surge voltages by discharging or by-passing surge currents and it also prevents continual flow of current while remaining capable of repeating these functions.

A. surge arrester
B. voltage regulator
C. fuse
D. breaker

23. Installation of surge arresters at services of less than 1000 volts requires line and ground connecting conductors not smaller than copper or _____aluminum.

A. #16-#14
B. #14-#12
C. #12-#10
D. none of these

24. Cables are permitted to be laid into notched studs as long as they are covered by a steel plate at least _____inches thick to prevent penetration by nails or screws.

A. 1/32 B. 1/16 C. 3/32 D. 3/64

25. When cables are installed in bored holes through studs, joists or rafters, the hole shall be bored so that the hole is not less than _____from the nearest edge of the wood member.

A. 1 inch
B. 1 % inch
C. 1 % inch
D. 1 % inch

26. The minimum backfill requirement for coaxial cable buried in rigid metal conduit is _____ .

A. three inches
B. six inches
C. twelve inches
D. twenty four inches

27. When the direct burial method is applied, a _____shall be used at the end of the conduit that terminates underground.

A. coupling
B. connector
C. bushing
D. locknut

28. Which of the following could be used to support a Class1, Class 2 or Class 3 circuit:

A. Raceway for a lighting circuit
B. Raceway enclosing another Class 1, Class 2 or Class 3 circuit
C. Ceiling support wires for a non-fire rated suspended ceiling
D. None of the above

29. Raceways may be used as support for other raceways of cables under the following conditions:

A. a raceway can never be used to support another raceway or cable.
B. If the supported raceway or cable is attached with approved fittings.
C. If the raceways contain conductors of the same system.
D. A Class 2 conductor can be supported by a raceway containing power conductors if they are solely for the purpose of connection to the equipment control circuits.

30. At least _____of free conductor shall be left at each outlet, junction, and switch point for splices or the connection of fixtures or devices.

A. 4 inches
B. 6 inches
C. 8 inches
D. 12 inches

31. A No 16 copper conductor installed in a vertical raceway must be supported at intervals not exceeding:

A. 100 feet
B. 135 feet
C. 180 feet
D. 200 feet

32. On a construction site, all temporary 120 volt, 1Ø, 15 amp receptacles, which are used by employees shall have _____ .

A. ground fault protection
B. instant trip breakers only
C. ten amp fuses
D. fire equipment mounted nearby

33. The ampacity of a type FEPW No. 14 conductor?

A. 20 amps
B. 25 amps
C. 30 amps
D. 40 amps

34. The ampacity of a type FEP No. 12 conductor n conduit with a total of 5 wires?

A. 30 amps
B. 28 amps
C. 24 amps
D. 20 amps

35. Wires of the same material, whether stranded or solid, will have the same ampacity if they have the same _____.

A. diameter
B. circumference
C. cross sectional area
D. none of the above

36. The aluminum conductor that carries the same current as a copper conductor will have a _____.

A. larger diameter
B. smaller gauge
C. equal resistance
D. greater ampacity

37. The only item which could cause a change in ampacity is a change in _____ .

A. volts
B. current
C. temperature
D. length

38. What is the ampacity of a type FEP No. 14 conductor?

A. 20 amps
B. 25 amps
C. 30 amps
D. 40 amps

39. The use of dissimilar metals for raceways should be avoided to prevent the possibility of _____ .

A. galvanic action
B. electrolysis
C. corrosion
D. none of the above

40. Without applying exceptions, rigid metal conduit must be supported within feet of each outlet box?

A. 10 feet
B. 6 feet
C. 5 feet
D. 3 feet

41. Flexible metal conduit:

A. Cannot be used in concealed locations
B. Must be supported within 6 inches of each box
C. Must be supported every 6 feet if run horizontally through holes in framing members
D. Cannot be used where subject to physical damage

42. Horizontal runs of electrical metallic tubing supported by openings through framing members at intervals not greater than 10 feet and securely fastened within _____ of termination points shall be permitted.

A. 6 inches
B. 12 inches
C. 3 feet
D. 6 feet

43. What is the maximum number of No 18 conductors that can fit in a 4 x 20 Inch round box?

A. 10 B. 12 C. 14 D. 16

44. What is the minimum cubic inch capacity for a box with 2 No. 18 conductors, 5 No. 14 conductors, 4 cable clamps and 3 equipment grounds?

A. 15 cu in
B. 15.5 cu in
C. 17 cu in
D. 27 cu in

45. The ampacity of NPLFA conductor Type TFFN #16 is:

A. 6 amps
B. 8 amps
C. 17 amps
D. 23 amps

46. The maximum ampacity of #18 fixture wire is amps.

A. 2 B.4 C.6 D. 8

47. Branch circuits of data processing equipment shall have a minimum ampacity of_____ .

A. 15 amps
B. 20 amps
C. 30 amps
D. not less than 125% of the total connected load

48. Which of the following cables can be installed under raised floors associated with information technology equipment?

A. type MI
B. type MC
C. type DP
D. any of the above

49. All exposed noncurrent-carrying metal parts of computer room equipment shall be grounded except _____.

A. when placed on a rubber mat
B. when double insulated
C. when the humidity is maintained at less than 50%
D. there are no exceptions

50. When circuits and equipment are operating a 35 volts,_____.

A. standard lampholders having a rating of not less than 660 watts shall be used
B. special low voltage receptacles are required
C. only explosion proof receptacles shall be used
D. receptacles rated at 15 amps (only) shall be used

51. Circuits and equipment operating at less than 50 volts shall use receptacles that are not less than _____amps.

A. 10 amps
B. 15 amps
C. 20 amps
D. 30 amps

52. Class 1,2, and 3 circuits are characterized by usage and electrical power limitations which differentiate them from electric light and power circuits and therefore special consideration is given with regard to _____.

I minimum wire sizes
II derating factors, overcurrent protection
III conductor insulation requirements

A. I only
B. II only
C. III only
D. I, II and III

53. A _____is the portion of the wiring system between the load side of the overcurrent device of a power supply and all connected equipment and shall be Class 1, Class 2 or Class 3.

I power limited circuit
II signaling circuit
III remote control circuit

A. I only
B. II only
C. II only
D. I, II and III

54. Since Class 3 circuits permit higher allowable levels of voltage and current, additional are specified to provide protection against the electrical shock hazard that could be encountered.

A. safeguards
B. units
C. circuits
D. transformers

55. Which of the following Class 2 wire types could be installed in a building riser?

A. CL2P
B. CL2R
C. Both A and B
D. Neither A or B

56. What damage to remote control circuits of safety control equipment would introduce a hazard. all conductors of Class 1 circuits of such remote control circuits shall be installed in _____or otherwise suitably protected from physical damage.

I MI or MC
II rigid NM conduit
III rigid metal conduit

A. I only
B. II only
C. III only
D. I, II or III

57. The source of Class 1 power limited circuits shall be protected by an overcurrent device rated at not more than _____percent of the volt-amp rating of the source divided by the rated voltage.

A. 100 percent
B. 115 percent
C. 125 percent
D. 167 percent

58. A Class 1 signaling circuit shall not exceed _____volts.

A. 120 v
B. 240 v
C. 600 v
D. 50 v

59. The maximum overcurrent protection for No. 18 gage conductors used in Class 1 circuits is _____amps.

A.7 B.7 C. 15 D. 20

60. Class 1 power limited circuits shall be supplied from a source having a rated output of not more than 30 volts. If, in fact the voltage rating is 25 volts, the maximum volt-amps of the circuit would be _____ .

A. 750 volt-amps
B. 833 volt-amps
C. 1000 volt amps
D. 1200 volt amps

61. Conductors #18, #16 and #14 used in Class 1 circuits shall be considered as protected by overcurrent devices of not over 20 amp rating except where other articles in the National Electrical Code® permit or require overcurrent protection.

A. True B. False

62. In a Class 1 power limited circuit that has an overcurrent device when #18 wire is used.

A. 7 B. 10 C. 15 D. 20

63. In any Class 2 circuit with inherently limited power source with a circuit voltage of 25 volts, the power source maximum name plate rating would be _____amps.

A. 4 amps
B. 5 amps
C. 8 amps
D. 10 amps

64. In Class 2 AC circuit installation the maximum voltage for wet contact that is most likely to occur is volts.

A. 12.4 B. 21.2 C. 50 D. 150

65. In Class 2 or Class 3 systems where overcurrent protection is employed, the overcurrent protection shall not be_____.

A. interchangeable with devices of higher rating
B. a breaker
C. a fuse
D. an integral part of the power supply

66. The input leads of a transformer or other power supply in Class 2 andClass 3 circuits shall be permitted to be smaller than #14 but not smaller than #18 if they are not more than 12 inches long with insulation that complies with Paragraph 725 — 27 (b) of the National Electrical Code®.

A. True B. False

67. A remote control and signaling circuit, Class 2 or 3, must be separated from Electric light and power conductors in outlet boxes device boxes and raceways unless:

A. A barrier separates the power wires from the Class 2 or 3 wires
B. The power wires are introduced solely to connect to the equipment connected to the Class 2 or Class 3 circuit a separation of 0.25 inches is maintained or the voltage of the power wires is not more than 150 volts to ground
C. Either A or B
D. Neither A or B

68. Conductors of Class 2 or Class 3 circuits shall not be placed in any enclosure, raceway cable tray, cable compartment or outlet box or similar fitting with conductors of electric light, power and Class 1 circuits except where the conductors of different circuits are _____.

I insulated
II aluminum
III separated by a partition

A. I only
B. II only
C. III only
D. I, II or III

69. Conductors of Class 2 and Class 3 circuits when in the open shall be separated by _____inches from leads of the conductors of any lighting, power or Class 1 circuits run in the same shaft.

A. 1 B. 2 C. 6 D. 12

70. Class 2 and Class 3 conductors should be installed in a _____in hoistways.

I rigid metal conduit
II intermediate metal conduit
III EMT

A. I only
B. II only
C. III only
D. I, II and III

71. Conductors from two or more Class 2 circuits shall be permitted within the same _____provided the voltage of the two circuits is rated for the maximum voltage of any conductor.

I cable
II enclosure
III raceway

A. I only
B. II only
C. III only
D. I, II or III

72. Which of the following are acceptable wiring methods for the space above a suspended ceiling which is used for environmental air?

A. Type FPL cable
B. Type CL2 cable installed in Electrical Metallic Tubing
C. Type CL2P cable
D. Both B and C

73. The cable core Type PLTC on metallic sheathed power limited tray cable in Class 2 circuits shall be _____.

I one or more group assemblies twisted or parallel conductors
II two or more parallel conductors
III a combination thereof

A. I only
B. II only
C. III only
D. I, II or III

74. The maximum overcurrent protection for a No. 16 NPLFA conductor is:

A. 15 amps
B. 12 amps
C. 10 amps
D. 7 amps

75. NPLFA circuit conductors must be:

A. minimum #16 AWG
B. solid only
C. sized according to Tb. 310-16
D. solid or standed

76. Cable splices and terminations made on the load side of a Power-Limited Fire Alarm Circuit must be made:

A. in listed boxes
B. in listed fittings
C. In listed fire alarm devices
D. All the above

77. What is the required separation between Power-Limited Fire Alarm Circuits and electric light and power conductors when the electric power wires are installed in an approved raceway.

A. 0.25 inches
B. 3 inches
C. 2 inches
D. no separation required

78. Optical fiber cables can be grouped into _____types.

A. 1 B. 2 C. 3 D. 4

79. Optical fiber cables shall not be required to be listed and marked where the length of the cable with the building measured from its point of entrance, does not exceed ft.

A. 20 B. 30 C. 40 D. 50

80. Fuse type protectors for communication circuits shall consist of an arrestor connected between:

A. line conductors
B. each line conductor and ground and a fuse in parallel with each arrestor
C. each line conductor and ground and a fuse in series with each line conductor
D. each line conductor and ground and a fuse in parallel with each line conductor

81. Communication cables shall be permitted in the same raceway with _____ .

A. Class 2 and Class 3 remote-control, signaling and power-limited circuits
B. Power-limited fire alarm systems
C. Optical fiber cables
D. Any of these

82. Communication cable type CMP can be substituted with cable _____.

A. CMR B. MPR C. MPP D. CMG

83. Where practicable coaxial cables shall be separated by _____from lightning conductors.

A. 2 inches
B. 3 inches
C. 8 feet
D. 6 feet

84. The conductor used to ground the outer cover OD (outside diameter) of a coaxial cable shall be:

I insulated
II not smaller than #14 AWG
III guarded from physical damage when necessary

A. I only
B. 11 only
C. III only
D. I, II and III

85. Coaxial cables run inside buildings have specific separation requirements for _____.

I Class 1
II Class 2
III Class 3

A. I only
B. II only
C. III only
D. II and III only

86. Coaxial cable is permitted to be placed in a raceway, compartment, outlet box, junction box, with the conductors of light, power circuits or Class 1 circuits when _____.

A. insulated
B. separated by a permanent partition
C. installed in rigid conduit
D. none of the above

87. Where coaxial cables having non-fire resistance covering are enclosed, the galvanized conduit that is enclosed in a fire-proof shaft shall be installed at each floor that the coaxial cable exits.

A. pull boxes
B. condulets
C. expansion joints
D. fire stops

88. When more than 2 conductors are installed in Rigid Metallic Conduit the conduit should not be filled more than:

A. 100% B. 80% C. 50% D. 40%

89. Conductor sizes are expressed in _____ .

A. circular mills
B. AWG
C. either A or B
D. neither A or B

90. The DC resistance of 640 feet of 2/0 copper cable is _____ohms.

A. 0.055 B. 0.062 C. 0.075 D. 0.085

91. The resistance of a conductor _____ with increase of length and _____ with increase of diameter.

A. increases — increases
B. decreases — decreases
C. increases — decreases
D. decreases — increases

92. How many No. 14 type TFE conductors can fit in a 3/4 inch piece of Electrical Metallic Tubing?

A. 12 B. 14 C. 19 D. 21

ANSWER KEY

1. B 90-4
2. A 90-4
3. A 100
4. A 100
5. D 100
6. D 100
7. B TB110-26(a)
8. A 200-6(a)
9. D 200-6(a)
10. B 210-5,200-6
11. A 200-7(b)
12. A 200-11
13. B 100,210-5(b), 250-119
14. B 225-18
15. C 250-20(a)
16.A TB250-122
17. C TB250-66
18.A 250-118
19.0 250-119
20. B TB250-122
21. B 250-126(3)
22. A 280-2
23. B 280-21
24. B 300-4(a)(2)
25. B 300-4(a)(1)
26. B TB300-5
27. C 300-5(h)
28. D 300-11
29. D 300-11(b)
30. B 300-14
31. A 300-19
32. A 305-6(a)
33. A TB 310-16
34. C TB 310-16
TB 310-15(b)(2)(a)
35. C TB310-16, Ch. 9, TB 8
36. A TB310-16
37. C TB310-16
38. B TB310-16
39. A 345-3(a)
40. D 346 -12(a)
41. D 350-5(7)
42. C 348-13
43. C TB370 -16(a)
44.C TB370 -16(b)
45. B TB 402-5
46. C TB 402-5
47. D 645-5(a)
48. D 645-5(d)(2)& (3)
49. B 645-15
50. A 720-5
51. B 720-6
52. D 725-1FPN
53. D 725-2
54. A 725-2
55. C TB725-61(b)
56. D 725-8(b)
57. D 725-21(a)(2)
58. C 727-21(b)
59. C 725-21(a)
60. B 725-23
61. B 725-23
62. A 725-23
63. A 725-41(a)FPN
TB11(A)
64. B TB 11(a)Note 2
65. A TB 11(a) &11(b)
66.A 725-51 EXC
67. C 725-54(a)(1) EXC 1 & 2
68. B 725-54(a)(3)
69. C 725-54(a)(1) EXC 1
70. D 725-54(a)(2)
71. D 725-54(b)
72. D 725-6(a) EXC(300-22)
73. D 725-71(e)
74. C 760-23
75. D 760-27(c)
76. D 760-52(b)(1)
77. D 760-54(a)(3) EXC1
78. D 770-50EXC 1
79. C 770-5
80. C 800-30(a)(2)
81. D 800-52(a)(1)(a)
82. C TB800-53
83. D
84. D 820-40(a)
85.A 820-52(a)(1)
86. B 820-52(a)(1)(b) EXC
87. D 820-52(b)
88. D CH9, TB1
89. C CH9, TB8
90. B CH9, TB8
91. C CH9, TB8
92. D APPENDIX C, TB C1