EXAM

Course 15903

2017 NEC-9HR

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We would like to thank you for ordering 15903 (9 Hours of Continuing Education).

This course is designed to familiarize those in the electrical trades with information on the electrical codes required for wiring a home, according to the Uniform Dwelling Code (UDC).

Topics covered in this course include Administration and Enforcement, General Requirements, Changes, Additions, or Omissions to the 2017 NEC and Electrical Inspection, Wiring and protection, Outside Branch Circuits and Feeders.

Materials included

1. Course Outline and Exam
2. Exam Answer Sheet

***You need to provide your own NEC book**.

Once you complete the course

Return the bubble answer sheets to our company.

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US Mail: Above address

We will grade your exam, notify you of the results and will notify the State of Wisconsin of your successful completion of the course.

The State of Wisconsin requires that you attain a passing score of 70%.

After you are notified that you passed the course

Save the Course Verification from our company for your records. The State of Wisconsin will notify you prior to the expiration of your Electrical License/Certification of the fees and procedure to renew your license/certification.

Please feel free to contact us with any questions and/or suggestions on improving this course or future educational courses you would like to see us offer.

Thank you for your business!

All Answers for questions 1-270 can be found in the [2017] NEC Code Book.

For questions 1-10 refer to article 90 of the NEC code book.

1. The NEC code is intended as a design specification for the untrained person?

    a. true
    b. false

2. The NEC code does not cover which of the following?

    a. parking lots
    b. mobile homes
    c. energy storage
    d. office buildings

3. Codes that are allowed but not required are considered:

    a. explanatory material
    b. permissive rules
    c. mandatory rules
    d. special permission

4. The terms *shall* or *shall not* are used in conjunction with mandatory rules?

    a. true
    b. false

5. Practical safeguarding, adequacy, and relation to other international standards comprise _____ of the NEC code?

    a. the scope
    b. is not covered
    c. the code arrangement
    d. the purpose

6. Hazards can occur due to _____ of wiring systems and by using methods that are not in conformity with the NEC code.

    a. overloading
    b. adequate installation
    c. changing
    d. grounding

7. Why are formal interpretations and procedures established?

a. fire safety
b. to help promote uniformity of interpretations and application
c. cost effectiveness
d. to reduce the number of inspections

8. Formal interpretation and procedures are established to help promote consistency in the application and interpretation of the provisions of the Code and can be found in the:

a. NEC code book
b. NFPA Regulations Governing Committee Projects
c. personal interpretation
d. SPS316

9. Wiring planning does not encompass future expansion and convenience along with the number of circuits in enclosures.

a. true
b. false

10. Where a _____ impact on safety would result, soft conversion shall be used.

a. positive
b. negative
c. neutral
d. none of the above

For questions 11-47 refer to article 100 of the NEC

11. The term _____ refers to access without having to climb over or move objects.

a. accessible
b. handicap accessible
c. readily accessible
d. available

12. Accessible, as applied to equipment, refers to:

a. admitting close approach
b. permanently closed in by structure
c. behind guarded or locked doors
d. capable of being removed

13. The amperes that can be continuously carried by a conductor under conditions so that the temperature rating is not exceeded is the definition of:

a. bonding
b. voltage
c. ampacity
d. continuous load

14. Bonding can be described as _____ to establish electrical continuity and conductivity.

a. connected
b. isolation
c. protected
d. divided

15. A circuit that supplies more than 2 receptacles for lighting, appliances, and general use is referred to as:

a. appliance branch circuit
b. multi-wire branch circuit
c. individual branch circuit
d. none of the above

16. An adjustable circuit breaker is not able to be set to trip at various values of current, time, or both in a predetermined range?

a. true
b. false

17. The term ____ refers to a qualifying term indicating that no delay is purposely introduced in the tripping action of a circuit breaker.

a. inverse time
b. nonadjustable
c. instantaneous trip
d. setting

18. When a conductor has no covering or insulation it is called a:

a. concealed conductor
b. insulated conductor
c. covered conductor
d. bare conductor

19. A conductor that is encased in a material of composition and thickness recognized by the *code* as electrical insulation is called:

a. covered conductor
b. insulated conductor
c. concealed conductor
d. bare conductor

20. A continuous load is when the maximum current is expected to continue for _____ or more.

a. 7 hours
b. 5 hours
c. 3 hours
d. 2 hours

21. A device that governs, in a predetermined manner, the electrical power that is delivered to the apparatus which it is connected to is:

a. cooking unit
b. conduit body
c. branch circuit overcurrent device
d. controller

22. The demand factor is the ratio of the maximum demand of a system, or a part of a system, to the total connected load of a system or the part of the system under consideration.

a. true
b. false

23. When the principal function of a unit of an electrical system is to carry or control electric energy it is called a:

a. dustlight
b. electric sign
c. feeder
d. device

24. The term *duty* can be:

a. continuous and intermittent
b. periodic and short-time
c. varying
d. all of the above

25. When a building has more than 3 dwelling units it is considered to be a:

a. single family dwelling
b. multifamily dwelling
c. two-family dwelling
d. all of the above

26. An electric sign is an electrically illuminated utilization equipment with symbols or words that attracts attention and conveys information. It may be:

a. stationary
b. fixed
c. portable
d. all of the above

27. When surrounded by a housing, case, wall, or fence that is meant to protect a person from accidentally contacting energized parts it is:

a. enclosed
b. exposed
c. enclosure
d. energized

28. The term _____ refers to something that is electrically connected to or is a source of voltage.

a. grounding
b. electric power
c. energized
d. none of the above

29. Paul says that a ground is the earth. Jim says that he is wrong, the earth is not a ground. Which is correct?

a. Jim
b. Paul
c. neither
d. both

30. When a system or circuit conductor is intentionally grounded it is called:

a. grounded, solidly
b. ground
c. grounding electrode
d. grounded conductor

31. The term grounding conductor is a conductor that is used to connect equipment, or the grounded circuit of a wiring system, to a grounding electrode(s).

a. true
b. false

32. When talking about a conducting object that establishes a direct connection to earth, you would be referring to:

a. grounding electrode conductor
b. grounding electrode
c. grounding conductor
d. none of the above

33. The purpose of a fitting is to perform an electrical function.

a. true
b. false

34. The definition of a feeder is something that is capable of being operated without exposing the operator to live parts.

a. true
b. false

35. The term _____ refers to an outlet that is used for the direct connection of a luminaire or lampholder.

a. live parts
b. enclosed outlet
c. lighting outlet
d. service cable

36. A power outlet may include the following:

a. receptacles and circuit breakers
b. buses and watt-hour meter mounting means
c. fuseholders and fused switches
d. all of the above

37. When Bob is talking about a conductor that is connected to the neutral point of a system and is intended to carry current under normal conditions, he is referring to:

a. neutral point
b. neutral conductor
c. nonlinear load
d. none of the above

38. A fault (short circuit or ground fault) is not considered an overload.

a. true
b. false

39. When service conductors are made up in the form of a cable it is called:

a. service drop
b. service
c. service cable
d. all of the above

40. A _____ is made up of the conductors and equipment that are used for delivering electric energy from the serving utility to the wiring system of the premises it serves.

a. service
b. service conductors
c. service drop
d. service-entrance conductor

41. Service Drop. The overhead conductors between the utility electric supply system and the service point.

a. true
b. false

42. The connection point between the facilities of the serving utility and the wiring of the premises is called:

a. service lateral
b. service equipment
c. service point
d. signaling circuit

43. A device is used to limit transient voltages by diverting or limiting surge current. This device is known as:

a. surge arrester
b. supplementary overcurrent protective device
c. switch
d. surge-protective device (SPD)

44. A device that is used to protect a motor against the possibility of dangerous overheating from overload and failure to start is a:

a. switchboard
b. thermal protector
c. utility-interactive inverter
d. ungrounded

45. A ____ ____ is assigned to a circuit in order to conveniently designate the voltage class.

a. nominal voltage
b. thermally protected
c. general use switch
d. surge protective device

46. When moisture does not enter an enclosure under specified test conditions, it is considered to be:

a. weatherproof
b. solar
c. thermally protected
d. watertight

47. When constructed or protected in a way that does not allow exposure to the weather to interfere with operation, it is called:

a. weatherproof
b. watertight
c. thermal protector
d. none of the above

For Questions 48-90 refer to Article 110 of the NEC

48. Article 110 of the NEC covers general requirements for electrical installations.

a. true
b. false

49. When judging equipment, considerations should be made. Which of the following is not a consideration mentioned in the NEC?

a. arcing effects
b. wire-bending and connection space
c. weather
d. electrical insulation

50. Equipment that is listed or labeled does not need to be installed based on the instructions that are included in the labeling or listing.

a. true
b. false

51. Electrical equipment that is rated shall not be _____ the nominal voltage of a circuit that it is connected to.

a. greater than
b. equal to
c. less than
d. none of the above

52. Unless otherwise stated in the *Code*, conductors that are used to carry current should be made of what material:

a. copper or aluminum
b. steel or lead
c. PVC
d. both a. and b.

53. The term used when wiring installations are free from ground faults, short circuits, or any ground connections other than required or permitted in the *Code* is:

a. conductor sizes
b. wiring integrity
c. wiring methods
d. voltages

54. _____ include, but are not limited to, gases, fumes, vapors, liquids, and any other agent that may have a deteriorating effect on the conductors or equipment; or where exposed to excessive temperature.

a. deteriorating agents
b. excessive temperatures
c. interrupting rating
d. none of the above

55. Unused openings shall be closed for protection unless used for:

a. operation of equipment
b. mounting purposes
c. part of a design for listed equipment
d. all of the above

56. When mounting electrical equipment, wood plugs may be driven into masonry, plaster, or concrete?

a. true
b. false

57. Splices that are soldered should be joined or spliced without soldering so that it is _____ and mechanically secure and then be soldered.

a. electrically
b. insulating
c. connected
d. welded

58. When a conductor has a temperature rating higher than specified for terminations, they shall be permitted to be used for:

a. ampacity adjustment
b. correction
c. ampacity adjustment and correction
d. none of the above

59. When electrical equipment is not in a dwelling occupancy and are likely to require adjustment, examination, maintenance, or servicing while _____ shall be field marked to warn of possible electric or flash hazards.

a. conducted
b. energized
c. arcing
d. none of the above

60. What information shall be placed on all electrical equipment?

a. manufacturer's name
b. trademark
c. descriptive markings
d. Any of the above

61. Equipment enclosures for circuit breakers or fuses applied in compliance with series combination ratings selected under engineering supervision in accordance with 240.86(A) shall be legibly marked in the field as directed by the engineer to indicate the equipment has been applied with a series combination rating.

a. true
b. false

62. Reconditioned equipment _____ identified as "reconditioned" and approval of the reconditioned equipment _____ based solely on the equipment's original listing.
Exception: In industrial occupancies, where conditions of maintenance and supervision ensure that only qualified persons service the equipment, the markings indicated in 110.21(A)(2) shall not be required.

a. shall be/ shall be
b. shall not be/ shall not be
c. shall not be/ shall be
d. shall be/ shall not be

63. In regards to *engineered series combination systems,* the equipment enclosures should be legibly marked and visible. It should state the following:
CAUTION - ENGINEERED SERIES COMBINATION SYSTEM RATED ___ AMPERES.
IDENTIFIED REPLACEMENT COMPONENTS REQUIRED.

a. true
b. false

Part II. 1000 Volts, Nominal, or Less:

64. According to table 110.26(A)(1)-working spaces, when the nominal voltage to ground is 151-600 the minimum clear distance for condition 2 is:

a. 914 mm-3 ft.
b. 1.0m-3 ft. 6in.
c. 1.22 m-4 ft.
d. none of the above

65. Condition 2 for working spaces is when there are exposed live parts on two sides of the working space and grounded parts on each side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

a. true
b. false

66. The width of the working space shall be the width of the equipment enclosure or a minimum of _____, whichever is greater.

a. 800 mm (31.5 in.)
b. 500 mm (19.69 in.)
c. 924 mm (36.38 in.)
d. 762 mm (30 in.)

67. In regards to 110.26(B), the working space required by this section _____ be used for storage.

a. may be
b. shall not
c. can
d. none of the above

68. Where equipment rated 800 A or more that contains overcurrent devices, switching devices, or control devices is installed and there is a _____ intended for entrance to and egress from the working space less than 7.6 m (25 ft) from the nearest edge of the working space, the door(s) shall open in the direction of egress and be equipped with listed panic hardware.

a. entrance door(s)
b. closed door(s)
c. personnel door(s)
d. locked door(s)

69. Entrances to rooms and other guarded locations that contain exposed live parts shall be marked with conspicuous _____ forbidding unqualified persons to enter. The marking shall meet the requirements in 110.21(B).

a. guide signs
b. warning signs
c. caution signs
d. emergency signs

70. Outdoor installations shall comply with 110.26(E)(2)(a) through (c).

a. true
b. false

71. Locked electrical equipment rooms or enclosures shall be considered accessible to ____ persons.

a. qualified
b. unqualified
c. any
d. no

Part III. Over 1000 Volts, Nominal:

72. A fence that is used to deter access by unqualified persons shall not be less than _____ in height.

a. 4 feet
b. 5 feet
c. 6 feet
d. 7 feet

73. According to Table 110.31, when the nominal voltage is over _____ the minimum distance from the fence to live parts shall be 18 ft.

a. 13,800
b. 13,799
c. 230,000
d. 127,000

74. The floors of vaults in contact with the earth should be of concrete that is not more than 102 mm (4 in.) thick, but where the vault is constructed with a vacant space or other stories below it, the floor shall have adequate structural strength for the load imposed on it and a minimum fire resistance of 5 hours.

a. true
b. false

75. For indoor installations, when electrical installations are accessible to unqualified persons, they shall be made with ____ equipment and should be marked with appropriate caution signs.

a. metal-enclosed
b. plastic-enclosed
c. doesn't matter
d. none of the above

76. For outdoor installations that are accessible to unqualified people they should comply with parts I, II, and III of which NEC article.

a. 325
b. 250
c. 225
d. 140

77. For outdoor installations, when exposed live parts are present, they should be accessible only to qualified persons and shall comply with sections 110.34, 110.36, and 490.24.

a. true
b. false

78. Where energized parts are exposed, the minimum clear work space shall be not less than _____ high (measured vertically from the floor or platform) or not less than _____ wide (measured parallel to the equipment).

a. 800 mm (2ft. 7.5 in.), 914 mm (3 ft.)
b. 800 mm (2ft. 7.5 in.), 2.0 m (6 ½ ft.)
c. 2.0 m (6 ½ ft.), 914 mm (3 ft.)
d. 914mm (3ft.), 2.0 m (6 ½ ft.)

79. Enclosures for electrical installations (described in 110.31) should have at least one entrance that is not less than _____ wide and _____ high to give access to the working space.

a. 610 mm (24 inches), 2 m (6 1/2 ft.)
b. 305 mm (12 inches), 2 m (6 1/2 ft.)
c. 2 m (6 1/2 ft.), 914 mm (3 ft.)
d. 2m (6 1/2 ft.), 610 mm (24 inches)

80. On switchgear and control panels exceeding 1.8 m (6 ft) in width, there shall be one entrance at each end of the equipment. A single entrance to the required working space shall be permitted where either of the conditions in 110.33(A)(1)(a) or (A)(1)(b) is met.

a. true
b. false

81. If electrical equipment is installed on a balcony, it should have permanent ____ or stairways.

a. elevators
b. ladders
c. tight ropes
d. doors

82. Except as elsewhere required or permitted in this *Code,* equipment likely to require examination, adjustment, servicing, or maintenance while energized shall have clear working space in the direction of access to _____ of the electrical equipment and shall be not less than specified in Table 110.34(A).

a. live parts
b. moving parts
c. both a. and b.
d. none of the above

83. Where required elsewhere in this *Code*, the complete electrical system design, including settings for protective, switching, and control circuits, shall be prepared in advance and _____ to the authority having jurisdiction and shall be tested when first installed on-site.

a. be provided
b. submitted
c. electronically filed
d. made available on request

84. Permanent and conspicuous danger signs shall be provided. The danger sign _____ the requirements in 110.21(B) and _____ read as follows: DANGER - HIGH VOLTAGE - KEEP OUT.

a. may meet/ should
b. shall meet/ shall
c. should/ shall meet
d. may meet/ shall meet

Part IV. Tunnel installations over 1000 volts, nominal:

85. High-voltage conductors in tunnels shall be installed in metal conduit or other metal raceway, Type MC cable, or other approved multiconductor cable. Multiconductor portable cable shall be permitted to supply mobile equipment.

a. true
b. false

86. Enclosures for use in tunnels shall be _____ as required by the environmental conditions.

a. dripproof
b. weatherproof
c. submersible
d. all of the above

Part 110 V. Manholes and Other Electrical Enclosures Intended for Personnel Entry:

87. A clear work space not less than _____ wide shall be provided where cables are located on both sides, and not less than _____ where cables are only on one side. The vertical headroom shall be not less than _____ unless the opening is within _____, measured horizontally, of the adjacent interior side wall of the enclosure.

a. 1.8 m (6 ft), 900 mm (3 ft), 750 mm (2½ ft), 300 mm (1 ft)
b. 900 mm (3 ft), 750 mm (2 ½ ft), 1.8 m (6 ft), 300 mm (1 ft)
c. 300 mm (1 ft), 1.8 m (6 ft), 750 mm (2½ ft), 900 mm (3 ft)
d. 900 mm (3 ft), 300 mm (1 ft), 750 mm (2½ ft), 1.8 m (6 ft)

88. Rectangular access openings shall not be less than 650 mm × 550 mm (26 in. × 22 in.). Round access openings in a manhole shall be not less than 650 mm (26 in.) in diameter.

a. true
b. false

89. Manhole covers can have an identifying mark or logo that improves their function, such as “electric.”

a. true
b. false

90. Where manholes, tunnels, and vaults have communicating openings into enclosed areas used by the public, ventilation to open air _____ wherever practicable.

a. may be provided
b. can be provided
c. shall be provided
d. should be provided

For questions 91 to 105 refer to article 200 of the NEC code book.

91. The continuity of a grounded conductor _____ depend on a connection to a metallic enclosure, raceway, or cable armor.

a. shall
b. shall not
c. does not
d. does

92. In 200.3, electrically connected means to be connected so it is not capable of carrying current.

a. true
b. false

93. Neutral conductors shall not be used for more than _____ branch circuit, for more than _____ multiwire branch circuit, or for more than one set of ungrounded feeder conductors unless specifically permitted elsewhere in this *Code*.

a. one/ one
b. two/ one
c. one/ two
d. two/ two

Article 200.6 Means of Identifying Grounded Conductors.

94. An insulated grounded conductor that has a continuous white or gray outer finish, has 3 continuous white stripes on any color other than green insulation along its length or wires that have their outer covering finished to show a white or gray color but have color tracer thread in the braid identifying the source of the manufacturer meets the provisions of 200.6 for:

a. 10 AWG
b. 6 AWG or smaller
c. 6 AWG or larger
d. none of the above

95. For grounder conductor identification, fixture wire shall comply with the requirements as specified in:

a. 400.1
b. 400.25
c. 300.5
d. 402.8

96. An insulated conductor intended as a grounded conductor, which is contained within a flexible cord, shall have a gray or white outer finish or be identified by the permitted methods in:

a. 400.22
b. 400.11
c. 400.5
d. 400.23

97. When grounded conductors for different systems are installed in the same raceway, cable, box, auxiliary gutter, or other type of enclosure, each grounded conductor shall be identified by system in one of three ways described in 200.6 (D). The means of identification shall be documented in a manner that is readily available or shall be _____posted where the conductors of different systems originate.

a. temporarily
b. permanently
c. does not need to be posted
d. none of the above

98. Multiconductor flat cable 4 AWG or larger shall be permitted to employ an external ridge on the grounded conductor.

a. true
b. false

200.7 Use of Insulation of a White or Gray Color or with Three Continuous White or Gray Stripes.

99. Unless otherwise permitted in 200.7(B) and (C), which of the following shall be used only for the grounded circuit conductor?

a. continuous white or gray covering
b. three continuous white stripes on any other color than green insulation
c. a white or gray marking at the termination
d. all of the above

100. A conductor with coloring described in 200.7(A) for a circuit of less than 50 volts shall be grounded only as required by:

a. 250.2
b. 250.3
c. 250.20(A)
d. 250.20(C)

101. A white or gray insulation is used for other than a grounded conductor on a circuit over 50 volts and has an identification encircling the insulation that is ____ white, gray or green. This is permitted in 200.7(C)(1).

a. required to be
b. a color other than
c. close to
d. all of the above

200.9 Means of Identification of Terminals. / 200.10 Identification of Terminals. / 200.11 Polarity of Connections.

102. A terminal to which a grounded conductor is going to be connected shall be substantially ____ in color.

a. gray
b. green
c. yellow
d. white

103. The exception to 200.10 for terminal identification is not required for devices that have a normal current rating in excess of ____ amperes, other than polarized attachment plugs and polarized receptacles for attachment plugs as required in 200.10(B).

a. 20
b. 30
c. 40
d. 50

104. The terminal intended for connection to the grounded conductor is identified by the letter W adjacent to the terminal to be identified. This would be for:

a. cord connectors for plugs and polarized plugs
b. receptacles
c. polarized attachment plugs
d. all of the above

105. A grounded conductor can be attached to a terminal or lead so that it reverses the designated polarity.

a. true
b. false

For questions 106 to 171 refer to article 210 of the NEC code book.

210.1 Scope to 210.4 Multiwire Branch Circuits

106. Article 210 is meant to cover branch circuits except for circuits that only supply motor loads. Those branch circuits are covered in Article ____?

a. 420
b. 430
c. 450
d. none of the above

107. Table 210.3 lists references for specific equipment and applications not located in Chapters 5, 6, and 7 that _____ the requirements of this article.

a. amend or supplement
b. amend
c. supplement
d. negate

108. In respect to a multi-wire branch circuit, all conductors shall originate from:

a. the same panel board
b. anywhere
c. similar distribution equipment
d. both a and c

109. Each multiwire branch circuit shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point where _____.

a. the branch circuit originates
b. the conductors originate
c. the plug is connected
d. none of the above

110. "A multi-wire branch circuit that supplies only one utilization equipment" is an exception to ____.

a. 210.2
b. 210.4(B)
c. 210.4(C)
d. 210.4(D)

111. The ungrounded and grounded circuit conductors of each multiwire branch circuit shall be _____ in accordance with 200.4(B).

a. grouped
b. separated
c. sectioned
d. none of the above

210.5 Identification for Branch Circuits to 210.6 Branch-Circuit Voltage Limitations

112. Ungrounded conductors shall be identified in accordance with 210.5(C)(1) or (2), as applicable.

a. true
b. false

113. A circuit that exceeds 120 volts but does not exceed 277 volts cannot supply lamp holders, other than the screw shell type, applied within their voltage ratings?

a. true
b. false

114. Where the premises wiring system has branch circuits supplied from more than one nominal voltage system, each ungrounded conductor of a branch circuit shall be identified by phase or line and system at all _____ in compliance with 210.5(C)(1)(a) and (b).

a. termination
b. connection
c. splice points
d. all of the above

115. For dwelling units, guest room of hotels, motels, and other similar occupancies, the voltage cannot exceed 120 volts, nominal, between the conductors that supply the terminals of luminaires and cord-and-plug-connected loads 1440 volt-amperes or less than ____.

a. 1/4 hp
b. 1/2 hp
c. 1/3 hp
d. all of the above

116. If a circuit does not go over 120 volts, nominal, between conductors it is permitted to supply:

a. lamp holder terminals applied within their voltage ratings
b. auxiliary equipment of electric-discharge lamps
c. cord-and-plug-connected or permanently connected utilization equipment
d. all of the above

117. The method utilized for conductors originating within each branch-circuit panelboard or similar branch-circuit distribution equipment can be documented in a manner that is readily available or can be temporarily posted at each branch-circuit panelboard or similar branch-circuit distribution equipment. The label shall be of sufficient durability to withstand the environment involved and should be handwritten.

a. true
b. false

118. For circuits exceeding 277 volts but not exceeding 600 volts, nominal, what is the height requirement for auxiliary equipment of electric-discharge lamps that are mounted in permanently installed luminaires?

a. not less than 22 ft. on poles or similar structures such as highways, roads, bridges, parking lots, athletic fields.
b. not less than 18 ft. on other structures such as tunnels.
c. not greater than 22 ft. on poles
d. both a and b

210.7 Multiple Branch Circuits to 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel

119. For dwelling units, every 125-volt, single phase, 15 and 20 ampere receptacles that are installed in the locations listed in 210.8(A), shall have ground-fault circuit-interrupter protection. Are boathouses included as one of the 10 locations?

a. yes
b. no

120. In places other than dwelling units, ground-fault circuit-interrupter protection for personnel needs to be installed in the following locations; bathrooms, kitchens, outdoors, ____, sinks (where receptacles are within 6 ft. of the outside edge of the sink).

a. rooftops
b. garages
c. windows
d. outdoors

121. For outlets not exceeding 240 volts which supply boat hoists installed in dwelling unit locations, GFCI protection does not need to be provided.

a. true
b. false

122. For fire alarm systems the article that specifies the requirements for the branch circuit is:

a. article 665
b. article 760
c. article 551
d. article 550

210.9 Circuits Derived from Autotransformers to 210.17 Guest Rooms and Guest Suites

123. The minimum number of branch circuits needed is determined from the total calculated load and ____ or ____ of the circuits used.

a. size; overload
b. rating; overload
c. size; rating
d. none of the above

124. In addition to the number of branch circuits required by other parts of this section, two or more 20-ampere small-appliance branch circuits shall be provided for all receptacle outlets specified by 210.52(B).

a. true
b. false

125. At least one 20-amp branch circuit needs to be provided for supplying bathroom receptacle outlets(s); the circuits shall have no other outlets.

a. true
b. false

126. Dormitory Units. All 120-volt, single-phase, 15- and 20- ampere branch circuits supplying outlets and devices installed in dormitory unit bedrooms, living rooms, hallways, closets, bathrooms, and similar rooms shall be protected by any of the means described in _____.

a. 100
b. 210.12(A)(1) through (6)
c. 215(A) and (B)
d. none of the above

210 II. Branch-Circuit Ratings - 210.18 Ratings to 210.19 Conductors – Minimum Ampacity Size

127. For Brach circuits not more than 600 volts, where a branch circuit supplies continuous loads or any combination of continuous and noncontinuous loads, the minimum branch-circuit conductor size shall have an allowable ampacity not less than the noncontinuous load plus _____ of the continuous load.

a. 100 %
b. 200 %
c. 125 %
d. 150 %

128. An exception to 210.19(A) states that "If the assembly, including the overcurrent devices protecting the branch circuit(s), is listed for operation at _____ of its rating, the allowable ampacity of the branch circuit conductors shall be permitted to be not less than the sum of the continuous load plus the noncontinuous load."

a. 100 percent
b. 125 percent
c. 150 percent
d. 175 percent

129. If a conductor of a branch circuit supplies more than one receptacle for cord-and-plug-connected portable loads, it shall have an ampacity of not less than the rating of the branch circuit.

a. true
b. false

130. For ranges which are 8 3/4 kW or more, the minimum branch-circuit rating needs to be _____ amperes.

a. 20
b. 30
c. 40
d. 50

131. Branch-circuit conductors that supply loads other than those specified in 210.3 and other than cooking appliances as covered in 210.19(A)(3) shall have an ampacity sufficient for the loads served and shall not be smaller than _____AWG.

a. 11
b. 12
c. 13
d. 14

132. Article 210.19(B) covers branch circuits that are under 600 volts.

a. true
b. false

133. For supervised installations, branch-circuit conductor sizing shall be permitted to be determined by qualified persons under engineering supervision.

a. true
b. false

134. In order to be defined as a supervised installation for a portion of a facility, what conditions must be met?

a. Conditions of design and installations are provided under engineering supervision
b. Qualified persons must have training and experience in under 600-volt systems
c. Qualified with documented training and experience in over 600-volt systems provide maintenance, monitoring, and servicing of the system.
d. both a. and c.

210.20 Overcurrent Protection to 210.21 Outlet Devices

135. Conductors shall be protected in accordance with _____ and flexible cords and fixture wires in accordance with _____.

a. 240.4; 240.5
b. 240.5; 240.4
c. 240.4; 240.2
d. none of the above

136. For outlet devices, the rating or setting cannot exceed what is specified in:

a. 210.10
b. 210.21
c. 210.22
d. all of the above

137. If a heavy-duty lamp holder is of the admedium type, the rating cannot be less than _____.

a. 600 watts
b. 630 watts
c. 660 watts
d. 690 watts

138. According to table 210.21(B)(2), the circuit rating is 20 amperes and the receptacle rating is 20 amperes, the maximum cord-and-plug connected load to receptacle is:

a. 12 amperes
b. 24 amperes
c. 16 amperes
d. none of the above

139. Table 210.21(B)(3) is for receptacle ratings for various size circuits. If the circuit rating, in amperes, is 40, then the receptacle rating, in amperes, is _____.

a. 15 or 20
b. 30
c. 50
d. 40 or 50

140. For a range receptacle rating, the ampere rating shall be permitted to be based on a single range demand load specified in ____.

a. table 220.55
b. table 220.50
c. table 220.10
d. table 230.55

210.22 Permissible Loads, Individual branch Circuits to 210.25, Branch Circuits in Buildings with More Than One Occupancy.

141. An individual branch circuit shall be permitted to supply any load for which it is rated, and in certain cases it can exceed the load for the branch-circuit ampere rating.

a. true
b. false

142. The exception to 210.23 (A) states that; _____ required in a dwelling unit(s) by 210.11(C)(1), (C)(2), and (C)(3) shall supply only the receptacle outlets specified in that section.

a. kitchen, small-appliance and laundry
b. small-appliance, oven and laundry
c. small-appliance, laundry and bathroom branch circuits
d. kitchen, bathroom and oven

143. Any one cord-and-plug-connected utilization equipment not fastened in place shall not have a rating exceeding _____ percent of the branch-circuit ampere rating.

a. 80
b. 75
c. 70
d. 60

144. Other than luminaires, the total rating of utilization equipment fastened in place shall not exceed _____ of the branch-circuit ampere rating where lighting units, cord-and-plug-connected utilization equipment not fastened in place, or both, are also supplied.

a. 40 percent
b. 50 percent
c. 60 percent
d. 70 percent

145. A _____ ampere branch circuit shall be permitted to supply fixed lighting units with heavy-duty lamp holders other than a dwelling unit(s) or utilization equipment in any occupancy.

a. 30
b. 40
c. 50
d. 60

146. What size branch circuit is permitted to supply cooking appliances that are fastened in place in any occupancy?

a. 50 ampere
b. 30 ampere
c. 40 ampere
d. both a. and c.

147. A branch circuit that is larger than 50 amperes shall supply only nonlighting outlet loads.

a. true
b. false

148. For branch circuits in buildings with more than one occupancy, branch circuits in each dwelling____ shall supply only loads within that dwelling unit or loads associated only within that dwelling unit.

a. room
b. area
c. unit
d. none of the above

149. Branch circuits installed for the purpose of lighting, central alarm, signal, communications, or other purposes for public or common areas of a _____ building shall not be supplied from equipment that supplies an individual dwelling unit or tenant space.

a. two-family dwelling
b. multifamily dwelling
c. multi-occupancy
d. all of the above

210 III Required Outlets - 210.50, General to 210.52, Dwelling Unit Receptacle Outlets.

150. A cord connector that is supplied by a permanently connected cord pendant shall not be considered a receptacle outlet.

a. true
b. false

151. Appliance receptacle outlets that are installed in a dwelling unit for a specific appliance (ex. laundry equipment) shall be installed within ____ ft. of the intended location of the appliance.

a. 10
b. 8
c. 6
d. 4

152. Section 210.52 provides the requirements for ____ volt, 15 and 20 ampere receptacle outlets.

a. 120
b. 220
c. 100
d. 125

153. In regards to spacing, receptacles shall be installed so that no point measured _____ along the floor line in any wall space is more than 1.8 m (6 ft.) from a receptacle outlet.

a. vertically
b. horizontally
c. in centimeters
d. none of the above

154. For receptacle outlets that are located in floors, they shall not be counted as part of the required number of receptacle outlets unless located within _____ of the wall.

a. 18 inches
b. 14 inches
c. 12 inches
d. 10 inches

155. In regards to Kitchen receptacle requirements, a small-appliance branch circuit can serve more than one kitchen.

a. true
b. false

156. In kitchens, pantries, breakfast rooms, dining rooms, and similar areas of dwelling units, receptacle outlets for countertop and work surfaces shall be installed in accordance with 210.52(C)(1) through (C)(5).

a. true
b. false

157. A minimum of one receptacle shall be installed at each island countertop space with a long dimension of ____ or greater and a short dimension of ____ or greater.

a. 12 inches, 24 inches
b. 10 inches, 12 inches
c. 12 inches, 12 inches
d. 24 inches, 12 inches

158. Receptacle outlets shall be located on or above, but not more than ____ inches above the countertop or work surface.

a. 12 inches
b. 16 inches
c. 20 inches
d. 24 inches

159. For dwelling units, a minimum of one receptacle shall be installed in bathrooms within ____ of the outside edge of each basin.

a. 800 mm
b. 3 ft.
c. 4 ft.
d. 600 mm

160. For balconies, decks, and porches which are attached to the dwelling unit and are accessible from inside the dwelling unit shall have at least one receptacle outlet accessible from the balcony, deck, or porch. The receptacle outlet shall not be located more than _____ above the balcony, deck, or porch walking surface.

a. 8 ft.
b. 10 ft.
c. 5 ft.
d. none of the above

161. At least one receptacle outlet shall be installed for laundry in dwelling units; however, in multifamily buildings where laundry facilities are provided on the premises and available to all occupants, a laundry receptacle _____ be required.

a. shall not
b. shall
c. is always
d. none of the above

162. In dwelling units that have a hallway that is ____ ft. or more in length, there shall be at least one receptacle outlet.

a. 3
b. 6
c. 9
d. 10

210.6 Guest Rooms, Guest Suites, Dormitories, and Similar Occupancies, to 210.71, Meeting Rooms.

163. Guest rooms or suites that have permanent provisions for cooking shall have receptacle outlets installed in accordance with all of the applicable rules in _____.

a. 210.50
b. 210.52
c. 210.10
d. none of the above

164. At least one 125-volt, single-phase, _____ receptacle outlet shall be installed within 450 mm (18 in.) of the top of a show window for each 3.7 linear m (12 linear ft) or major fraction thereof of show window area measured horizontally at its maximum width.

a. 15 ampere-rated
b. 20 ampere-rated
c. both a. and b.
d. none of the above

165. The receptacle shall be located on the same level and within _____ ft. of the heating, air-conditioning, and refrigeration equipment.

a. 15
b. 20
c. 25
d. 30

166. An exception to 210.63, a receptacle outlet shall not be required at one and two-family dwellings for the service of evaporative coolers.

a. true
b. false

167. At least _____ wall switch-controlled lighting outlet(s) shall be installed in every habitable room and bathroom.

a. one
b. two
c. three
d. there doesn't need to be any

168. For dwelling units, _____, and _____ with electric power, at least one wall switch-controlled lighting outlet shall be installed to provide illumination on the exterior side of outdoor entrances or exits with grade level access.

a. attached garages
b. detached garages
c. sheds
d. both a. and b.

169. For attics, underfloor spaces, utility rooms, and basements, at least two lighting outlets containing a switch or controlled by a wall switch shall be installed where these spaces are used for storage or contain equipment requiring servicing. At least two points of control shall be at the usual point of entry to these spaces. The lighting outlets shall be provided at or near the equipment requiring servicing.

a. true
b. false

170. In hotels, motels, or similar occupancies, guest rooms or suites shall have at least how many wall switch-controlled lighting outlets installed in every habitable room and bathroom?

a. none
b. one
c. two
d. three

171. Each meeting room of not more than _____ in other than dwelling units shall have outlets for nonlocking-type, 125-volt, 15- or 20-ampere receptacles. The outlets shall be installed in accordance with 210.71(B). Where a room or space is provided with movable partition(s), each room size shall be determined with the partition in the position that results in the smallest size meeting room.

a. 1300 square feet
b. 1200 square feet
c. 1100 square feet
d. 1000 square feet

For questions 172 to 186 refer to article 215 of the NEC code book.

215.1, Scope, to 215.4, Feeders with Common Neutral Conductor.
Feeders not more than 600 volts.

172. Where a feeder supplies continuous loads or any combination of continuous and noncontinuous loads, the minimum feeder conductor size shall have an allowable ampacity not less than the noncontinuous load plus _____ of the continuous load.

a. 75 percent
b. 100 percent
c. 125 percent
d. 150 percent

173. Exception # 3 to 215.2(A) states that grounded conductors that are not connected to an overcurrent device shall be permitted to be sized at _____ percent of the continuous and noncontinuous load.

a. 75
b. 100
c. 125
d. 150

174. The ampacity of the feeder conductor shall not be less than that of the service conductors where the feeder conductors carry the total load supplied by service conductors with an ampacity of _____.

a. 55 amperes or less
b. 55 amperes or more
c. 50 amperes or less
d. none of the above

175. The size of the feeder circuit grounded conductor can be larger than that required by 250.122, with no exceptions.

a. true
b. false

Feeders over 600 volts.

176. The ampacity of conductors shall be in accordance with _____, as applicable.

a. 310.10 and 310.60
b. 310.15 and 310.60
c. 310.10 and 310.20
d. 310.15 and 310.20

177. The ampacity of feeder conductors shall not be less than the sum of the _____ ratings of the transformers supplied when only transformers are supplied.

a. nameplate
b. ampere
c. volt
d. none of the above

178. For supervised installations, feeder conductor sizing shall be permitted to be determined by qualified persons under engineering supervision.

a. true
b. false

179. Where a feeder supplies continuous loads or any combination of continuous and noncontinuous loads, the rating of the overcurrent device shall not be less than the noncontinuous load plus _____ of the continuous load.

a. 75 percent
b. 100 percent
c. 125 percent
d. 150 percent

180. 215.4 - Up to three sets of _____ or two sets of 4-wire or 5-wire feeders shall be permitted to utilize a common neutral.

a. 3-wire
b. 2-wire
c. both a and b
d. none of the above

181. All conductors of all feeders using a common neutral conductor shall be enclosed within the same raceway or other enclosure as required in 300.20 when installed in a _____ raceway or other _____ enclosure.

a. metal, plastic
b. metal, metal
c. plastic, metal
d. PVC, metal

215.5, Diagrams of Feeders to 215.12, Identification for Feeders.

182. In lieu of the provisions in 210.8 and 590.6(A), feeders supplying _____ and _____ ampere receptacle branch circuits shall be permitted to be protected by a ground-fault circuit interrupter.

a. 10, 20
b. 10, 15
c. 15, 20
d. none of the above

183. Article 215.10 refers to Ground-Fault protection of Equipment. When a building contains health care occupancies, the requirements of ____ should be referred to.

a. 517.15
b. 517.17
c. 517.20
d. 510.10

184. There are 3 exceptions to 215.11, Circuits Derived from Autotransformers?

a. true
b. false

185. 215.12(A) states that a grounded conductor of a feeder shall be identified in accordance with _____.

a. 250.110
b. 250.119
c. 200.5
d. 200.6

186. The equipment grounding conductor shall be identified in accordance with _____.

a. 250.119
b. 250.110
c. 200.5
d. 200.6

For questions 187 to 229 refer to Article 220 of the NEC code book

220.1 Scope to 220.16 Loads for Additions to Existing Installations

187. Part II of article 220 provides ____ methods for branch circuit loads.

a. wiring
b. calculation
c. general
d. none of the above

188. Which part of article 220 provides calculation methods for farm loads?

a. Part III
b. Part IV
c. Part I
d. Part V

189. When a calculation results in a fraction of an ampere that is less than ____, the fractions are permitted to be dropped.

a. .4
b. .75
c. .50
d. none of the above

190. Branch circuit loads shall be calculated as shown in ____, ____, and ____.

a. 220.12
b. 220.14
c. 220.16
d. all of the above

191. Table 220.3 gives references for additional load calculations. If you were calculating the load for fixed electric space-heating equipment, branch circuit sizing, which article and section of the code would you refer to?

a. article 424; section 424.3
b. article 430; section 430.24
c. article 455; section 455.6
d. none of the above

192. In table 220.3, what article would you refer to when calculating the load for storage type water heaters?

a. 690
b. 430
c. 422
d. 520

193. In table 220.3, where would you refer to if you were working on air-conditioning and refrigerating equipment, branch-circuit conductor sizing?

a. Article 410 part IV
b. Article 440 part IV
c. Article 424
d. all of the above

194. A unit load of not less than that specified in Table _____ for occupancies specified shall constitute the minimum lighting load.

a. 220.3
b. 220.12
c. 220.14
d. 220.1

195. Table 220.12 gives general lighting loads by occupancy. What is the volt-ampere per sq. meter load for churches? What is the volt-ampere per sq. ft.?

a. 11 volt-amperes, 1 volt-ampere
b. 11 volt-amperes, 11 volt-amperes
c. 1 volt-ampere, 11 volt-amperes
d. 33 volt-amperes, 3 volt-amperes

196. What are the volt-ampere per sq. meter loads and the volt-ampere per sq. ft. for schools?

a. 2 volt-amperes, 33 volt-amperes
b. 22 volt-amperes, 2 volt-amperes
c. 2 volt-amperes, 22 volt-amperes
d. 33 volt-amperes, 3 volt-amperes

197. The exception to 220.14 states that the outlets for _____ and _____ in telephone exchanges shall be waived from the calculations.

a. switchboards, luminares
b. switchboards, show windows
c. switchboards, switching frames
d. all of the above

198. An outlet for a specific appliance or other load not covered in 220.14(B) through (L) shall be calculated based on the ampere rating of the appliance or load served.

a. true
b. false

199. An outlet for a heavy-duty lamp holder shall be calculated at a minimum of _____ volt-amperes.

a. 500
b. 220
c. 110
d. 600

200. Loads for new circuits or extended circuits in previously wired dwelling units shall be calculated with 220.22 or 220.44; no exceptions.

a. true
b. false

201. The total load shall not exceed the rating of the _____, and it shall not exceed the maximum loads specified in 220.18(A) through (C) under the conditions specified therein.

a. dwelling unit
b. branch circuit
c. receptacle load
d. appliance load

202. Where a circuit supplies only air-conditioning equipment, refrigerating equipment (or both), article ____ shall apply.

a. 440
b. 430
c. 450
d. 500

Article 220 Part III. Feeder and Service Load Calculations - 220.40 General to 220.61 Feeder or Service Neutral Load

203. The demand factors in table 220.42 shall not be applied to the calculated load of feeders or services supplying areas in hospitals, hotels, and motels where the entire lighting is likely to be used at one time, as in operating rooms, ballrooms, or dining rooms.

a. true
b. false

204. The demand factors in table 220.42 apply to the portion of the total branch-circuit load calculated for general _____.

a. purposes
b. wiring
c. illumination
d. none of the above

205. For show-window lighting, a load of not less than _____ volt-amperes/linear meter or _____ volt-amperes/ linear foot shall be included for a show window, measured horizontally along its base.

a. 200/660
b. 300/ 600
c. 500/ 300
d. 660/ 200

206. Table 220.42 Lighting Load Demand Factors lists the type of occupancy, the portion of lighting load to which demand factor applies, and the demand factor %. What is the demand factor % for hotels and motels, including apartment houses without provisions for cooking by tenants for the first 20,000 or less portion pf the lighting load to which the demand factor applies?

a. 40
b. 50
c. 80
d. 100

207. Fixed electric space-heating loads shall be calculated at _____ percent of the total connected load.

a. 25
b. 50
c. 75
d. 100

208. In reference to 220.51, in no case shall a feeder or service load current rating be _____ than the rating of the largest branch circuit supplied.

a. more
b. less
c. equal
d. none of the above

209. For each 2-wire laundry branch circuit installed, as covered in 210.11(C)(2), a load of not less than _____ volt-amperes shall be included.

a. 1500
b. 1700
c. 2000
d. 2200

210. In 220.53, which appliances cannot have a demand factor of 75% applied to the nameplate rating load of four or more appliances fastened in place?

a. clothes dryers
b. electric ranges
c. air-conditioning equipment
d. all of the above

211. The load for household electric clothes dryers in a dwelling unit(s) shall be either _____ watts (volt-amperes) or the nameplate rating, whichever is larger, for each dryer served.

a. 200
b. 1000
c. 5000
d. 10,000

212. In 220.54, where two or more single-phase dryers are supplied by a 3-phase, 4-wire feeder or service, the total load shall be calculated on the basis of _____ the maximum number connected between any two phases.

a. twice
b. three times
c. four times
d. none of the above

213. When calculating the load for household electric ranges, wall mounted ovens, counter-mounted cooking units, and other household cooking appliances individually rated in excess of 1 3/4 kW, Table 220.55 shall be used.

a. true
b. false

214. Using Table 220.54, what is the demand factor (%) for a household with 4 dryers?

a. 85
b. 75
c. 60
d. none of the above

215. In 220.56, the demand factors shall not apply to?

a. space-heating
b. ventilating
c. air conditioning
d. all of the above

216. Use Table 220.56, Demand Factors for Kitchen Equipment, other than Dwelling Units. What is the demand factor (%) for 3 units of equipment?

a. 90
b. 80
c. 70
d. 65

217. Use Table 220.56, Demand Factors for Kitchen Equipment, other than Dwelling Units. The demand factor for 7 units would be?

a. 100
b. 90
c. 70
d. 65

Article 220 IV. Optional Feeder and Service Load Calculations - 220.80 General to 220.88 New Restaurants

218. This section applies to a dwelling unit having the total connected load served by a single 120/240 volt or 208Y/120-volt set of 3-wire service or feeder conductors with an ampacity of _____ or greater.

a. 200
b. 100
c. 240
d. none of the above

219. In 220.83, where the dwelling unit is served by a 120/240-volt or 208Y/120-volt, 3-wire service, it shall be permissible to calculate the total load in accordance with 220.83 (A) or (B).

a. true
b. false

220. In 220.84, it shall be permissible to calculate the load of a feeder or service that supplies _____ or more dwelling units of a multifamily dwelling in accordance with Table 220.84 instead of Part III of this article if it meets the conditions listed.

a. one
b. two
c. three
d. none of the above

221. Use Table 220.84, Optional Calculations - Demand factors for three or more multifamily dwelling units. When there are 11 dwelling units, the Demand Factor (%) would be?

a. 45
b. 43
c. 41
d. 42

222. Use Table 220.84, Optional Calculations - Demand factors for three or more multifamily dwelling units. When there are 38 dwelling units, the Demand Factor (%) would be 25.

a. true
b. false

223. Use Table 220.84, Optional Calculations - Demand factors for three or more multifamily dwelling units. If there are 100 dwelling units, the Demand Factor (%) would be?

a. 23
b. 25
c. 27
d. 29

224. In 220.88, Calculation of a service or feeder load, where the feeder serves the total load, for a new restaurant shall be permitted in accordance with Table _____ in lieu of Part III of this article.

a. 220.86
b. 220.88
c. 220.102
d. none of the above

225. The overload protection of the service conductors shall be in accordance with _____ and _____.

a. 230.90, 220.103
b. 240.4, 220.86
c. 230.90, 240.4
d. none of the above

Article 220 V. Farm Load Calculations - 220.100 General to 220.103 Farm Loads -Total

226. Farm load calculations should be calculated in accordance with Part III.

a. true
b. false

227. Answer the following question using 220.102(B), Where a feeder or service supplies a farm building or other load having two or more separate branch circuits, the load for feeders, service conductors, and service equipment shall be calculated in accordance with demand factors not less than indicated in what table?

a. 220.88
b. 220.103
c. 225.2
d. 220.102

228. Where supplied by a common service, the total load of the farm for service conductors and service equipment shall be calculated in accordance with the farm dwelling unit load and demand factors specified in Table _____.

a. 220.103
b. 220.88
c. 220.102
d. none of the above

229. Use Table 220.103 Method for Calculating Total farm Load. The Demand Factor (%) for the second largest load is?

a. 35
b. 45
c. 55
d. 75

For questions 230 to 270 refer to Article 225 of the NEC code book

225.1 Scope to 225.7 Lighting Equipment Installed Outdoors

230. This article covers requirements for all branch circuits and feeders run on or between buildings, structures, or poles on apartment buildings; and electrical equipment and wiring for the supply of utilization equipment that is located on or attached to the outside of buildings, structures, or poles.

a. true
b. false

231. Use Table 225.3, Other Articles. The article used for floating buildings would be?

a. 426
b. 553
c. 398
d. 200

232. Use Table 225.3, Other Articles. The article used for fire alarm systems would be?

a. 210
b. 800
c. 675
d. 760

233. Use Table 225.3, Other Articles. The article used for mobile homes, manufactured homes, and mobile home parks would be?

a. 396
b. 760
c. 310
d. 550

234. In 225.4, where within 3.0 m (____ ft.) of any building or structure other than supporting poles or towers, open individual (aerial) overhead conductors shall be insulated for the nominal voltage.

a. 5 ft.
b. 10 ft.
c. 15 ft.
d. 20 ft.

235. Conductors for festoon lighting shall be of the rubber-covered or _____ type.

a. thermoplastic
b. metal
c. both a and b
d. none of the above

236. In 225.6 (B), overhead conductors for festoon lighting shall not be smaller than 12 AWG unless the conductors are supported by _____ wires.

a. thermoplastic
b. insulated
c. messenger
d. none of the above

237. In 225.6 (B) it says that the messenger wires do not need to be supported by strain insulators?

a. true
b. false

238. Conductors or messenger wires shall not be attached to:

a. fire escape
b. downspout
c. plumbing equipment
d. all of the above

225.10 Wiring on Buildings (or Other Structures) to 225.27 Raceway Seal

239. In 225.11, where feeder and branch-circuit conductors entering or exiting buildings or structures shall be installed, it needs to be done in accordance with the requirements of _____. Overhead branch circuits and feeders attached to buildings or structures shall be installed in accordance with the requirements of _____.

a. 230.52, 230.54
a. 230.52, 225.19
c. 225.16, 230.54
d. none of the above

240. In 225.14, open conductors shall be separated from open conductors of other circuits or systems by not less than ____ in.

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

241. Using 225.14 (D), conductors on poles shall have a separation of not less than ____ ft. where not placed on racks or brackets.

a. 10
b. 5
c. 3
d. none of the above

242. 225.16 (A) states that the point of attachment to a building shall be in accordance with ____.

a. 230.26
b. 230.27
c. 230.28
d. 230.29

243. The means of attachment to a building shall be in accordance with ____.

a. 230.26
b. 230.27
c. 230.28
d. 230.29

244. 225.18 states that overhead spans of open conductors and open multiconductor cables of not over ____ volts, nominal, shall have a clearance of not less than the following (1-5).

a. 400
b. 800
c. 1000
d. 1200

245. Use 225.18, Clearance for Overhead Conductors and Cables. _____ ft. - above finished grade, sidewalks, or from any platform or projection that will permit personal contact where the voltage does not exceed 150 volts to ground and accessible to pedestrians only

a. 10
b. 12
c. 15
d. 18

246. Use 225.18, Clearance for Overhead Conductors and Cables. _____ ft. - over residential property and driveways, and those commercial areas not subject to truck traffic where the voltage does not exceed 300 volts to ground

a. 10
b. 12
c. 15
d. 18

247. Use 225.18, Clearance for Overhead Conductors and Cables. _____ ft. - over public streets, alleys, roads, parking areas subject to truck traffic, driveways on other than residential property, and other land traversed by vehicles, such as cultivated, grazing, forest, and orchard

a. 10
b. 12
c. 15
d. 18

248. Exception No. 1 in 225.19 states that the area above a roof surface subject to pedestrian or vehicular traffic shall have a vertical clearance from the roof surface in accordance with the clearance requirements of 225.17.

a. true
b. false

249. Exception No. 4 in 225.19 states that the requirement for maintaining the vertical clearance ____ ft. from the edge of the roof shall not apply to the final conductor span where the conductors are attached to the side of a building.

a. 3
b. 6
c. 9
d. 12

250. 225.19 (E) says that where buildings exceed _____ stories or 50 ft. in height, overhead lines shall be arranged, where practicable, so that a clear space (or zone) at least _____ ft. wide will be left either adjacent to the buildings or beginning not over 8 ft. from them to facilitate the raising of ladders when necessary for fire fighting.

a. eight, 6 ft
b. six, 8 ft.
c. five, 6 ft.
d. three, 6 ft.

251. In 225.22, raceways on exteriors of buildings or other structures do not need to be arranged to drain and do not need to be raintight in wet locations.

a. true
b. false

252. In 225.26, vegetation such as trees shall not be used for support of overhead conductor spans.

a. true
b. false

Article 225 Part II. Buildings or Other Structures Supplied by a Feeder(s) or Branch Circuit(s) – 225.30 Number of Supplies to 225.40 Access to Overcurrent Protective Devices.

253. 225.30 (A) Special Conditions, additional feeders or branch circuits shall be permitted to supply:

a. fire pumps
b. optional standby systems
c. emergency systems
d. all of the above

254. 225.30 (B) Special Occupancies, by special permission, additional _____ or _____ circuits shall be permitted for either of the following: (1) or (2)

a. feeders, branch
b. pumps, branch
c. systems, feeders
d. none of the above

255. 225.30 (B)(1), Multiple-occupancy buildings where there is no space available for supply equipment accessible to _____ occupants.

a. no
b. some
c. all
d. none of the above

256. Using 225.30 (C), additional feeders or branch circuits shall be permitted where the capacity requirements are in excess of _____ or at a supply voltage of _____ or less.

a. 2000 amperes, 1000 volts
b. 600 amperes, 2000 volts
c. 200 amperes, 600 volts
d. 2000 amperes, 200 volts

257. 225.32 states that the disconnecting means shall be installed either inside or outside of the building or structure served where the conductors pass through the building or structure. The disconnecting means shall be at a readily accessible location nearest the point of entrance of the conductors. For the purpose of this section, the requirements in 230.6 shall be utilized. There are no exceptions to this.

a. true
b. false

258. In 225.33, the disconnecting means for each supply permitted by 225.30 shall consist of not more than _____ switches or _____ circuit breakers mounted in a single enclosure, in a group of separate enclosures, or in or on a switchboard or switchgear.

a. 4, 6
b. 6,5
c. 6, 6
d. 5, 6

259. The exception to 225.34 (A) states that one of the two to six disconnecting means permitted in 225.33, where used only for a _____ also intended to provide fire protection, shall be permitted to be located remote from the other disconnecting means.

a. switch
b. water pump
c. breaker
d. none of the above

260. In a multiple-occupancy building, each occupant shall have access to the occupant's supply disconnecting means.

a. true
b. false

261. The disconnecting means specified in _____ shall be comprised of a circuit breaker, molded case switch, general-use switch, snap switch, or other approved means. Where applied in accordance with 250.32(B), Exception No. 1, the disconnecting means shall be suitable for use as service equipment.

a. 225.29
b. 225.30
c. 225.31
d. 225.32

262. 225.38 (D) says that the building or structure disconnecting means does not need to be plainly indicated whether it is in the open or closed position.

a. true
b. false

263. 225.40 Access to Overcurrent Protective Devices. Where a feeder overcurrent device is not readily accessible, branch-circuit overcurrent devices shall be:

a. installed on the load side
b. shall be mounted in a readily accessible location
c. shall be of a lower ampere rating than the feeder overcurrent device
d. all of the above

Article 225 Part III. Over 1000 volts - 225.50 Sizing of Conductors to 225.61 Clearances over Buildings and other Structures

264. 225.50, Sizing of Conductors, says that the sizing of conductors over 1000 volts shall be in accordance with _____ for branch circuits and _____ for feeders.

a. 210.19(B), 215.2(A)
b. 210.19(A), 215.2(B)
c. 210.19(B), 215.2(B)
d. none of the above

265. 225.52 states that a building or structure disconnecting means shall be located in accordance with 225.32, or if not readily accessible, it shall be operable by mechanical linkage from a readily accessible point.

a. true
b. false

266. Each building or structure disconnect shall simultaneously disconnect all ungrounded supply conductors it controls and shall have a fault-closing rating _____ than the maximum available short-circuit current available at its supply terminals.

a. less than
b. not less
c. equal
d. none of the above

267. Use Table 225.60, Clearance over Roadways, Walkways, Rail, Water, and Open Land; The clearance, in ft., for open land subject to vehicles, cultivation, or grazing should be:

a. 18.5 ft
b. 13.5 ft.
c. 26.5 ft.
d. 14.5 ft.

268. Use Table 225.60, Clearance over Roadways, Walkways, Rail, Water, and Open Land; The clearance, in ft., for spaces and ways for pedestrians and restricted traffic is:

a. 18.5 ft.
b. 13.5 ft.
c. 26.5 ft.
d. 14.5 ft.

269. Use Table 225.60, Clearance over Roadways, Walkways, Rail, Water, and Open Land; The clearance, in ft., for water areas not suitable for boating is:

a. 18.5 ft.
b. 26.5 ft.
c. 14.5 ft.
d. 17.0 ft.

270. 225.56 (A), The complete electrical system design, including settings for protective, switching, and control circuits, shall be prepared in advance and made available on request to the authority having jurisdiction and shall be performance tested when first installed on-site. Each protective, switching, and control circuit shall be adjusted in accordance with the system design and tested by actual operation using current injection or equivalent methods as necessary to ensure that each and every such circuit operates correctly to the satisfaction of the authority having jurisdiction.

a. true
b. false