PAST BOARD QUESTIONS

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1. The width of the working space in front of the electric equipment shall be the width of the equipment or _____whichever is greater. In all cases, the work space shall permit at least a 90 degree opening of equipment doors or hinged panels.

a. 1000 mm b. 760 mm c. 500 mm d. 76 mm

1. The width of the working space in front of the electric equipment shall be the width of the equipment or _____whichever is greater. In all cases, the work space shall permit at least a 90 degree opening of equipment doors or hinged panels.

a. 1000 mm b. 760 mm c. 500 mm d. 76 mm

2. Equipment that is associated with the electrical installation and is located above or below the electrical equipment shall be permitted to extend not more than 150 mm (6 in.) beyond the front of the electrical equipment.

a. 100 mm b. 760 mm c. 500 mm d. 150 mm

2. Equipment that is associated with the electrical installation and is located above or below the electrical equipment shall be permitted to extend not more than 150 mm (6 in.) beyond the front of the electrical equipment.

a. 100 mm b. 760 mm c. 500 mm d. 150 mm

3. The minimum headroom of working spaces about service equipment, switchboards, panel boards, or motor control centers shall be

a. 2000 mm b. 1500 mm c. 5000 mm d. 150 mm

3. The minimum headroom of working spaces about service equipment, switchboards, panel boards, or motor control centers shall be

a. 2000 mm b. 1500 mm c. 5000 mm d. 150 mm

4. Except as elsewhere required or permitted by this Code, live parts of electrical equipment operating at _____volts or more shall be guarded against accidental contact by approved enclosures

a. 50 b. 600 c. 100 d. 220

4. Except as elsewhere required or permitted by this Code, live parts of electrical equipment operating at _____volts or more shall be guarded against accidental contact by approved enclosures

a. 50 b. 600 c. 100 d. 220

5. Sufficient space shall be provided and maintained about electric equipment to permit ready and safe operation and maintenance of such equipment. Where energized parts are exposed, the minimum clear work space shall not be less than

a. 2000 mm b. 1500 mm c. 5000 mm d. 150 mm

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a. 2000 mm b. 1500 mm c. 5000 mm d. 150 mm

6. The following shall be used only for the grounded circuit conductor except for

a. conductor with continuous white or gray covering

b. conductor with three continuous white stripes on other than green insulation

c. marking of white or gray color at the termination

d. yellow color

6. The following shall be used only for the grounded circuit conductor except for

a. conductor with continuous white or gray covering

b. conductor with three continuous white stripes on other than green insulation

c. marking of white or gray color at the termination

d. yellow color

7. What is the MINIMUM feeder load to be used for each 2-wire, small-appliance branch circuit?

a. 180 VA per outlet

b. 180 VA per receptacle

c. 1,500 VA

d. 1.800VA

7. What is the MINIMUM feeder load to be used for each 2-wire, small-appliance branch circuit?

a. 180 VA per outlet

b. 180 VA per receptacle

c. 1,500 VA

d. 1.800VA

8. What color must be used to identify an insulated 14 sq mm or smaller grounded conductor?

a. Black b. Brown c. Gray d. Green

8. What color must be used to identify an insulated 14 sq mm or smaller grounded conductor?

a. Black b. Brown c. Gray d. Green

9. According to the Philippine Electrical Code.
   a. Any fault on a branch circuit should open the branch circuit breaker rather than the feeder overcurrent protection.
   b. All faults on a feeder should open the feeder disconnect rather than the service overcurrent protection.
   c. the electrical system is considered to be coordinated if the design of the relaying scheme is redundant
   d. A local fault shall be detected only by local protective device

9. According to the Philippine Electrical Code.
   a. Any fault on a branch circuit should open the branch circuit breaker rather than the feeder overcurrent protection.
   b. All faults on a feeder should open the feeder disconnect rather than the service overcurrent protection.
   c. the electrical system is considered to be coordinated if the design of the relaying scheme is redundant
   d. A local fault shall be detected only by local protective device

10. Cable trays shall _____.

I. have side rails or equivalent structural members

II. not present sharp edges or burrs

III. have suitable strength and rigidity

a. I only

b. I and II only

c. III only

d. I, II, and III

10. Cable trays shall _____.

I. have side rails or equivalent structural members

II. not present sharp edges or burrs

III. have suitable strength and rigidity

a. I only

b. I and II only

c. III only

d. I, II, and III

11. Wireways and Busways shall have a support of not less than _____ mm or _____ mm in case of vertical runs.

a. 1500, 4500

b. 3000, 1500

c. 4500, 1500

d. 1300, 1900

11. Wireways and Busways shall have a support of not less than _____ mm or _____ mm in case of vertical runs.

a. 1500, 4500

b. 3000, 1500

c. 4500, 1500

d. 1300, 1900

12. What is the minimum distance of a laundry outlet from the appliances

a. 1800 mm
b. 2000 mm
c. 2500 mm
d. 1000 mm

12. What is the minimum distance of a laundry outlet from the appliances

a. 1800 mm
b. 2000 mm
c. 2500 mm
d. 1000 mm

13. Hallway _____ mm or more must have at least one outlet.

a. 1000
b. 2000
c. 3000
d. 4000

13. Hallway _____ mm or more must have at least one outlet.

a. 1000

b. 2000

c. 3000

d. 4000

14. Derating factors do not apply to conductors in nipples having a length not exceeding

a. 300 mm
b. 400 mm
c. 500 mm
d. 600 mm

14. Derating factors do not apply to conductors in nipples having a length not exceeding

a. 300 mm
b. 400 mm
c. 500 mm
d. 600 mm

15. Gutters shall be supported throughout their entire length at suitable intervals preferably not exceeding

a. 500 mm

b. 1000 mm

c. 1500 mm

d. 2000 mm

15. Gutters shall be supported throughout their entire length at suitable intervals preferably not exceeding

a. 500 mm

b. 1000 mm

c. 1500 mm

d. 2000 mm

16. In open wiring on insulators, support shall be installed on conductors within _____ mm from a tap or splices.

a. 200 mm

b. 150 mm

c. 220 mm

d. 180 mm

16. In open wiring on insulators, support shall be installed on conductors within _____ mm from a tap or splices.

a. 200 mm

b. 150 mm

c. 220 mm

d. 180 mm

17. Conductors must have a clearance from windows, porches, fire escapes of not less than;

a. 700 mm
b. 800 mm
c. 900 mm
d. 1,000 mm

17. Conductors must have a clearance from windows, porches, fire escapes of not less than;

a. 700 mm

b. 800 mm

c. 900 mm

d. 1,000 mm

18. Service conductors passing over roof must have a clearance over the roof which they pass of not less than

a. 1,000 mm
b. 2,500 mm
c. 1,500 mm
d. 3,000 mm

18. Service conductors passing over roof must have a clearance over the roof which they pass of not less than

a. 1,000 mm

b. 2,500 mm

c. 1,500 mm

d. 3,000 mm

19. The minimum clearance for service drops over buildings.

a. 1,000 mm

b. 2,500 mm

c. 1,500 mm

d. 3,000 mm

19. The minimum clearance for service drops over buildings.

a. 1,000 mm

b. 2,500 mm

c. 1,500 mm

d. 3,000 mm

20. The minimum clearance for service drops over side walks.

a. 2,500 mm
b. 3,100 mm
c. 5,500 mm
d. 3,700 mm

20. The minimum clearance for service drops over side walks.

a. 2,500 mm

b. 3,100 mm

c. 5,500 mm

d. 3,700 mm

21. The minimum clearance of service drops over driveway, alleys, and public roads.

a. 3,100 mm

b. 5,500 mm

c. 4,600 mm

d. 3,700 mm

21. The minimum clearance of service drops over driveway, alleys, and public roads.

a. 3,100 mm

b. 5,500 mm

c. 4,600 mm

d. 3,700 mm

22. Code requires that the minimum area exposed surface offered by a plate electrode shall be;

a. 1/8 sq. meter

b. ¼ sq. meter

c. 3/8 sq. meter

d. ½ sq. meter

22. Code requires that the minimum area exposed surface offered by a plate electrode shall be;

a. 1/8 sq. meter

b. ¼ sq. meter

c. 3/8 sq. meter

d. ½ sq. meter

23. A single grounding electrode is permitted when the resistance to ground does not exceed;

a. 5 Ω
b. 10 Ω
c. 15 Ω
d. 25 Ω

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a. 5 Ω
b. 10 Ω
c. 15 Ω
d. 25 Ω

24. In order to protect a personal and prevent shock, the equipment should be connected good earth ground through the?

a. conduit pipe

b. hot water pipe

c. cold water pipe

d. rigid conduit pipe

24. In order to protect a personal and prevent shock, the equipment should be connected good earth ground through the?

a. conduit pipe

b. hot water pipe

c. cold water pipe

d. rigid conduit pipe

25. Communication, radio, and television coaxial cables shall be permitted at a height of not less than _____ above swimming and wading pools, diving structures, and observation stands, towers, or platforms.

a. 8000 mm

b. 3000 mm

c. 1000 mm

d. 500 m

25. Communication, radio, and television coaxial cables shall be permitted at a height of not less than _____ above swimming and wading pools, diving structures, and observation stands, towers, or platforms.

a. 8000 mm

b. 3000 mm

c. 1000 mm

d. 500 m

26. A Cable containing 45 conductors has a correction factor of

a. 80 %

b. 35 %

c. 40 %

d. 70 %

26. A Cable containing 45 conductors has a correction factor of

a. 80 %

b. 35 %

c. 40 %

d. 70 %

27. Raceways on the outside of buildings shall be _____.

a. watertight and arranged to drain
b. weatherproof and covered
c. raintight and arranged to drain
d. rainproof and guarded

27. Raceways on the outside of buildings shall be _____.

a. watertight and arranged to drain

b. weatherproof and covered

c. raintight and arranged to drain

d. rainproof and guarded

28. Which of the following is the maximum allowable rating of a permanently connected appliance where the branch overcurrent device is used as the appliance disconnecting means?

a. 1/8 hp

b. ¼ hp

c. ½ hp

d. 1 hp

28. Which of the following is the maximum allowable rating of a permanently connected appliance where the branch overcurrent device is used as the appliance disconnecting means?

a. 1/8 hp

b. ¼ hp

c. ½ hp

d. 1 hp

29. The maximum number of quarter bends in one run of RMC and IMT is _____.

a. two

b. four

c. five

d. none of these

29. The maximum number of quarter bends in one run of RMC and IMT is _____.

a. two

b. four

c. five

d. none of these

30. There are situations where derivations from the code requirements are necessary. Before such deviations are made, there must be a written permission from one of the following entities. Which one is this?

a. Board of Electrical engineering

b. IIEE Code Committee

c. Code Enforcing Authority

d. Philippine Regulation Board

30. There are situations where derivations from the code requirements are necessary. Before such deviations are made, there must be a written permission from one of the following entities. Which one is this?

a. Board of Electrical engineering

b. IIEE Code Committee

c. Code Enforcing Authority

d. Philippine Regulation Board

31. Power levels range from _____ are used for induction melting

a. 5 kW to 16,500 kW

b. 5 kW to 42,000 kW

c. 10-100 kW

d. 1-50 W

31. Power levels range from _____ are used for induction melting

a. 5 kW to 16,500 kW

b. 5 kW to 42,000 kW

c. 10-100 kW

d. 1-50 W

32. This type of fitting is specifically designed to serve as a water drain and air vent while providing positive explosion proof protection.

a. vent
b. plenum
c. breather
d. bushing

32. This type of fitting is specifically designed to serve as a water drain and air vent while providing positive explosion proof protection.

a. vent
b. plenum
c. breather
d. bushing

33. For a 3-phase, 4-wire delta system with the center of one leg grounded, there are two voltages to ground. For example, on a 240-volt system, two legs would each have 120 volts to ground and the third, or “high” leg, would have _____ volts to ground.

a. 120 b. 240 c. 208 d. 360

33. For a 3-phase, 4-wire delta system with the center of one leg grounded, there are two voltages to ground. For example, on a 240-volt system, two legs would each have 120 volts to ground and the third, or “high” leg, would have _____ volts to ground.

a. 120 b. 240 c. 208 d. 360

34. Frequencies used for induction melting range from about

a. 50 Hz to 10 kHz

b. b. 5-10 Hz

c. c. 500-5 kHz

d. d. 50-5000 kHz

34. Frequencies used for induction melting range from about

a. 50 Hz to 10 kHz

b. b. 5-10 Hz

c. c. 500-5 kHz

d. d. 50-5000 kHz

35. Signs which contain incandescent lamp holders shall be marked to indicate the maximum allowable ____ of lamps .

a. Type

b. Wattage

c. Number

d. Voltage

35. Signs which contain incandescent lamp holders shall be marked to indicate the maximum allowable ____ of lamps .

a. Type

b. Wattage

c. Number

d. Voltage

36. Sign and outline lighting outlets shall be computed at a minimum of _____ volt-amperes for each required branch circuit

a. 1200

b. 1440

c. 1500

d. 1800

36. Sign and outline lighting outlets shall be computed at a minimum of _____ volt-amperes for each required branch circuit

a. 1200

b. 1440

c. 1500

d. 1800

37. The maximum number of outlets permitted on 15- and 20-ampere branch circuits is _____ and _____ outlets, respectively

a. 10 , 13

b. 10, 8

c. 13, 10

d. 8, 10

37. The maximum number of outlets permitted on 15- and 20-ampere branch circuits is _____ and _____ outlets, respectively

a. 10 , 13

b. 10, 8

c. 13, 10

d. 8, 10

38. Where a conduit enters a box, fitting, or other enclosure, a _____shall be provided to protect the wire from abrasion unless the design of the box, fitting, or enclosure is such as to afford equivalent protection.

a. Bushing

b. condulet

c. ramset

d. plump bob

38. Where a conduit enters a box, fitting, or other enclosure, a _____shall be provided to protect the wire from abrasion unless the design of the box, fitting, or enclosure is such as to afford equivalent protection.

a. Bushing

b. condulet

c. ramset

d. plump bob

39. A transformer rated over 600 volts with a secondary rated over 600 volts, with secondary protection consisting of six circuit breakers. The sum of the ratings of the circuit breakers is not permitted to exceed _____ percent of the rated secondary current.

a. 600

b. 300

c. 250

d. 175

39. A transformer rated over 600 volts with a secondary rated over 600 volts, with secondary protection consisting of six circuit breakers. The sum of the ratings of the circuit breakers is not permitted to exceed _____ percent of the rated secondary current.

a. 600

b. 300

c. 250

d. 175

40. A WYE-DELTA starter for a single voltage three phase SC induction motor would require the connection of a certain number of wires from the motor. How many wires would be needed?

a. 3 wires

b. 9 wires

c. 6 wires

d. 12 wires

40. A WYE-DELTA starter for a single voltage three phase SC induction motor would require the connection of a certain number of wires from the motor. How many wires would be needed?

a. 3 wires

b. 9 wires

c. 6 wires

d. 12 wires

41. According to the PEC Code, the minimum insulation level for neutral conductors of residential installations which have solidly grounded systems shall NOT be less than this voltage? Which is this?

a. 1,000 volts

b. 300 volts

c. 600 volts

d. 750 volts

41. According to the PEC Code, the minimum insulation level for neutral conductors of residential installations which have solidly grounded systems shall NOT be less than this voltage? Which is this?

a. 1,000 volts

b. 300 volts

c. 600 volts

d. 750 volts

42. Receptacle outlets in floors shall not be counted as part of the required number of receptacle outlets unless located within _____ of the wall.

a. 450 mm

b. 900 mm

c. 1800 mm

d. 150 mm

42. Receptacle outlets in floors shall not be counted as part of the required number of receptacle outlets unless located within _____ of the wall.

a. 450 mm

b. 900 mm

c. 1800 mm

d. 150 mm

43. For a one-family dwelling and each unit of a two-family dwelling that is at grade level, at least one receptacle outlet accessible at grade level and not more than _____ above grade shall be installed at the front and back of the dwelling

a. 200 mm

b. 150 mm

c. 1800 mm

d. 2000 mm

43. For a one-family dwelling and each unit of a two-family dwelling that is at grade level, at least one receptacle outlet accessible at grade level and not more than _____ above grade shall be installed at the front and back of the dwelling

a. 200 mm

b. 150 mm

c. 1800 mm

d. 2000 mm

44. Power levels range from _____are used for induction heating

a. 5 – 10 W

b. 5 kW to 42,000 kW

c. 10-100 W

d. 10-5 W

44. Power levels range from _____are used for induction heating

a. 5 – 10 W

b. 5 kW to 42,000 kW

c. 10-100 W

d. 10-5 W

45. No automatic cutout or switch shall be placed in the equipment _____conductor of a premises wiring system unless the opening of the cutout or switch disconnects all sources of energy.

a. grounding

b. ungrounded

c. grounded

d. hot

45. No automatic cutout or switch shall be placed in the equipment _____conductor of a premises wiring system unless the opening of the cutout or switch disconnects all sources of energy.

a. grounding

b. ungrounded

c. grounded

d. hot

46. The conductor with the highest insulation temperature rating is

a. THWN

b. RH

c. RHH

d. THW

46. The conductor with the highest insulation temperature rating is

a. THWN

b. RH

c. RHH

d. THW

47. Which of the following receptacle outlet listed below should calculate at 180 volt-ampere?

I. one (1) receptacle outlet (1 pair of hot slot) in yoke

II. Two (2) receptacle outlet (2 pair of hot slot) in yoke

III. Three (3) receptacle outlet (2 pair of hot slot) in yoke

a. 1 only

b. I and II only

c. II only

d. I, II and III

47. Which of the following receptacle outlet listed below should calculate at 180 volt-ampere?

I. one (1) receptacle outlet (1 pair of hot slot) in yoke

II. Two (2) receptacle outlet (2 pair of hot slot) in yoke

III. Three (3) receptacle outlet (2 pair of hot slot) in yoke

a. 1 only

b. I and II only

c. II only

d. I, II and III

48. The lubricant used for sleeve bearings on motors is usually

a. vaseline

b. oil

c. graphite

d. grease

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a. vaseline

b. oil

c. graphite

d. grease

49. The correct method of measuring the power taken by an AC electric motor is to use a

a. wattmeter
b. voltmeter and an ammeter
c. power factor meter
d. tachometer

49. The correct method of measuring the power taken by an AC electric motor is to use a

a. wattmeter
b. voltmeter and an ammeter
c. power factor meter
d. tachometer

50. An applicant for Registered Master Electrician Examination must be at least completed _____ for five year Bachelor of Science in Electrical Engineering program and has Specific record of _____ practice in electrical wiring and installation.

a. 3 years, 1 year

b. 2 years, 2 years

c. 2 years, 1 year

d. 3 years, 2 years

50. An applicant for Registered Master Electrician Examination must be at least completed _____ for five year Bachelor of Science in Electrical Engineering program and has Specific record of _____ practice in electrical wiring and installation.

a. 3 years, 1 year

b. 2 years, 2 years

c. 2 years, 1 year

d. 3 years, 2 years

51. A high school graduate can take the Registered Master Electricians Examination if he/she has subsequent specific record of at least _____ years of apprenticeship in electrical wiring, installations of electrical equipment.

a. 6

b. 3

c. 4

d. 5

51. A high school graduate can take the Registered Master Electricians Examination if he/she has subsequent specific record of at least _____ years of apprenticeship in electrical wiring, installations of electrical equipment.

a. 6

b. 3

c. 4

d. 5

52. The most valid objection for not fusing the middle wire of a 3-wire system either a grounded neutral is that

a. It will increase the replacement cost of the fuses

b. Shutdown will be increased due to the blowing of the neutral fuse

c. Blowing of the neutral fuse may unbalance the voltages on the two sides of
the system with possible burnouts of some of the lamps

d. The size of the neutral wire must be made twice as large as the ungrounded
line wires

52. The most valid objection for not fusing the middle wire of a 3-wire system either a grounded neutral is that

a. It will increase the replacement cost of the fuses

b. Shutdown will be increased due to the blowing of the neutral fuse

c. Blowing of the neutral fuse may unbalance the voltages on the two sides of
the system with possible burnouts of some of the lamps

d. The size of the neutral wire must be made twice as large as the ungrounded
line wires

53. The favorite newspaper lines which reads “was burnt due to faulty electrical wiring” means:

a. defective wiring

b. wrong wiring

c. shorted wiring

d. protective device failure during fault

53. The favorite newspaper lines which reads “was burnt due to faulty electrical wiring” means:

a. defective wiring

b. wrong wiring

c. shorted wiring

d. protective device failure during fault

54. The highest AC transmission line voltage in the Philippines as of June 2004.

a. 230 kV

b. 440 kV

c. 350 kV

d. 500 kV

54. The highest AC transmission line voltage in the Philippines as of June 2004.

a. 230 kV

b. 440 kV

c. 350 kV

d. 500 kV

55. This kind of fuse is so designed to cause the rapid escape of gas when its element blows as a result of high current.

a. Cartridge

b. cassette

c. expulsion

d. fast acting

55. This kind of fuse is so designed to cause the rapid escape of gas when its element blows as a result of high current.

a. Cartridge

b. cassette

c. expulsion

d. fast acting

56. This is used as a vertical guide and support for groups of cable from their points of origin to the horizontal plane for easy tracing.

a. cable duct
b. cable tray
c. cable gutter
d. cable ladder

56. This is used as a vertical guide and support for groups of cable from their points of origin to the horizontal plane for easy tracing.

a. cable duct
b. cable tray
c. cable gutter
d. cable ladder

57. Which of the following **contact point** metals has the highest melting point?

a. silver
b. tungsten
c. gold
d. Copper

57. Which of the following **contact point** metals has the highest melting point?

a. silver
b. tungsten
c. gold
d. Copper

58. Overcurrent in transformers affect all of the following EXCEPT.

a. breather effectiveness

b. life insulation

c. mechanical stresses

d. rise in temperature

58. Overcurrent in transformers affect all of the following EXCEPT.

a. breather effectiveness

b. life insulation

c. mechanical stresses

d. rise in temperature

59. Fuse in motor circuits provides

a. none of these
b. open-circuit protection
c. overcurrent protection
d. short circuit protection

59. Fuse in motor circuits provides

a. none of these

b. open-circuit protection

c. overcurrent protection

d. short circuit protection

60. If a motor overheats, it must be due to

a. misaligned

b. low voltage

c. loose

d.open-circuited field

60. If a motor overheats, it must be due to

a. misaligned

b. low voltage

c. loose

d.open-circuited field

61. Voltage drop in a uniformly loaded distributor fed at one end is calculated by assuming the whole of the load concentrated at

a. middle point
b. feeding point
c. the far end of the feeding point
d. distance from the feeding point

61. Voltage drop in a uniformly loaded distributor fed at one end is calculated by assuming the whole of the load concentrated at

a. middle point
b. feeding point
c. the far end of the feeding point
d. distance from the feeding point

62. If a 480 volt motor has a full-load current of 34 amperes, then the standard disconnecting means must be which of the following:

a. 66 amps

b. 50 amps

c. 39.1 amps

d. 40 amps

62. If a 480 volt motor has a full-load current of 34 amperes, then the standard disconnecting means must be which of the following:

a. 66 amps

b. 50 amps

c. 39.1 amps

d. 40 amps

63. What shall be the minimum size of conductor for signage?

a. 2.0 sq mm

b. 3.5 sq. mm

c. 5.5 sq mm

d. 8.0 sq mm

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a. 2.0 sq mm

b. 3.5 sq. mm

c. 5.5 sq mm

d. 8.0 sq mm

64. At least _____wall switch-controlled lighting outlet shall be installed in every habitable room and bathroom.

a. one

b. two

c. three

d. none

64. At least _____wall switch-controlled lighting outlet shall be installed in every habitable room and bathroom.

a. one

b. two

c. three

d. none

65. The allowable fill of electrical conduits.

a. 40%

b. 50%

c. 60%

d. 30%

65. The allowable fill of electrical conduits.

a. 40%

b. 50%

c. 60%

d. 30%

66. The normal operating temperatures of cartridge type fuse at its rating;

a. 100 deg. C

b. 75 deg. C

c. 50 deg. C

d. 25 deg. C

66. The normal operating temperatures of cartridge type fuse at its rating;

a. 100 deg. C

b. 75 deg. C

c. 50 deg. C

d. 25 deg. C

67. Fuses must be clearly marked with which of the following:

a. Voltage rating

b. Ampere rating

c. Interruption rating, if other than 10,000 amperes

d. All of the above

67. Fuses must be clearly marked with which of the following:

a. Voltage rating

b. Ampere rating

c. Interruption rating, if other than 10,000 amperes

d. All of the above

68. The ampacity of a conductor must be derated where the ambient temperature exceeds which of the following:

a. 30 degrees C

b. 32 degrees C

c. 26 degrees C

d. 20 degrees C

68. The ampacity of a conductor must be derated where the ambient temperature exceeds which of the following:

a. 30 degrees C

b. 32 degrees C

c. 26 degrees C

d. 20 degrees C

69. If a transformer vault is not protected by an automatic sprinkler system, then it must have a minimum fire resistance and structural strength of which of the following periods of time:

a. 2 hours

b. 3 hours

c. 4 hours

d. 6 hours

69. If a transformer vault is not protected by an automatic sprinkler system, then it must have a minimum fire resistance and structural strength of which of the following periods of time:

a. 2 hours

b. 3 hours

c. 4 hours

d. 6 hours

70. The neutral conductor in an electrical installation has which of the following qualities:

a. It carries the unbalanced current.

b. It is the white conductor.

c. It does not apply ampacity correction.

d. All of the above

70. The neutral conductor in an electrical installation has which of the following qualities:

a. It carries the unbalanced current.

b. It is the white conductor.

c. It does not apply ampacity correction.

d. All of the above

71. Open conductors that are not service entrance cables shall not be installed less than which of the following:

a. 3,100 mm from grade level

b. 2,900 mm below grade level

c. 2,500 mm below grade level

d. 1,300 mm from grade level

71. Open conductors that are not service entrance cables shall not be installed less than which of the following:

a. 3,100 mm from grade level

b. 2,900 mm below grade level

c. 2,500 mm below grade level

d. 1,300 mm from grade level

72. Lightning protection system ground terminals must be bonded to which of the following:

a. The building or structure

b. The building or structure grounding electrode systems

c. To a common grounding electrode conductor

d. A surge arrestor

72. Lightning protection system ground terminals must be bonded to which of the following:

a. The building or structure

b. The building or structure grounding electrode systems

c. To a common grounding electrode conductor

d. A surge arrestor

73. Concealed knob-and-tube wiring is not permitted in which of the following applications:

a. Commercial garages

b. Motion picture studios

c. Hazardous classified locations

d. All of the above

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74. If there are 7 current-carrying conductors in a raceway, then the individual ampacity of each conductor must be reduced by which of the following:

a. 70% because of the number of conductors

b. 30% because all conductors are current-carrying

c. 80% of the continuous load

d. 20% of the continuous load

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75. The following wiring method is approved to be installed inside a duct used for vapor removal and ventilation of commercial type equipment:

a. EMT

b. Nonmetallic sheathed cable

c. Rigid steel conduit

d. None of the above

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76. The work space for equipment must allow _____ opening of any equipment doors or hinged panels.

a. 90-degree

b. 60-degree

c. 180-degree

d. 45-degree

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77. A single-family dwelling has three bathrooms each with the following: a lighting fixture, a fan, and one receptacle outlet. In one of the bathrooms, the lighting fixture, fan, and receptacle outlet are installed on a dedicated 20 ampere circuit. For this dwelling, the minimum number of 20 ampere circuits required to serve the bathrooms is which of the following:

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

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78. Terminals connected to a grounded conductor shall be identified in which of the following ways:

a. Identification shall be substantially white in color

b. Connection must use a terminal screw that is not readily removable

and is green in color

c. Identification must include an engraved metal tag

d. None of the above

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79. The receptacle example listed below which may be connected to a small appliance branch circuit is which of the following:

a. Garage ceiling receptacle for an automatic garage door opener

b. Any receptacle which is within 3600 mm of the kitchen

c. An electric clock plugged in at the dining room

d. An electric hair dryer

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80. The service disconnection means in a building shall not have more than how many switches or circuit breakers:

a. 6

b. 8

c. 10

d. 20

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81. The total number of underground conductors for an outside lighting circuit on a single common neutral conductor is which of the following:

a. 6

b. 8

c. There is no limit specified

d. Underground conductors specified in this example are prohibited

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82. When protected solely by enamel, which of the following shall not be installed in outdoor or wet locations:

a. Ferrous raceways

b. Fittings

c. Boxes

d. All of the above

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83. Which of the following is NOT an acceptable method of mounting electrical equipment to a masonry wall?

A. With bolts through the wall supported by metal plates on the back
side

B. With lag bolts screwed into lead masonry anchors

C. With molly bolts through holes drilled entirely through the wall

D. With screws driven into wooden plugs in the **wall**

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84. The branch circuit breaker device shall protect all _____.

A. appliances

B. conductors and devices

C. branch circuit loads

D. fittings

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B. conductors and devices

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D. fittings

85. Plug fuses and fuse-holders shall NOT be used between conductors and the grounded neutral in circuits exceeding how many volts ?

A. 100

B. 125

C. 150

D. 200

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A. 100

B. 125

C. 150

D. 200

86. An all-electric home has a laundry area located in a kitchen closet. What is the MINIMUM number of branch circuits serving this kitchen?

A. 2

B. 3

C. 4

D. 5

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87. Electrical continuity at service equipment shall be assured by all of the following EXCEPT _____.

A. threaded metal couplings made up wrench tight

B. threadless metal couplings for rigid metal conduit using standard locknuts and bushings

C. threadless metal couplings for electrical metallic tubing using bonding locknuts and bushings

D. bonding of the service equipment to the grounded service conductor

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88. Coatings on which of the following shall be removed at threads, contact points, and contact surfaces or be connected by means of fittings so designed as to make such removal unnecessary in bonding other enclosures for grounding?

A. Copper

B. Zinc

C. Aluminum

D. Enamel

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89. A personnel protection device that de-energizes a circuit when the current to ground exceeds a predetermined value less than required to operate the supply circuit overcurrent protective device is called a _____

A. circuit breaker

B. fuse

C. ground-fault interrupter

D. limit switch

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90. Which of the following colors indicates an equipment grounding conductor in a flexible cord?

A. Gray

B. White

C. Green with a red stripe

D. Green with a yellow stripe

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91. The effective grounding path to ground from circuits, equipment and metal equipment enclosures shall NOT _____

A. be permanent and continuous
B. have the capacity to conduct safely any fault currents to ground
C. have sufficiently low impedance to limit the voltage to ground
D. use the earth as the sole equipment-grounding conductor

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92. What is the MINIMUM voltage rating for the grounded conductor in a solidly grounded neutral system of 1 kV or more?

A. 440 volts

B. 600 volts

C. 1,000 volts

D. Equal to the kV rating of the ungrounded conductors

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93. Copper Clad Aluminum wire is different from Aluminum wire in that it

a. Has more insulation around the wire
b. The copper wire is coated with aluminum
c. Can only be used in livestock operations
d. Is rated the same as pure copper wire

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94. This kind of fuse is so designed to cause the rapid escape of gas when its element blows as a result of high current.

a. Cartridge

b. cassette

c. expulsion

d. fast acting

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d. fast acting

95. This is used as a vertical guide and support for groups of cable from their points of origin to the horizontal plane for easy tracing.

a. cable duct
b. cable tray
c. cable gutter
d. cable ladder

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96. In switchgear application, the term “dead fronts” means that

a. the front and rear panels are hinged

b. an access door is at the end of the structure

c. no equipment is mounted on the front panel

d. energized parts are not exposed on the front panel

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97. A circuit breaker that can be closed against a fault and operate at once, although the solenoid mechanism may continue through its closing operation, is said to be

a. selective

b. trip-free

c. fully-rated

d. DC operated

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b. trip-free

c. fully-rated

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98. In ordering standard cartridge fuses it is necessary to specify only

a. the current capacity

b. the voltage of the circuit

c. the current capacity and the voltage of the circuit

d. the power to be dissipated

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c. the current capacity and the voltage of the circuit

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99. The largest size regular plug fuse used is rated at

a. 15 amperes

b. 20 amperes

c. 30 amperes

d. 40 amperes

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100. One of the two plug-fuses in a 120-volt circuit blows because of a short circuit. If a 120-volt lamp is screwed into the fuse socket while the circuit is still shorted, the lamp will

a. burn dimly

b. remain dark

c. burn out

d. burn normally

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101. All wiring shall be so installed that, when completed, the system will be free of _____.

a. open circuits
b. resistance
c. short circuits
d. impedance

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a. open circuits
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102. For a feeder supplying household cooking equipment and electric clothes dryers the maximum unbalanced load on the neutral conductor shall be considered as _____ of the load on the ungrounded conductors.

a. 40%

b. 50%

c. 70%

d. 80%

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b. 50%

c. 70%

d. 80%