

001a REFRESHER

Question Bank

PHILIPPINE ELECTRICAL CODE (PEC)

ENGR. ROEL A. ABAO

Mechanical Engineer

Registered Master Plumber

1. Storage batteries in solar photovoltaic systems for dwellings shall have cells operating at less than _____.

a. 50 V

b. 30 V

c. 24 V

d. 12 V

1. Storage batteries in solar photovoltaic systems for dwellings shall have cells operating at less than _____.

a. 50 V

b. 30 V

c. 24 V

d. 12 V

2. The code requires that all energized part of electrical equipment operating at _____ or shall be guarded against accidental contacts by approved enclosures. What is this voltage?

- a. 24 V
- b. 110 V
- c. 230 V
- d. 50 V

2. The code requires that all energized part of electrical equipment operating at _____ or shall be guarded against accidental contacts by approved enclosures. What is this voltage?

- a. 24 V
- b. 110 V
- c. 230 V
- d. 50 V

3. In order to protect a personnel 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

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- a. Conduit pipe
- b. Hot water pipe
- c. Cold water pipe
- d. Rigid conduit pipe

4. The minimum spacing between the bottom of enclosure and the insulated busbars, their supports and other obstruction shall be?

- a. 200 mm
- b. 210 mm
- c. 215 mm
- d. 205 mm

4. The minimum spacing between the bottom of enclosure and the insulated busbars, their supports and other obstruction shall be?

- a. 200 mm
- b. 210 mm
- c. 215 mm
- d. 205 mm

5. Service drop conductors passing through sidewalk accessible only to pedestrians where the voltage is limited to 300 V to ground shall maintain a vertical clearance of NOT less than _____ at the electric service entrance to buildings.

- a. 3,700 mm
- b. 3,100 mm
- c. 4,600 mm
- d. 5,500 mm

5. Service drop conductors passing through sidewalk accessible only to pedestrians where the voltage is limited to 300 V to ground shall maintain a vertical clearance of NOT less than _____ at the electric service entrance to buildings.

- a. 3,700 mm
- b. 3,100 mm**
- c. 4,600 mm
- d. 5,500 mm

6. If the interrupting rating of a circuit breaker is lower than required, what will happen to the breaker if there is a dead short between two downstream breaker terminals?

- a. Only the conductors will burn out
- b. Nothing
- c. The entire breaker will be completely damaged
- d. The breaker may trip but may reset

6. If the interrupting rating of a circuit breaker is lower than required, what will happen to the breaker if there is a dead short between two downstream breaker terminals?

- a. Only the conductors will burn out
- b. Nothing
- c. **The entire breaker will be completely damaged**
- d. The breaker may trip but may reset

7. Secondaries of transformers supplying voltage for impedance heating of vessels are computed at NOT less than _____ percent of the heating load.

- a. 150
- b. 100
- c. 125
- d. 130

7. Secondaries of transformers supplying voltage for impedance heating of vessels are computed at NOT less than _____ percent of the heating load.

a. 150

b. 100

c. 125

d. 130

8. Where nails or screws are likely to penetrate non-metallic sheathed cable or electrical non-metal tubing, a sleeve or steel clip **NOT** less than ____ in thickness shall be used to protect the cable or tubing.

- a. 1.6 mm
- b. 1.5 mm
- c. 2.0 mm
- d. 1.8 mm

8. Where nails or screws are likely to penetrate non-metallic sheathed cable or electrical non-metal tubing, a sleeve or steel clip **NOT** less than ____ in thickness shall be used to protect the cable or tubing.

- a. 1.6 mm
- b. 1.5 mm
- c. 2.0 mm
- d. 1.8 mm

9. Rosettes for exposed wiring shall be provided with bases that shall be high enough to keep the wires and terminals at least _____ from the surface wired over.

- a. 10 mm
- b. 12 mm
- c. 13 mm
- d. 15 mm

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- a. 10 mm
- b. 12 mm
- c. 13 mm**
- d. 15 mm

10. The ____, or other descriptive marking by which the organization responsible for the product maybe identified, shall be placed on all electric equipment.

I. Trademark

II. Cost

III. Manufacturer's name

- a. I, II and III
- b. I and II only
- c. I and III only
- d. I only

10. The ____, or other descriptive marking by which the organization responsible for the product maybe identified, shall be placed on all electric equipment.

I. Trademark

II. Cost

III. Manufacturer's name

a. I, II and II

b. I and II only

c. **I and III only**

d. I only

11. Metal faceplates for flush mounted snap switches shall be of ferrous metal NOT less than _____ in thickness.

- a. 0.6 mm
- b. 0.7 mm
- c. 0.8 mm
- d. 0.9 mm

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- a. 0.6 mm
- b. 0.7 mm
- c. 0.8 mm
- d. 0.9 mm

12. Conductors of AC and DC rated up to 600 V nominal shall be permitted to occupy the same equipment wiring enclosure, cable tray or raceway. Is this being allowed under Sec. 5.1.1.3 (C)(1) Art 5.1 ?

- a. Installation is correct
- b. False
- c. True
- d. Acceptable

12. Conductors of AC and DC rated up to 600 V nominal shall be permitted to occupy the same equipment wiring enclosure, cable tray or raceway. Is this being allowed under Sec. 5.1.1.3 (C)(1) Art 5.1 ?

- a. Installation is correct
- b. False
- c. True
- d. Acceptable

13. The ampacity of supply branch circuit conductors supplying diagnostic equipment and the current rating of the overcurrent protective devices shall NOT be less than ___ percent of the momentary rating or ___ percent of the long time rating whichever is larger.

- a. 50% , 100%
- b. 60% , 125%
- c. 60% , 100%
- d. 50% , 125%

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a. 50% , 100%

b. 60% , 125%

c. 60% , 100%

d. 50% , 125%

14. Solar photovoltaic systems in a one-family dwelling units with circuits rated over _____ to ground while energized shall NOT be accessible to other than qualified persons.

- a. 50 V
- b. 150 V
- c. 100 V
- d. 75 V

14. Solar photovoltaic systems in a one-family dwelling units with circuits rated over _____ to ground while energized shall NOT be accessible to other than qualified persons.

a. 50 V

b. 150 V

c. 100 V

d. 75 V

15. Consist of a group of wire twisted to form a metallic string.

- a. Duplex wire
- b. Loomex wire
- c. Solid wire
- d. Stranded wire

15. Consist of a group of wire twisted to form a metallic string.

- a. Duplex wire
- b. Loomex wire
- c. Solid wire
- d. Stranded wire**

16. Hazardous locations in which combustible dust is in the air under normal operating conditions in quantities sufficient to produce explosive or ignitable mixtures.

- a. Class II , Division 1
- b. Class II , Division 2
- c. Class III , Division 1
- d. Class III , Division 2

16. Hazardous locations in which combustible dust is in the air under normal operating conditions in quantities sufficient to produce explosive or ignitable mixtures.

- a. **Class II , Division 1**
- b. Class II , Division 2
- c. Class III , Division 1
- d. Class III , Division 2

17. If an electrician does not understand the instruction that given by the supervisor, which of the following is best for him to do?

- a. He works out the solution himself.
- b. He asks to repeat and clarify the instruction.
- c. He gets on the electrician to do the job.
- d. He does the job the way he thinks best.

17. If an electrician does not understand the instruction that given by the supervisor, which of the following is best for him to do?

- a. He works out the solution himself.
- b. He asks to repeat and clarify the instruction.**
- c. He gets on the electrician to do the job.
- d. He does the job the way he thinks best.

18. In dwelling units and guestrooms of hotels, motels and similar occupancies, the voltage shall NOT exceed _____ normal between conductors that supply the terminals of medium base screw shell lampholders.

- a. 250 V
- b. 230 V
- c. 300 V
- d. 150 V

18. In dwelling units and guestrooms of hotels, motels and similar occupancies, the voltage shall NOT exceed _____ normal between conductors that supply the terminals of medium base screw shell lampholders.

- a. 250 V
- b. 230 V
- c. 300 V
- d. 150 V

19. The inner strand of ACSR is made of,

- a. Brass
- b. Steel
- c. Copper
- d. Lead

19. The inner strand of ACSR is made of,

- a. Brass
- b. Steel**
- c. Copper
- d. Lead

20. Border lights shall be installed around stages in theaters on circuits rated at _____ or less.

- a. 20 A
- b. 15 A
- c. 30 A
- d. 10 A

20. Border lights shall be installed around stages in theaters on circuits rated at _____ or less.

- a. 20 A
- b. 15 A
- c. 30 A
- d. 10 A

21. The grounding electrode for grounding communications systems may be connected to the nearest accessible location on any of the following EXCEPT one. Which one is this?

- a. Buried interior PVC water piping system
- b. Grounding electrode conductor
- c. Building structure of a concrete building
- d. Grounding terminal of service equipment if provided by the utility company

21. The grounding electrode for grounding communications systems may be connected to the nearest accessible location on any of the following EXCEPT one. Which one is this?

- a. Buried interior PVC water piping system
- b. Grounding electrode conductor
- c. Building structure of a concrete building
- d. Grounding terminal of service equipment if provided by the utility company

22. Direct burial cables or conductors with a nominal voltage of 600 V or less and passes under airport runways including adjacent areas where trespassing is prohibited, shall have a minimum cover distance of ____.

- a. 460 mm
- b. 500 mm
- c. 600 mm
- d. 300 mm

22. Direct burial cables or conductors with a nominal voltage of 600 V or less and passes under airport runways including adjacent areas where trespassing is prohibited, shall have a minimum cover distance of ____.

- a. 460 mm
- b. 500 mm
- c. 600 mm
- d. 300 mm

23. Flexible metallic tubing smaller than _____ electrical trade size shall NOT be used.

- a. 20 mm
- b. 15 mm
- c. 12 mm
- d. 32 mm

23. Flexible metallic tubing smaller than _____ electrical trade size shall NOT be used.

- a. 20 mm
- b. 15 mm**
- c. 12 mm
- d. 32 mm

24. In rigid metal wiring conduit, conduits shall be supported at least every?

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

24. In rigid metal wiring conduit, conduits shall be supported at least every?

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

25. Lighting track conductors shall be a minimum of _____ and shall be copper.

- a. 2.0 mm²
- b. 1.25 mm²
- c. 5.5 mm²
- d. 3.5 mm²

25. Lighting track conductors shall be a minimum of _____ and shall be copper.

- a. 2.0 mm²
- b. 1.25 mm²
- c. 5.5 mm²
- d. 3.5 mm²

26. A cable provided with a wrapping or metal usually steel wires or tapes, primarily for the purpose of mechanical protection.

- a. Metal clad cable
- b. Metallic sheathed cable
- c. Armored cable
- d. Flat conductor cable

26. A cable provided with a wrapping or metal usually steel wires or tapes, primarily for the purpose of mechanical protection.

- a. Metal clad cable
- b. Metallic sheathed cable
- c. **Armored cable**
- d. Flat conductor cable

27. Employees shall familiarize themselves with approved methods of ___ rescue techniques and fire extinguishment.

- a. Playing
- b. First aid
- c. Wiring
- d. Heating

27. Employees shall familiarize themselves with approved methods of ___ rescue techniques and fire extinguishment.

- a. Playing
- b. First aid**
- c. Wiring
- d. Heating

28. The continuous load supplied by a branch circuit shall NOT exceed the branch circuit rating by more than _____.

- a. 50%
- b. 60%
- c. 80%
- d. 90%

28. The continuous load supplied by a branch circuit shall NOT exceed the branch circuit rating by more than _____.

- a. 50%
- b. 60%
- c. 80%
- d. 90%

29. Masts separate from the structure to be protected shall be a minimum of _____ from the protected structure.

- a. 1,800 mm
- b. 2,000 mm
- c. 1,900 mm
- d. 1,500 mm

29. Masts separate from the structure to be protected shall be a minimum of _____ from the protected structure.

- a. 1,800 mm
- b. 2,000 mm
- c. 1,900 mm
- d. 1,500 mm

30. Branch lighting circuits shall be protected by overcurrent devices not rated more than?

a. 40 A

b. 20 A

c. 30 A

d. 50 A

30. Branch lighting circuits shall be protected by overcurrent devices not rated more than?

a. 40 A

b. 20 A

c. 30 A

d. 50 A

31. Where liquidtight flexible metal conduit is installed as a fixed raceway, it shall be secured at intervals NOT exceeding ____.

- a. 1,500 mm
- b. 1,250 mm
- c. 1,400 mm
- d. 1,300 mm

31. Where liquidtight flexible metal conduit is installed as a fixed raceway, it shall be secured at intervals NOT exceeding _____.

- a. 1,500 mm
- b. 1,250 mm
- c. 1,400 mm
- d. 1,300 mm

32. For a portable motor rated at _____ or less, the controller shall be permitted to be an attachment plug and receptacle.

- a. 0.25 hp
- b. 0.33 hp
- c. 0.125 hp
- d. 0.5 hp

32. For a portable motor rated at _____ or less, the controller shall be permitted to be an attachment plug and receptacle.

- a. 0.25 hp
- b. 0.33 hp**
- c. 0.125 hp
- d. 0.5 hp

33. In all cases where there are energized parts on the front of the switchboards or motor control centers, the working space in front of such equipment shall NOT be less than a minimum distance. What is this distance?

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

33. In all cases where there are energized parts on the front of the switchboards or motor control centers, the working space in front of such equipment shall NOT be less than a minimum distance. What is this distance?

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

34. A fixture requiring supply wire rated higher than 90°C shall be so marked in letters ____ high prominently displayed on the fixture.

- a. 6.0 mm
- b. 10.0 mm
- c. 6.4 mm
- d. 8.4 mm

34. A fixture requiring supply wire rated higher than 90°C shall be so marked in letters ____ high prominently displayed on the fixture.

- a. 6.0 mm
- b. 10.0 mm
- c. 6.4 mm
- d. 8.4 mm

35. A protective device for assembly as an integral part of a motor or motor compressor and which when properly applied protects the motor against dangerous overheating due to overload and failure to start.

- a. Fault current
- b. Ground fault
- c. Thermal heat
- d. Thermal protector

35. A protective device for assembly as an integral part of a motor or motor compressor and which when properly applied protects the motor against dangerous overheating due to overload and failure to start.

- a. Fault current
- b. Ground fault
- c. Thermal heat
- d. Thermal protector**

36. When computing the service load with the standard method, a 20 kw electric space heating unit is computed at ____.

- a. 80%
- b. 100%
- c. 90%
- d. 125%

36. When computing the service load with the standard method, a 20 kw electric space heating unit is computed at ____.

- a. 80%
- b. 100%**
- c. 90%
- d. 125%

37. Wiring allowed to be installed outside buildings are enumerated below EXCEPT one. Which one is this?

- a. Type MC cable
- b. Flat conductor cable
- c. Rigid metal conduit
- d. Open wires on insulators

37. Wiring allowed to be installed outside buildings are enumerated below EXCEPT one. Which one is this?

- a. Type MC cable
- b. Flat conductor cable**
- c. Rigid metal conduit
- d. Open wires on insulators

38. The walls and roofs of transformer vaults shall be constructed of materials that have adequate structural strength for the condition with a minimum fire resistance of ____.

- a. 1.5 hrs
- b. 2.0 hrs
- c. 2.5 hrs
- d. 3.0 hrs

38. The walls and roofs of transformer vaults shall be constructed of materials that have adequate structural strength for the condition with a minimum fire resistance of ____.

- a. 1.5 hrs
- b. 2.0 hrs
- c. 2.5 hrs
- d. 3.0 hrs**

39. Where knobs are used, conductors shall be securely tied thereto by ___ wires having insulation equivalent to that of the conductor.

- a. Tie
- b. Bonding
- c. Guy
- d. Splicing

39. Where knobs are used, conductors shall be securely tied thereto by ___ wires having insulation equivalent to that of the conductor.

- a. Tie
- b. Bonding
- c. Guy
- d. Splicing

40. Employees shall read ____ and warn others who are in danger near energized equipment or lines.

- a. First aid equipment and materials
- b. Manhole and vaults
- c. Warning signs and signals
- d. Body belts and safety straps

40. Employees shall read ____ and warn others who are in danger near energized equipment or lines.

- a. First aid equipment and materials
- b. Manhole and vaults
- c. **Warning signs and signals**
- d. Body belts and safety straps

41. The use of electrical metallic tubing shall be permitted for ____.

- a. Exposed works
- b. Concealed works
- c. Both A & B
- d. Neither A & B

41. The use of electrical metallic tubing shall be permitted for ____.

- a. Exposed works
- b. Concealed works
- c. Both A & B**
- d. Neither A & B

42. The sum of all contained conductors of an auxiliary gutter at any cross section shall NOT exceed ____ of the interior cross sectional area of the said gutter.

- a. 10%
- b. 15%
- c. 20%
- d. 25%

42. The sum of all contained conductors of an auxiliary gutter at any cross section shall NOT exceed ____ of the interior cross sectional area of the said gutter.

- a. 10%
- b. 15%
- c. 20%
- d. 25%

43. A 20 A rated branch circuit with 3.5 mm² wire supplying a duplex receptacle can be loaded to a maximum of ____.

- a. 16 A
- b. 20 A
- c. 30 A
- d. 12 A

43. A 20 A rated branch circuit with 3.5 mm² wire supplying a duplex receptacle can be loaded to a maximum of ____.

- a. 16 A
- b. 20 A
- c. 30 A
- d. 12 A

44. For better illumination you would provide ____.

- a. Joints lights
- b. Even spacing numerous lights
- c. Random spacing lights
- d. Evenly space high ceiling

44. For better illumination you would provide ____.

- a. Joints lights
- b. Even spacing numerous lights**
- c. Random spacing lights
- d. Evenly space high ceiling

45. An auxiliary gutter shall NOT extend a greater distance than _____ beyond the equipment, which it supplements.

- a. 8,500 mm
- b. 8,900 mm
- c. 9,100 mm
- d. 8,000 mm

45. An auxiliary gutter shall NOT extend a greater distance than _____ beyond the equipment, which it supplements.

- a. 8,500 mm
- b. 8,900 mm
- c. 9,100 mm
- d. 8,000 mm

46. Size 0.75 mm² fixture wire has an ampacity of ____.

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

46. Size 0.75 mm² fixture wire has an ampacity of ____.

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

47. A clearance of NOT less than ____ shall be provided from recessed fixtures and their trims, ventilating openings and others such openings in room surfaces.

- a. 100 mm
- b. 70 mm
- c. 50 mm
- d. 30 mm

47. A clearance of NOT less than ____ shall be provided from recessed fixtures and their trims, ventilating openings and others such openings in room surfaces.

- a. 100 mm
- b. 70 mm
- c. 50 mm
- d. 30 mm

48. An approved assembly of insulated conductors with fittings and conductor terminators in a completely enclosed ventilated protective metal housing.

- a. Cable tray
- b. Cablebus
- c. Gutter
- d. Busway

48. An approved assembly of insulated conductors with fittings and conductor terminators in a completely enclosed ventilated protective metal housing.

- a. Cable tray
- b. Cablebus**
- c. Gutter
- d. Busway

49. A metal underground gas piping system _____ used as a grounding system.

- a. Shall be
- b. Shall not be
- c. Both A & B
- d. Not specified in the PEC

49. A metal underground gas piping system _____ used as a grounding system.

a. Shall be

b. Shall not be

c. Both A & B

d. Not specified in the PEC

50. If the voltage level is from 250 to 600 V, the air space between the wall, door or gutter partition of any cabinet shall be at least?

- a. 24 mm
- b. 22 mm
- c. 28 mm
- d. 26 mm

50. If the voltage level is from 250 to 600 V, the air space between the wall, door or gutter partition of any cabinet shall be at least?

- a. 24 mm
- b. 22 mm
- c. 28 mm
- d. 26 mm

51. When alternating current flows through a conductor, there is an inductive action that causes the current in the conductor to be forced toward the outer surface. The current is greater at the surface than at the center of the conductor, this, _____ will cause the resistance in the conductor to increase due to the increased heating of the conductor.

- a. Superconductive effect
- b. Capacitive effect
- c. Outer effect
- d. Skin effect

51. When alternating current flows through a conductor, there is an inductive action that causes the current in the conductor to be forced toward the outer surface. The current is greater at the surface than at the center of the conductor, this, _____ will cause the resistance in the conductor to increase due to the increased heating of the conductor.

- a. Superconductive effect
- b. Capacitive effect
- c. Outer effect
- d. Skin effect

52. Intermediate metal conduit shall be permitted to be installed in or under cinder fill where subject to permanent moisture when protected on all sides by a layer of non-cinder concrete not less than _____ thick.

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

52. Intermediate metal conduit shall be permitted to be installed in or under cinder fill where subject to permanent moisture when protected on all sides by a layer of non-cinder concrete not less than _____ thick.

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

53. A disruptive discharge through insulation.

- a. Breakdown
- b. Surge
- c. Overload
- d. Fault

53. A disruptive discharge through insulation.

a. Breakdown

b. Surge

c. Overload

d. Fault

54. The ___ shall not be less than the continuous load plus 125% of the continuous load.

- a. Conductor size
- b. Branch circuit rating
- c. Non-continuous load
- d. Continuous load

54. The ___ shall not be less than the continuous load plus 125% of the continuous load.

- a. Conductor size
- b. Branch circuit rating**
- c. Non-continuous load
- d. Continuous load

55. Electrical non-metallic tubing smaller than ___(outside diameter) electrical trade size shall not be used.

- a. 15 mm
- b. 12 mm
- c. 20 mm
- d. 10 mm

55. Electrical non-metallic tubing smaller than ___(outside diameter) electrical trade size shall not be used.

- a. 15 mm
- b. 12 mm
- c. 20 mm
- d. 10 mm

56. For churches, the general lighting load shall be computed at ____.

- a. 8 VA/m^2
- b. 12 VA/m^2
- c. 16 VA/m^2
- d. 24 VA/m^2

56. For churches, the general lighting load shall be computed at ____.

- a. 8 VA/m²
- b. 12 VA/m²
- c. 16 VA/m²
- d. 24 VA/m²

57. Outlet boxes are not required to have blank covers to prevent the escape of ____.

- a. Odor and heat
- b. Dust and moist
- c. Arcs and sparks
- d. None of these

57. Outlet boxes are not required to have blank covers to prevent the escape of ____.

- a. Odor and heat
- b. Dust and moist
- c. Arcs and sparks
- d. None of these

58. What is the maximum rating of a molded case circuit breaker to protect a 10 hp squirrel cage induction motor rated at 230 volts, 3-phase, 60 Hz with a full load rating of 28 A?

- a. 30 A
- b. 50 A
- c. 70 A
- d. 100 A

58. What is the maximum rating of a molded case circuit breaker to protect a 10 hp squirrel cage induction motor rated at 230 volts, 3-phase, 60 Hz with a full load rating of 28 A?

- a. 30 A
- b. 50 A
- c. 70 A
- d. 100 A

59. A single or multi-conductor solid dielectric insulated cable rated 2,000 volts or higher.

- a. Type MI
- b. Type MV
- c. Type TC
- d. Type IGS

59. A single or multi-conductor solid dielectric insulated cable rated 2,000 volts or higher.

- a. Type MI
- b. Type MV**
- c. Type TC
- d. Type IGS

60. Conductors used only for grounding shall be ____.

- a. Green, green with yellow stripes, or green and yellow
- b. Green, yellow with green stripes, or yellow
- c. Green, green with yellow stripes, or bare
- d. Green, yellow, or bare

60. Conductors used only for grounding shall be ____.

- a. Green, green with yellow stripes, or green and yellow
- b. Green, yellow with green stripes, or yellow
- c. **Green, green with yellow stripes, or bare**
- d. Green, yellow, or bare

61. Screw type lampholders shall have the _____ conductor connected to the screw shell.

- a. Hot
- b. Grounded
- c. Either A & B
- d. Neither A & B

61. Screw type lampholders shall have the _____ conductor connected to the screw shell.

a. Hot

b. Grounded

c. Either A & B

d. Neither A & B

62. Any motor applications shall be considered as ___ duty unless the nature of the apparatus it drives is such that the motor will not operate continuously with load under any condition of use.

- a. Short time
- b. Periodic
- c. Continuous
- d. Varying

62. Any motor applications shall be considered as ___ duty unless the nature of the apparatus it drives is such that the motor will not operate continuously with load under any condition of use.

- a. Short time
- b. Periodic
- c. Continuous
- d. Varying

63. The grounded conductor shall be equal to the largest _____ conductor.

- a. Bonding
- b. Phase
- c. Unground service
- d. Equipment

63. The grounded conductor shall be equal to the largest _____ conductor.

a. Bonding

b. Phase

c. Unground service

d. Equipment

64. Ratio of the maximum demand of a system or part of a system to the total connected load of a system or the part of the system under consideration.

- a. Power factor
- b. Utilization factor
- c. Capacity factor
- d. Demand factor

64. Ratio of the maximum demand of a system or part of a system to the total connected load of a system or the part of the system under consideration.

- a. Power factor
- b. Utilization factor
- c. Capacity factor
- d. Demand factor**

65. What is the metric size equivalent of 1,000 MCM?

- a. 250 mm²
- b. 750 mm²
- c. 500 mm²
- d. 1,000 mm²

65. What is the metric size equivalent of 1,000 MCM?

- a. 250 mm²
- b. 750 mm²
- c. 500 mm²
- d. 1,000 mm²

66. Lighting fixtures approved for damp locations shall be installed only in ____ locations.

- a. Damp
- b. Wet
- c. Flooded
- d. All of these

66. Lighting fixtures approved for damp locations shall be installed only in ____ locations.

- a. Damp
- b. Wet
- c. Flooded
- d. All of these

67. Fixture studs in octagonal boxes used to mount lighting fixtures are computed on the _____ conductor entering the box.

- a. Smallest
- b. Longest
- c. Shortest
- d. Biggest

67. Fixture studs in octagonal boxes used to mount lighting fixtures are computed on the _____ conductor entering the box.

- a. Smallest
- b. Longest
- c. Shortest
- d. **Biggest**

68. Non-metallic sheathed cable shall not be permitted for installation in the following locations except:

- a. Storage battery room
- b. Corrosive locations
- c. Moist locations
- d. Dry locations

68. Non-metallic sheathed cable shall not be permitted for installation in the following locations except:

- a. Storage battery room
- b. Corrosive locations
- c. Moist locations
- d. Dry locations**

69. Instrument pilot lights and potential current transformers shall be protected by OCP of ___ or less

- a. 50 A
- b. 15 A
- c. 30 A
- d. 20 A

69. Instrument pilot lights and potential current transformers shall be protected by OCP of ___ or less

a. 50 A

b. 15 A

c. 30 A

d. 20 A

70. Insulators used to support wires under cross arms are?

- a. Pin
- b. Spool
- c. Suspension
- d. Strain

70. Insulators used to support wires under cross arms are?

- a. Pin
- b. Spool**
- c. Suspension
- d. Strain

71. Bonding provides electrical continuity and safely conducts any ____.

- a. Load of the system
- b. Voltage on the system
- c. Unbalanced current
- d. Fault current that may occur

71. Bonding provides electrical continuity and safely conducts any ____.

- a. Load of the system
- b. Voltage on the system
- c. Unbalanced current
- d. Fault current that may occur**

72. A ___ branch circuit shall be permitted to supply lighting units, other than utilization equipment or a combination of both.

- a. 15 A
- b. 20 A
- c. Either A or B
- d. Neither A nor B

72. A ___ branch circuit shall be permitted to supply lighting units, other than utilization equipment or a combination of both.

- a. 15 A
- b. 20 A
- c. Either A or B**
- d. Neither A nor B

73. The unit lighting for a dwelling unit expressed in watts per sqm shall be:

- a. 8 watts
- b. 40 watts
- c. 24 watts
- d. 16 watts

73. The unit lighting for a dwelling unit expressed in watts per sqm shall be:

- a. 8 watts
- b. 40 watts
- c. 24 watts
- d. 16 watts

74. Where the conduits enter a switchboard at the bottom, a sufficient space shall be provided to permit installation of the conductors in the enclosure. The minimum spacing between the bottom of the enclosure and the non-insulated bus bar shall be:

- a. 155 mm
- b. 300 mm
- c. 255 mm
- d. 200 mm

74. Where the conduits enter a switchboard at the bottom, a sufficient space shall be provided to permit installation of the conductors in the enclosure. The minimum spacing between the bottom of the enclosure and the non-insulated bus bar shall be:

- a. 155 mm
- b. 300 mm
- c. 255 mm
- d. 200 mm

75. To make sure that the high voltage switchboard is not energized, what final step should you take for assurance?

- a. Ground all bus bars inside the switchboard
- b. Assign a person to guard the disconnect switch
- c. Open the disconnect switch
- d. Put a sign board that the switch should not be turned on

75. To make sure that the high voltage switchboard is not energized, what final step should you take for assurance?

- a. Ground all bus bars inside the switchboard
- b. Assign a person to guard the disconnect switch
- c. **Open the disconnect switch**
- d. Put a sign board that the switch should not be turned on

76. Transformer rated over 600 V and installed in supervised locations are protected by circuit breakers on the primary side and cannot exceed ____ of the primary full load current.

- a. 600%
- b. 500%
- c. 300%
- d. 700%

76. Transformer rated over 600 V and installed in supervised locations are protected by circuit breakers on the primary side and cannot exceed ____ of the primary full load current.

- a. 600%
- b. 500%
- c. 300%
- d. 700%

77. Type FCC (flat conductor cable) cables are permitted for the following installation, EXCEPT:

- a. On wall surfaces in surface metal raceways
- b. On hard, sound and smooth continuous surface
- c. In residential buildings
- d. For general purpose branch circuit wiring

77. Type FCC (flat conductor cable) cables are permitted for the following installation, EXCEPT:

- a. On wall surfaces in surface metal raceways
- b. On hard, sound and smooth continuous surface
- c. In residential buildings
- d. For general purpose branch circuit wiring

78. The scope of the PEC covers all electrical conductors including optical fiber cable and equipment installed within or to or from any of the following premises, which one is NOT included?

- a. Aircraft
- b. Motor vehicles
- c. Railway rolling stocks
- d. All of these

78. The scope of the PEC covers all electrical conductors including optical fiber cable and equipment installed within or to or from any of the following premises, which one is NOT included?

- a. Aircraft
- b. Motor vehicles
- c. Railway rolling stocks
- d. All of these**

79. A factory assembly of one or more conductors, each individual insulated and enclosed in a metallic sheath of interlocking tape or a smooth or corrugated tube.

- a. Type MC cable
- b. Type AC cable
- c. Type MI cable
- d. Type MV cable

79. A factory assembly of one or more conductors, each individual insulated and enclosed in a metallic sheath of interlocking tape or a smooth or corrugated tube.

- a. Type MC cable
- b. Type AC cable
- c. Type MI cable
- d. Type MV cable

80. Which of the following listed materials is considered among the best insulation material for motor rewinding?

- a. Nomex
- b. Red fiber
- c. Mylar
- d. Fish paper

80. Which of the following listed materials is considered among the best insulation material for motor rewinding?

- a. Nomex
- b. Red fiber
- c. Mylar
- d. Fish paper

81. Type FCC cable shall be clearly and durably marked on both sides at intervals of not more than _____.

- a. 760 mm
- b. 1,000 mm
- c. 500 mm
- d. 600 mm

81. Type FCC cable shall be clearly and durably marked on both sides at intervals of not more than _____.

- a. 760 mm
- b. 1,000 mm
- c. 500 mm
- d. 600 mm**

82. The first choice for the grounding electrode of a separately derived system is a:

- a. Ground ring
- b. Water pipe
- c. Building steel
- d. Driven rod

82. The first choice for the grounding electrode of a separately derived system is a:

- a. Ground ring
- b. Water pipe
- c. Building steel**
- d. Driven rod

83. Individual open conductors and cables other than service entrance cables shall NOT be installed within ____ of grade level or where exposed to physical damage.

- a. 3,100 mm
- b. 3,700 mm
- c. 4,600 mm
- d. 5,500 mm

83. Individual open conductors and cables other than service entrance cables shall NOT be installed within ____ of grade level or where exposed to physical damage.

- a. 3,100 mm
- b. 3,700 mm
- c. 4,600 mm
- d. 5,500 mm

84. Heavy duty lighting tracks shall be identified to exceed ____ in rating.

- a. 15 A
- b. 20 A
- c. 30 A
- d. 40 A

84. Heavy duty lighting tracks shall be identified to exceed ____ in rating.

a. 15 A

b. 20 A

c. 30 A

d. 40 A

85. A pliable corrugated raceway of circular cross-section with integral or associated couplings, connectors and fittings for the installation of electric conductors?

- a. Electrical metallic tubing
- b. Rigid non-metallic conduit
- c. Electrical non-metallic tubing
- d. Rigid metal conduit

85. A pliable corrugated raceway of circular cross-section with integral or associated couplings, connectors and fittings for the installation of electric conductors?

- a. Electrical metallic tubing
- b. Rigid non-metallic conduit
- c. Electrical non-metallic tubing**
- d. Rigid metal conduit

86. In a switchboard there shall be an air space of at least _____ between the energized metal part and the door of the cabinet.

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

86. In a switchboard there shall be an air space of at least _____ between the energized metal part and the door of the cabinet.

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

87. Surface metal raceway shall NOT be used where the voltage is ____ volts or more between conductors unless the metal has a thickness of not less than one mm.

- a. 300 mm
- b. 250 mm
- c. 150 mm
- d. 400 mm

87. Surface metal raceway shall NOT be used where the voltage is ___ volts or more between conductors unless the metal has a thickness of not less than one mm.

- a. 300 mm
- b. 250 mm
- c. 150 mm
- d. 400 mm

88. What type of cable consists of three or more flat copper conductors placed edge to edge, separated and enclosed within an insulating assembly?

- a. Type AC
- b. Type FC
- c. Type FCC
- d. Type TC

88. What type of cable consists of three or more flat copper conductors placed edge to edge, separated and enclosed within an insulating assembly?

- a. Type AC
- b. Type FC
- c. Type FCC
- d. Type TC

89. The maximum size of liquid tight flexible metal conduit shall be ____ trade size.

- a. 50 mm
- b. 125 mm
- c. 150 mm
- d. 100 mm

89. The maximum size of liquid tight flexible metal conduit shall be ____ trade size.

- a. 50 mm
- b. 125 mm
- c. 150 mm
- d. 100 mm

90. Each length of non-metallic conduit shall be clearly and durably marked at least every ____ as required.

- a. 3,000 mm
- b. 2,000 mm
- c. 4,000 mm
- d. 5,000 mm

90. Each length of non-metallic conduit shall be clearly and durably marked at least every ____ as required.

- a. 3,000 mm
- b. 2,000 mm
- c. 4,000 mm
- d. 5,000 mm

91. Non-metallic extensions shall NOT be used _____.

- a. From an existing outlet
- b. Exposed in dry location
- c. Non-metallic surface extension
- d. As an aerial cable

91. Non-metallic extensions shall NOT be used _____.

- a. From an existing outlet
- b. Exposed in dry location
- c. Non-metallic surface extension
- d. As an aerial cable**

92. Feeders should be of such size that the voltage drop up to the final distribution panel should NOT exceed:

- a. 2.5%
- b. 4.5%
- c. 3%
- d. 6%

92. Feeders should be of such size that the voltage drop up to the final distribution panel should NOT exceed:

- a. 2.5%
- b. 4.5%
- c. 3%
- d. 6%

93. Connection or fittings shall NOT connect grounding electrode conductors to equipment by means of ____.

- a. Solder
- b. Lugs
- c. Pressure connectors
- d. Clamps

93. Connection or fittings shall NOT connect grounding electrode conductors to equipment by means of ____.

- a. Solder
- b. Lugs
- c. Pressure connectors
- d. Clamps

94. Resistors and reactors shall not be installed in close proximity to combustible materials such that it constitutes a fire hazard. What minimum clearance is required by the Code?

- a. 250 mm
- b. 300 mm
- c. 400 mm
- d. 100 mm

94. Resistors and reactors shall not be installed in close proximity to combustible materials such that it constitutes a fire hazard. What minimum clearance is required by the Code?

- a. 250 mm
- b. 300 mm**
- c. 400 mm
- d. 100 mm

95. Transformers that are installed in unsupervised locations and rated over 600 V are protected by fuses on the primary side and cannot exceed _____ of primary full load current.

- a. 150%
- b. 300%
- c. 200%
- d. 250%

95. Transformers that are installed in unsupervised locations and rated over 600 V are protected by fuses on the primary side and cannot exceed _____ of primary full load current.

- a. 150%
- b. 300%**
- c. 200%
- d. 250%

96. All circuit conductors between the service equipment or the generator switchboard of an isolate plant, and the final branch circuit overcurrent device.

- a. Service
- b. Feeder
- c. Branch circuit
- d. All of these

96. All circuit conductors between the service equipment or the generator switchboard of an isolate plant, and the final branch circuit overcurrent device.

a. Service

b. Feeder

c. Branch circuit

d. All of these

97. Electrical metallic tubing shall be securely fastened in place within ____ of each outlet box, junction box, cabinet or fitting.

- a. 300 mm
- b. 600 mm
- c. 900 mm
- d. 800 mm

97. Electrical metallic tubing shall be securely fastened in place within ____ of each outlet box, junction box, cabinet or fitting.

- a. 300 mm
- b. 600 mm
- c. 900 mm
- d. 800 mm

98. Electric discharge lighting shall be connected by flexible cord if the cord is visible for ___ of its entire length.

- a. 50%
- b. 80%
- c. 90%
- d. 100%

98. Electric discharge lighting shall be connected by flexible cord if the cord is visible for ___ of its entire length.

- a. 50%
- b. 80%
- c. 90%
- d. 100%

99. Completely enclosed, ventilated transformers equipped with an 80°C rise insulation may be installed in a room ____.

- a. Built with tile blocks
- b. With concrete walls
- c. Designed as a vault
- d. Of fire resistant construction

99. Completely enclosed, ventilated transformers equipped with an 80°C rise insulation may be installed in a room ____.

- a. Built with tile blocks
- b. With concrete walls
- c. Designed as a vault
- d. Of fire resistant construction**

100. Each length of intermediate metal conduit shall be clearly and durably identified at _____ intervals with letters “IMC”.

- a. 760 mm
- b. 600 mm
- c. 900 mm
- d. 1,000 mm

100. Each length of intermediate metal conduit shall be clearly and durably identified at _____ intervals with letters “IMC”.

- a. 760 mm
- b. 600 mm
- c. 900 mm
- d. 1,000 mm

101. Down conductors on a heavy duty smoke or vent stacks shall be protected from physical damage or displacement for a distance of NOT less than ____ above finish grade.

- a. 2,000 mm
- b. 2,300 mm
- c. 2,500 mm
- d. 2,400 mm

101. Down conductors on a heavy duty smoke or vent stacks shall be protected from physical damage or displacement for a distance of NOT less than ____ above finish grade.

- a. 2,000 mm
- b. 2,300 mm
- c. 2,500 mm
- d. 2,400 mm

102. The OCPD for arc welders with transformers shall NOT exceed ____ of the primary full load current.

- a. 200%
- b. 300%
- c. 250%
- d. 400%

102. The OCPD for arc welders with transformers shall NOT exceed ____ of the primary full load current.

- a. 200%
- b. 300%
- c. 250%
- d. 400%

103. The underground service conductors between the street main, including any risers at the pole or other structure or from transformer and the first point of connection to the service entrance conductors in a terminal box. The point of connection is considered to be the point of entrance of the service conductors into the building.

- a. Service entry
- b. Service raceway
- c. Service lateral
- d. Service drop

103. The underground service conductors between the street main, including any risers at the pole or other structure or from transformer and the first point of connection to the service entrance conductors in a terminal box. The point of connection is considered to be the point of entrance of the service conductors into the building.

- a. Service entry
- b. Service raceway
- c. Service lateral**
- d. Service drop

104. A warning sign shall be posted where _____ voltage is available in service equipment.

- a. High
- b. Low
- c. Both A and B
- d. Neither A nor B

104. A warning sign shall be posted where _____ voltage is available in service equipment.

- a. High
- b. Low
- c. Both A and B
- d. Neither A nor B

105. The ampacity of conductors in non-metallic sheathed cable shall be used at ____.

- a. 75°C
- b. 60°C
- c. 90°C
- d. 80°C

105. The ampacity of conductors in non-metallic sheathed cable shall be used at ____.

a. 75°C

b. 60°C

c. 90°C

d. 80°C

106. A lighting fixture shall be wired with a flexible lighting cord with a cross sectional area of NOT less than a certain minimum area. Which is this?

- a. 0.75 mm^2
- b. 2.0 mm^2
- c. 0.5 mm^2
- d. 1.25 mm^2

106. A lighting fixture shall be wired with a flexible lighting cord with a cross sectional area of NOT less than a certain minimum area. Which is this?

- a. 0.75 mm²
- b. 2.0 mm²
- c. 0.5 mm²
- d. 1.25 mm²

107. Service conductors shall not be run in such a manner as to block ____ to buildings.

- a. Openings
- b. Driveways
- c. Both A & B
- d. Neither A nor B

107. Service conductors shall not be run in such a manner as to block ____ to buildings.

a. Openings

b. Driveways

c. Both A & B

d. Neither A nor B

108. Conductors supplying a group of motor-generator arc welders are sized at ____ of the third largest welder plus the percentage of the other welders.

- a. 65%
- b. 85%
- c. 70%
- d. 75%

108. Conductors supplying a group of motor-generator arc welders are sized at ____ of the third largest welder plus the percentage of the other welders.

- a. 65%
- b. 85%**
- c. 70%
- d. 75%

109. Continuous duty loads shall be figured at _____ for branch circuits.

- a. 100%
- b. 115%
- c. 120%
- d. 125%

109. Continuous duty loads shall be figured at _____ for branch circuits.

- a. 100%
- b. 115%
- c. 120%
- d. 125%

110. A 3.5 mm² TW copper conductor has an ampacity equal to ____.

a. 20 A

b. 15 A

c. 30 A

d. 15 A

110. A 3.5 mm² TW copper conductor has an ampacity equal to ____.

a. 20 A

b. 15 A

c. 30 A

d. 15 A

111. What is the lowest standard size of disconnect?

a. 20 A

b. 30 A

c. 60 A

d. 15 A

111. What is the lowest standard size of disconnect?

a. 20 A

b. 30 A

c. 60 A

d. 15 A

112. Grounding conductor installed over lightning cables for the purpose of interconnecting the system ground electrodes and providing lightning protection for the cables.

- a. Anchor
- b. Counterpoise
- c. Elevation rod
- d. Air terminal

112. Grounding conductor installed over lightning cables for the purpose of interconnecting the system ground electrodes and providing lightning protection for the cables.

a. Anchor

b. Counterpoise

c. Elevation rod

d. Air terminal

113. The surge arrester for services less than 1,000 V connected by copper conductor to grounding electrode conductor or the equivalent grounding terminal shall NOT be smaller than ____.

- a. 8.0 mm²
- b. 5.5 mm²
- c. 3.5 mm²
- d. 2.0 mm²

113. The surge arrester for services less than 1,000 V connected by copper conductor to grounding electrode conductor or the equivalent grounding terminal shall NOT be smaller than ____.

- a. 8.0 mm²
- b. 5.5 mm²
- c. 3.5 mm²
- d. 2.0 mm²

114. There shall be no more than ____ disconnects per service grouped in any location.

- a. 4
- b. 5
- c. 6
- d. 3

114. There shall be no more than ____ disconnects per service grouped in any location.

a. 4

b. 5

c. 6

d. 3

115. When a circuit breaker handles are operated vertically rather than horizontally, the “up” position of the handle shall be the ____ position.

- a. Off
- b. On
- c. Neutral
- d. Any of these

115. When a circuit breaker handles are operated vertically rather than horizontally, the “up” position of the handle shall be the ____ position.

a. Off

b. On

c. Neutral

d. Any of these

116. Metal clad cable (MC) can be used in systems of 600 V or ____.

- a. Less
- b. More
- c. Both A and B
- d. Neither A nor B

116. Metal clad cable (MC) can be used in systems of 600 V or ____.

a. Less

b. More

c. Both A and B

d. Neither A nor B

117. Each lighting and appliance branch circuit panelboard shall be protected individually on the supply side by not more than two main CBs or two sets of fuses having a combined rating not ___ that of the panelboard.

- a. Less than
- b. Greater than
- c. Both A and B
- d. Neither A nor B

117. Each lighting and appliance branch circuit panelboard shall be protected individually on the supply side by not more than two main CBs or two sets of fuses having a combined rating not ___ that of the panelboard.

- a. Less than
- b. Greater than**
- c. Both A and B
- d. Neither A nor B

118. The PEC permits ____ 90° bends in a single conduit run.

- a. One
- b. Two
- c. Three
- d. Four

118. The PEC permits ____ 90° bends in a single conduit run.

- a. One
- b. Two
- c. Three
- d. Four**

119. For circuits supplying loads consisting of motor operated utilization equipment that is fastened in place and that has a motor larger than 0.125 hp in combination with other loads, the total computed load shall be base on ___ of the largest motor load plus the sum of the other loads.

- a. 100%
- b. 125%
- c. 150%
- d. 130%

119. For circuits supplying loads consisting of motor operated utilization equipment that is fastened in place and that has a motor larger than 0.125 hp in combination with other loads, the total computed load shall be base on ___ of the largest motor load plus the sum of the other loads.

- a. 100%
- b. 125%**
- c. 150%
- d. 130%

120. Conductors used in lightning protection system shall have no bend forming an included angle of less than ____.

- a. 60°
- b. 75°
- c. 50°
- d. 90°

120. Conductors used in lightning protection system shall have no bend forming an included angle of less than ____.

- a. 60°
- b. 75°
- c. 50°
- d. 90°

121. Which of the following statements on wiring in commercial garages and shops is NOT correct?

- a. The ground conductor shall be connected to the ground terminal of the utilization equipment.
- b. Receptacles, attachment plugs and similar devices shall be of the polarized type.
- c. Lamps and lamp holders for fixed lighting that are located above vehicles shall be installed not lower than 2,500 mm.
- d. Battery chargers and batteries being charged shall not be located in location classified as hazardous.

121. Which of the following statements on wiring in commercial garages and shops is NOT correct?

- a. The ground conductor shall be connected to the ground terminal of the utilization equipment.
- b. Receptacles, attachment plugs and similar devices shall be of the polarized type.
- c. Lamps and lamp holders for fixed lighting that are located above vehicles shall be installed not lower than 2,500 mm.
- d. Battery chargers and batteries being charged shall not be located in location classified as hazardous.

122. Circuits with a nominal voltage of 600 V or less in rigid metal or non-metallic conduit and placed under a minimum of 100 mm thick concrete exterior slab with no vehicular traffic shall have a minimum cover distance of ____.

- a. 200 mm
- b. 300 mm
- c. 400 mm
- d. 100 mm

122. Circuits with a nominal voltage of 600 V or less in rigid metal or non-metallic conduit and placed under a minimum of 100 mm thick concrete exterior slab with no vehicular traffic shall have a minimum cover distance of ____.

- a. 200 mm
- b. 300 mm
- c. 400 mm
- d. 100 mm

123. The electrical drawing of a single family dwelling shall show the following except:

- a. Floor plan
- b. Computation of illumination
- c. Location plan
- d. One-line diagram

123. The electrical drawing of a single family dwelling shall show the following except:

- a. Floor plan
- b. Computation of illumination**
- c. Location plan
- d. One-line diagram

124. Enclosures for overcurrent devices in damp or wet locations shall be identified for use in such locations and shall be mounted so there is at least ____ air space between the enclosure and the wall.

- a. 10 mm
- b. 12 mm
- c. 15 mm
- d. 20 mm

124. Enclosures for overcurrent devices in damp or wet locations shall be identified for use in such locations and shall be mounted so there is at least ____ air space between the enclosure and the wall.

- a. 10 mm
- b. 12 mm
- c. 15 mm
- d. 20 mm

125. Where buildings exceed three stories or 15 m in height, overhead lines shall be arranged, where practicable, so that a clear space of at least ____ wide will be left to facilitate raising of ladders when necessary for fire fighting.

- a. 2,000 mm
- b. 1,800 mm
- c. 1,900 mm
- d. 1,500 mm

125. Where buildings exceed three stories or 15 m in height, overhead lines shall be arranged, where practicable, so that a clear space of at least ____ wide will be left to facilitate raising of ladders when necessary for fire fighting.

- a. 2,000 mm
- b. 1,800 mm
- c. 1,900 mm
- d. 1,500 mm

126. AC equipment on board watercraft shall operate satisfactorily at the following voltage limitations. Which one is correct?

- a. Minus 5% to plus 10%
- b. Minus 6% to plus 10%
- c. Minus 10% to plus 6%
- d. Minus 10% to plus 10%

126. AC equipment on board watercraft shall operate satisfactorily at the following voltage limitations. Which one is correct?

- a. Minus 5% to plus 10%
- b. Minus 6% to plus 10%
- c. Minus 10% to plus 6%
- d. Minus 10% to plus 10%

127. Emergency power panel conductors supplying a building are tapped on ____.

- a. The line side of the service
- b. Any subfed panel
- c. Any circuit breaker main
- d. Any feeder circuit

127. Emergency power panel conductors supplying a building are tapped on ____.

- a. The line side of the service
- b. Any subfed panel
- c. Any circuit breaker main
- d. Any feeder circuit

128. Overcurrent protection devices in emergency systems shall ____.

- a. Be coordinated
- b. Clear in steps
- c. Not trip the main device
- d. All of the above

128. Overcurrent protection devices in emergency systems shall ____.

- a. Be coordinated
- b. Clear in steps
- c. Not trip the main device
- d. All of the above**

129. MC cable insulation shall have a maximum operating temperature of not less than ____.

- a. 75°C
- b. 80°C
- c. 90°C
- d. 60°C

129. MC cable insulation shall have a maximum operating temperature of not less than ____.

- a. 75°C
- b. 80°C
- c. 90°C
- d. 60°C

130. For the purpose of lightning protection, a smoke or vent stack is classified as heavy duty if the cross sectional area of the flue is greater than ____ and the height is greater than 23 m.

- a. 0.5 m^2
- b. 0.32 m^2
- c. 0.42 m^2
- d. 0.27 m^2

130. For the purpose of lightning protection, a smoke or vent stack is classified as heavy duty if the cross sectional area of the flue is greater than _____ and the height is greater than 23 m.

- a. 0.5 m^2
- b. 0.32 m^2**
- c. 0.42 m^2
- d. 0.27 m^2

131. The branch circuit load for continuous duty receptacles shall be calculated at _____ per receptacle.

- a. 150 VA
- b. 175 VA
- c. 180 VA
- d. 200 VA

131. The branch circuit load for continuous duty receptacles shall be calculated at _____ per receptacle.

- a. 150 VA
- b. 175 VA
- c. 180 VA
- d. 200 VA

132. Control conductors used for load management can be routed with the service entrance conductors in the same ____.

- a. Raceway
- b. Cable
- c. Either A or B
- d. Neither A nor B

132. Control conductors used for load management can be routed with the service entrance conductors in the same ____.

- a. Raceway
- b. Cable
- c. **Either A or B**
- d. Neither A nor B

133. Which of the following statements on lighting fixtures NOT correct?

- a. Outdoor lighting fixtures and associated equipment shall be permitted to be supported by trees.
- b. Metal fixtures and enclosures rated at 250 V and installed up in the ceiling shall be grounded.
- c. Stranded conductors shall be used in wiring a fixture supporting chain and other movable flexible parts.
- d. Fixtures and lighting equipment operating at over 250 V shall be grounded.

133. Which of the following statements on lighting fixtures NOT correct?

- a. Outdoor lighting fixtures and associated equipment shall be permitted to be supported by trees.
- b. Metal fixtures and enclosures rated at 250 V and installed up in the ceiling shall be grounded.
- c. Stranded conductors shall be used in wiring a fixture supporting chain and other movable flexible parts.
- d. Fixtures and lighting equipment operating at over 250 V shall be grounded.

134. The long time rating used to select OCPD's to protect circuits to x-ray equipment shall be ____.

- a. 125%
- b. 150%
- c. 175%
- d. 100%

134. The long time rating used to select OCPD's to protect circuits to x-ray equipment shall be ____.

- a. 125%
- b. 150%
- c. 175%
- d. 100%**

135. For installations to supply only limited load of a single branch circuit, the service disconnecting means shall have a rating of NOT less than ____.

- a. 20 A
- b. 30 A
- c. 40 A
- d. 15 A

135. For installations to supply only limited load of a single branch circuit, the service disconnecting means shall have a rating of NOT less than ____.

- a. 20 A
- b. 30 A
- c. 40 A
- d. 15 A

136. What type letter for conductors has a trade name “moisture and heat resistant rubber”?

- a. RH
- b. RHW
- c. XHHW
- d. THW

136. What type letter for conductors has a trade name “moisture and heat resistant rubber”?

- a. RH
- b. RHW**
- c. XHHW
- d. THW

137. Conductors from the service point to the service disconnecting means are considered service ____.

- a. Subpanels
- b. Conductors
- c. Both A or B
- d. Neither A nor B

137. Conductors from the service point to the service disconnecting means are considered service ____.

a. Subpanels

b. Conductors

c. Both A or B

d. Neither A nor B

138. A 5.5 mm² TW copper conductor has a conductor ampacity of ____.

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

138. A 5.5 mm² TW copper conductor has a conductor ampacity of ____.

a. 30 A

b. 40 A

c. 20 A

d. 50 A

139. On circuits of less than 1000 V, the rating of the surge arrester shall be ___ the maximum continuous phase to ground power frequency voltage available at the point of application.

- a. Equal to or greater than
- b. Not less than
- c. Not less than 125% of
- d. None of these

139. On circuits of less than 1000 V, the rating of the surge arrester shall be ___ the maximum continuous phase to ground power frequency voltage available at the point of application.

- a. Equal to or greater than
- b. Not less than
- c. Not less than 125% of
- d. None of these

140. Open conductors passing over residential driveways and those commercial areas not subject to truck traffic where the voltage exceeds 300 V to ground shall have a vertical clearance of ____.

- a. 3,700 mm
- b. 4,600 mm
- c. 3,100 mm
- d. 5,500 mm

140. Open conductors passing over residential driveways and those commercial areas not subject to truck traffic where the voltage exceeds 300 V to ground shall have a vertical clearance of ____.

- a. 3,700 mm
- b. 4,600 mm**
- c. 3,100 mm
- d. 5,500 mm

141. What is the radius of a solid round conductor, which is the nearest equivalent of a stranded conductor whose total area is exactly 8.0 mm^2 ?

- a. 1.597 mm
- b. 1.596 mm
- c. 3.191 mm
- d. 3.192 mm

141. What is the radius of a solid round conductor, which is the nearest equivalent of a stranded conductor whose total area is exactly 8.0 mm^2 ?

- a. 1.597 mm
- b. 1.596 mm
- c. 3.191 mm
- d. 3.192 mm

142. For high impedance grounding, the system _____ conductor shall not be connected to the ground EXCEPT through the grounding impedance.

- a. Line
- b. Neutral
- c. Both A or B
- d. Neither A nor B

142. For high impedance grounding, the system _____ conductor shall not be connected to the ground EXCEPT through the grounding impedance.

a. Line

b. Neutral

c. Both A or B

d. Neither A nor B

143. Where galvanized steel conduit is used, the primary purpose of galvanizing is which one of the following?

- a. It provides good electrical contact for grounding.
- b. It increase mechanical strength.
- c. It provides good surface for painting.
- d. It retards rusting.

143. Where galvanized steel conduit is used, the primary purpose of galvanizing is which one of the following?

- a. It provides good electrical contact for grounding.
- b. It increase mechanical strength.
- c. It provides good surface for painting.
- d. It retards rusting.**

144. The OCPD for resistance welders shall NOT exceed ____ of the conductor's ampacity supplying the circuit.

- a. 200%
- b. 250%
- c. 300%
- d. 400%

144. The OCPD for resistance welders shall NOT exceed ____ of the conductor's ampacity supplying the circuit.

- a. 200%
- b. 250%
- c. 300%
- d. 400%

145. The load for household electric clothes dryer in a dwelling is the larger of the nameplate rating or ____.

- a. 4,000 VA
- b. 5,000 VA
- c. 6,000 VA
- d. 8,000 VA

145. The load for household electric clothes dryer in a dwelling is the larger of the nameplate rating or ____.

- a. 4,000 VA
- b. 5,000 VA**
- c. 6,000 VA
- d. 8,000 VA

146. Equipment to be installed shall be fully specified in the name plate EXCEPT which of the following that is considered optional?

- a. Power and speed ratings
- b. Name of manufacturer
- c. Voltage, current, frequency
- d. Date manufactured

146. Equipment to be installed shall be fully specified in the name plate EXCEPT which of the following that is considered optional?

- a. Power and speed ratings
- b. Name of manufacturer
- c. Voltage, current, frequency
- d. Date manufactured

147. The long time rating for x-ray equipment is based on an operating time of ___ minutes or longer.

- a. 5
- b. 8
- c. 6
- d. 10

147. The long time rating for x-ray equipment is based on an operating time of ___ minutes or longer.

a. 5

b. 8

c. 6

d. 10

148. Ground rod clamps shall be secured with at least ____ bolt(s) or cap screws.

- a. 1
- b. 2
- c. 3
- d. 4

148. Ground rod clamps shall be secured with at least ____ bolt(s) or cap screws.

a. 1

b. 2

c. 3

d. 4

149. A 3-ph general purpose squirrel cage motor draws a full load current of 40 A. what is the maximum size of time delay fuses that may be used for short circuit protection?

- a. 120 A
- b. 70 A
- c. 40 A
- d. 100 A

149. A 3-ph general purpose squirrel cage motor draws a full load current of 40 A. what is the maximum size of time delay fuses that may be used for short circuit protection?

- a. 120 A
- b. 70 A**
- c. 40 A
- d. 100 A

150. Busways shall be permitted to be installed behind panels if means of access are provided and if the conditions below are met. One of them is NOT valid. Which one is this?

- a. No overcurrent devices are installed on the busway other than for an individual fixture.
- b. The busway is so installed that the joints between sections and fitting are accessible for maintenance purposes.
- c. The busway is open and of the ventilator type.
- d. The space behind the panels is not for air handling purposes.

150. Busways shall be permitted to be installed behind panels if means of access are provided and if the conditions below are met. One of them is NOT valid. Which one is this?

- a. No overcurrent devices are installed on the busway other than for an individual fixture.
- b. The busway is so installed that the joints between sections and fitting are accessible for maintenance purposes.
- c. **The busway is open and of the ventilator type.**
- d. The space behind the panels is not for air handling purposes.

151. Where the voltage between conductors does not exceed 300 V and the roof has a slope of not less than 100 mm in 300 mm, a reduction to _____ of the distance of the service conductors from the roof surface shall be permitted.

- a. 900 mm
- b. 1,000 mm
- c. 1,100 mm
- d. 800 mm

151. Where the voltage between conductors does not exceed 300 V and the roof has a slope of not less than 100 mm in 300 mm, a reduction to _____ of the distance of the service conductors from the roof surface shall be permitted.

- a. 900 mm
- b. 1,000 mm**
- c. 1,100 mm
- d. 800 mm

152. A wall screen or fence less than ___ in height shall NOT be considered as a preventing access unless it has other features that provide a degree of isolation equivalent to the height of the fence in question.

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

152. A wall screen or fence less than ___ in height shall NOT be considered as a preventing access unless it has other features that provide a degree of isolation equivalent to the height of the fence in question.

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

153. Branch circuit conductors supplying a single phase motor shall have an ampacity **NOT** exceeding:

- a. 100%
- b. 125%
- c. 200%
- d. 115%

153. Branch circuit conductors supplying a single phase motor shall have an ampacity **NOT** exceeding:

- a. 100%
- b. 125%**
- c. 200%
- d. 115%

154. Pits within ____ horizontally from the flammable vapor source, shall be considered a hazardous location under Class I, Division 1 location.

- a. 6,000 mm
- b. 5,000 mm
- c. 7,600 mm
- d. 4,600 mm

154. Pits within ____ horizontally from the flammable vapor source, shall be considered a hazardous location under Class I, Division 1 location.

- a. 6,000 mm
- b. 5,000 mm
- c. 7,600 mm
- d. 4,600 mm

155. Type TW conductor is a ____ type.

- a. Moisture and heat resistant
- b. Moisture and heat resistant thermoplastic
- c. Moisture resistant and thermoplastic
- d. Heat resistant and thermoplastic

155. Type TW conductor is a ____ type.

- a. Moisture and heat resistant
- b. Moisture and heat resistant thermoplastic
- c. **Moisture resistant and thermoplastic**
- d. Heat resistant and thermoplastic

156. Flat conductor cables (FCC) maybe installed in any of the following location EXCEPT one. Which one is this?

- a. On hard concrete flooring
- b. In wet locations
- c. For branch circuits
- d. In damp locations

156. Flat conductor cables (FCC) maybe installed in any of the following location EXCEPT one. Which one is this?

- a. On hard concrete flooring
- b. In wet locations**
- c. For branch circuits
- d. In damp locations

157. Where contactors are used as the disconnecting means for fuses, an individual externally operable switch, such as tumbler switch for the control of each contactor shall be located at a distance of not more than ____ from the contactor.

- a. 1,500 mm
- b. 1,800 mm
- c. 2,000 mm
- d. 2,400 mm

157. Where contactors are used as the disconnecting means for fuses, an individual externally operable switch, such as tumbler switch for the control of each contactor shall be located at a distance of not more than ____ from the contactor.

- a. 1,500 mm
- b. 1,800 mm**
- c. 2,000 mm
- d. 2,400 mm

158. For voltages above 600 V, the minimum insulation resistance shall be ____.

- a. 1,500,000 ohms per KV rating
- b. 500,00 ohms per KV rating
- c. 1,000,000 ohms per KV rating
- d. 2,000,000 ohms per kV rating

158. For voltages above 600 V, the minimum insulation resistance shall be ____.

- a. 1,500,000 ohms per KV rating
- b. 500,00 ohms per KV rating
- c. 1,000,000 ohms per KV rating
- d. 2,000,000 ohms per kV rating

159. Operation of loads and for intervals of time, both of which maybe subject to wide variations.

- a. Periodic duty
- b. Intermittent duty
- c. Continuous duty
- d. Varying duty

159. Operation of loads and for intervals of time, both of which maybe subject to wide variations.

- a. Periodic duty
- b. Intermittent duty
- c. Continuous duty
- d. Varying duty

160. For equipment rated 1,200 A and over 1,900 mm wide containing overcurrent devices and control devices at least one entrance of NOT less than ___ wide and ___ high shall be provided at each end.

- a. 600 mm , 2,000 mm
- b. 600 mm , 2,500 mm
- c. 800 mm , 2,000 mm
- d. 800 mm , 2,500 mm

160. For equipment rated 1,200 A and over 1,900 mm wide containing overcurrent devices and control devices at least one entrance of NOT less than ___ wide and ___ high shall be provided at each end.

- a. 600 mm , 2,000 mm
- b. 600 mm , 2,500 mm
- c. 800 mm , 2,000 mm
- d. 800 mm , 2,500 mm

161. A device actuated by the operation of some devices with which it is directly associated, to govern succeeding operations of some or allied devices.

- a. Selsyn
- b. Automatic
- c. Interlock
- d. Relay

161. A device actuated by the operation of some devices with which it is directly associated, to govern succeeding operations of some or allied devices.

- a. Selsyn
- b. Automatic
- c. Interlock**
- d. Relay

162. The minimum distance of open conductors of not over 600 V nominal and above finished grade, side walks or from any flatform or projection which they might be reached where the supply conductors are limited to 150 V to ground and accessible to pedestrian only.

- a. 3,100 mm
- b. 3,700 mm
- c. 4,600 mm
- d. 5,500 mm

162. The minimum distance of open conductors of not over 600 V nominal and above finished grade, side walks or from any flatform or projection which they might be reached where the supply conductors are limited to 150 V to ground and accessible to pedestrian only.

- a. 3,100 mm
- b. 3,700 mm
- c. 4,600 mm
- d. 5,500 mm

163. Concealed knob and tube wiring maybe used in which of the following locations?

- a. Theaters
- b. Hazardous locations
- c. Commercial garages
- d. Hollow spaces of walls and ceilings

163. Concealed knob and tube wiring maybe used in which of the following locations?

- a. Theaters
- b. Hazardous locations
- c. Commercial garages
- d. Hollow spaces of walls and ceilings**

164. No electrical installation, alteration and or addition shall be connected or r-connected to any power supply or any other sources of electrical energy without:

- a. An electrical permit
- b. An application for inspection
- c. Certificate of payment
- d. Certificate of final inspection

164. No electrical installation, alteration and or addition shall be connected or r-connected to any power supply or any other sources of electrical energy without:

- a. An electrical permit
- b. An application for inspection
- c. Certificate of payment
- d. Certificate of final inspection**

165. Batteries and direct current circuits shall be physically separated by at least a ____ gap or other approved means from circuits of a different power source.

- a. 12 mm
- b. 15 mm
- c. 20 mm
- d. 10 mm

165. Batteries and direct current circuits shall be physically separated by at least a ____ gap or other approved means from circuits of a different power source.

- a. 12 mm
- b. 15 mm
- c. 20 mm
- d. 10 mm

166. Four (4) 3-phase motor are supplied by one common feeder cable. The full load current ratings of the motor are 10 A, 20 A, 30 A and 40 A. what should be the minimum ampacity of the feeder cable?

- a. 110 A
- b. 125 A
- c. 150 A
- d. 100 A

166. Four (4) 3-phase motor are supplied by one common feeder cable. The full load current ratings of the motor are 10 A, 20 A, 30 A and 40 A. what should be the minimum ampacity of the feeder cable?

- a. 110 A
- b. 125 A
- c. 150 A
- d. 100 A

167. The branches of the emergency system in a hospital shall be installed and connected to the alternate power source so that all functions shall automatically restored to operation within _____ after interruption of the normal source.

- a. 5 seconds
- b. 3 seconds
- c. 10 seconds
- d. 8 seconds

167. The branches of the emergency system in a hospital shall be installed and connected to the alternate power source so that all functions shall automatically restored to operation within _____ after interruption of the normal source.

- a. 5 seconds
- b. 3 seconds
- c. 10 seconds**
- d. 8 seconds

168. Lead wires furnished as part of a weather proof lampholder shall be stranded and rubber covered and approved for such service, shall not be less than what wire size?

- a. 3.5 mm²
- b. 2.0 mm²
- c. 0.75 mm²
- d. 5.5 mm²

168. Lead wires furnished as part of a weather proof lampholder shall be stranded and rubber covered and approved for such service, shall not be less than what wire size?

- a. 3.5 mm²
- b. 2.0 mm²**
- c. 0.75 mm²
- d. 5.5 mm²

169. At least one receptacle outlet shall be installed directly above a show window for each ___ linear meter length or a major fraction thereof.

- a. 3
- b. 1
- c. 2
- d. 4

169. At least one receptacle outlet shall be installed directly above a show window for each ___ linear meter length or a major fraction thereof.

- a. 3
- b. 1
- c. 2
- d. 4

170. An insulated conductor intended for use as a grounded conductor where contained within a flexible cord shall be identified by a white or a _____ outer finish color.

- a. Green
- b. Natural gray
- c. Yellow
- d. Green with yellow stripes

170. An insulated conductor intended for use as a grounded conductor where contained within a flexible cord shall be identified by a white or a _____ outer finish color.

- a. Green
- b. Natural gray**
- c. Yellow
- d. Green with yellow stripes

171. Which of the following wiring cables is most suitable for shipboard installations?

- a. Flat cable assembly
- b. Shielded non-metallic sheathed cable
- c. Metal clad cable
- d. Armored cable

171. Which of the following wiring cables is most suitable for shipboard installations?

- a. Flat cable assembly
- b. Shielded non-metallic sheathed cable
- c. Metal clad cable
- d. Armored cable**

172. All exposed incandescent lamps in dressing rooms, where less than ___ from the floor, shall be equipped with open end guards riveted to the outlet or otherwise locked in place.

- a. 2,500 mm
- b. 2,400 mm
- c. 3,000 mm
- d. 2,800 mm

172. All exposed incandescent lamps in dressing rooms, where less than ___ from the floor, shall be equipped with open end guards riveted to the outlet or otherwise locked in place.

- a. 2,500 mm
- b. 2,400 mm**
- c. 3,000 mm
- d. 2,800 mm

173. Specifications written on the plans or submitted on separate standard size sheets shall show:

- a. Types or wiring, i.e service entrance, branch circuits, feeders, etc
- b. Nature of electrical service, i.e. no. of phase, voltage, frequency, etc.
- c. Special equipment to be installed indicating rating
- d. All of these

173. Specifications written on the plans or submitted on separate standard size sheets shall show:

- a. Types or wiring, i.e service entrance, branch circuits, feeders, etc
- b. Nature of electrical service, i.e. no. of phase, voltage, frequency, etc.
- c. Special equipment to be installed indicating rating
- d. All of these

174. The underground service conductors between the street main, including any risers at pole or other structure or from transformers and the first point of connection to the service entrance conductors.

- a. Service drop
- b. Service cable
- c. Service lateral
- d. Service neck

174. The underground service conductors between the street main, including any risers at pole or other structure or from transformers and the first point of connection to the service entrance conductors.

- a. Service drop
- b. Service cable
- c. Service lateral**
- d. Service neck

175. What is the maximum allowable voltage drop from the main circuit breaker to the farthest lamp load?

- a. 10%
- b. 5%
- c. 2%
- d. 3%

175. What is the maximum allowable voltage drop from the main circuit breaker to the farthest lamp load?

- a. 10%
- b. 5%**
- c. 2%
- d. 3%

176. For 101 A to 200 A circuits, the minimum insulation required shall be ____.

- a. 50,000 ohms
- b. 100,000 ohms
- c. 250,000 ohms
- d. 75,000 ohms

176. For 101 A to 200 A circuits, the minimum insulation required shall be ____.

- a. 50,000 ohms
- b. 100,000 ohms
- c. 250,000 ohms
- d. 75,000 ohms

177. For direct current motors, the multiplying factor to be used in selecting the size of overcurrent device an inverse time CB shall be ____ of its full load current.

- a. 125%
- b. 150%
- c. 175%
- d. 200%

177. For direct current motors, the multiplying factor to be used in selecting the size of overcurrent device an inverse time CB shall be ____ of its full load current.

- a. 125%
- b. 150%**
- c. 175%
- d. 200%

178. Flexible cords and cables shall be used for the following applications, EXCEPT:

- a. Elevator wirings
- b. Pendants
- c. Fixed wirings
- d. Wiring of fixtures

178. Flexible cords and cables shall be used for the following applications, EXCEPT:

- a. Elevator wirings
- b. Pendants
- c. Fixed wirings
- d. Wiring of fixtures

179. A branch circuit that supplies only one utilization equipment.

- a. Individual branch circuit
- b. Special purpose branch circuit
- c. Appliance branch circuit
- d. Single branch circuit

179. A branch circuit that supplies only one utilization equipment.

- a. Individual branch circuit
- b. Special purpose branch circuit
- c. Appliance branch circuit
- d. Single branch circuit

180. In halls, corridors, closets and stairways of any occupancy EXCEPT one family dwelling unit, a general lighting load of ____ shall be considered.

- a. 2 VA/m²
- b. 3 VA/m²
- c. 4 VA/m²
- d. 5 VA/m²

180. In halls, corridors, closets and stairways of any occupancy EXCEPT one family dwelling unit, a general lighting load of ____ shall be considered.

- a. 2 VA/m²
- b. 3 VA/m²
- c. 4 VA/m²
- d. 5 VA/m²

181. In starting a large DC motor, a starter is primarily used in order to:

- a. Save electrical power
- b. Limit the starting current
- c. Add more power
- d. Reduce the voltage drop

181. In starting a large DC motor, a starter is primarily used in order to:

- a. Save electrical power
- b. Limit the starting current**
- c. Add more power
- d. Reduce the voltage drop

182. The rating of any cord and plug connected utilization equipment shall NOT exceed ___ of the branch circuit rating.

- a. 100%
- b. 80%
- c. 125%
- d. 90%

182. The rating of any cord and plug connected utilization equipment shall NOT exceed ___ of the branch circuit rating.

- a. 100%
- b. 80%**
- c. 125%
- d. 90%

183. Which of the following is NOT a standard kVA rating of a single-phase transformer?

- a. 175 kVA
- b. 150 kVA
- c. 167 kVA
- d. 100 kVA

183. Which of the following is NOT a standard kVA rating of a single-phase transformer?

- a. 175 kVA
- b. 150 kVA
- c. 167 kVA
- d. 100 kVA

184. The frequency of the output voltage of an AC generator depends on which of the following?

- a. Excitation circuit
- b. Load
- c. Power factor
- d. Speed

184. The frequency of the output voltage of an AC generator depends on which of the following?

- a. Excitation circuit
- b. Load
- c. Power factor
- d. Speed**

185. An appliance which is fixed in one place to another in normal use.

- a. Fixed appliance
- b. Stationary appliance
- c. Portable appliance
- d. None of these

185. An appliance which is fixed in one place to another in normal use.

- a. Fixed appliance
- b. Stationary appliance**
- c. Portable appliance
- d. None of these

186. Busways shall NOT be installed in the following EXCEPT:

- a. Where there are corrosive fumes
- b. Where they are located in the open and are visible
- c. Where they are subject severe physical damage
- d. Where they are in damp locations

186. Busways shall NOT be installed in the following EXCEPT:

- a. Where there are corrosive fumes
- b. Where they are located in the open and are visible**
- c. Where they are subject severe physical damage
- d. Where they are in damp locations

187. Hazardous locations in which easily ignitable fibers are stored and handled.

- a. Class III, Division 2
- b. Class III, Division 1
- c. Class II, Division 2
- d. Class II, Division 1

187. Hazardous locations in which easily ignitable fibers are stored and handled.

- a. **Class III, Division 2**
- b. Class III, Division 1
- c. Class II, Division 2
- d. Class II, Division 1

188. If there are no overcurrent protective device rated 30 A or less with neutral connection, this panelboard is classified as a ____.

- a. Lighting panelboard
- b. Appliance panelboard
- c. Power panelboard
- d. Back-up panelboard

188. If there are no overcurrent protective device rated 30 A or less with neutral connection, this panelboard is classified as a ____.

- a. Lighting panelboard
- b. Appliance panelboard
- c. Power panelboard**
- d. Back-up panelboard

189. The maximum load consumed or produced by a unit or group of units in a stated period of time.

- a. Peak load
- b. Average load
- c. Connected load
- d. Continuous load

189. The maximum load consumed or produced by a unit or group of units in a stated period of time.

a. **Peak load**

b. Average load

c. Connected load

d. Continuous load

190. In commercial garages, repair and storage areas, the entire area up to a level of ___ above the floor shall be considered to be Class I, Division 2 hazardous location.

- a. 400 mm
- b. 500 mm
- c. 460 mm
- d. 450 mm

190. In commercial garages, repair and storage areas, the entire area up to a level of ___ above the floor shall be considered to be Class I, Division 2 hazardous location.

- a. 400 mm
- b. 500 mm
- c. 460 mm
- d. 450 mm

191. In this new Electrical Engineering Law, what is the official designation of “Master Electrician”?

- a. Master Electrician
- b. Registered Electrician
- c. Licensed Electrician
- d. Registered Master Electrician

191. In this new Electrical Engineering Law, what is the official designation of “Master Electrician”?

- a. Master Electrician
- b. Registered Electrician
- c. Licensed Electrician
- d. **Registered Master Electrician**

192. A transformer of the multiple winding type the primary and secondary winding physically separated which inductively couples its secondary winding to the grounded feeder system that energize its primary winding.

- a. Distribution transformer
- b. Grounding transformer
- c. Instrument transformer
- d. Isolation transformer

192. A transformer of the multiple winding type the primary and secondary winding physically separated which inductively couples its secondary winding to the grounded feeder system that energize its primary winding.

- a. Distribution transformer
- b. Grounding transformer
- c. Instrument transformer
- d. Isolation transformer**

193. In judging the suitability of an electrical equipment for proper mounting, the following factors should be considered, one of which is the LEAST important. Which one is this?

- a. Type of enclosure
- b. Wire bending space
- c. Electrical insulation
- d. Mechanical strength

193. In judging the suitability of an electrical equipment for proper mounting, the following factors should be considered, one of which is the LEAST important. Which one is this?

- a. Type of enclosure
- b. Wire bending space
- c. Electrical insulation**
- d. Mechanical strength

194. Thermal barrier shall be required if the space between the resistors and reactors and any combustible material is less than:

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

194. Thermal barrier shall be required if the space between the resistors and reactors and any combustible material is less than:

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

195. The allowable ampacities of conductors rated from 0 to 2,000 V, 60°C to 90°C and not more than three of them in raceway, cable or earth is based on an ambient temperature of:

- a. 35°C
- b. 40°C
- c. 25°C
- d. 30°C

195. The allowable ampacities of conductors rated from 0 to 2,000 V, 60°C to 90°C and not more than three of them in raceway, cable or earth is based on an ambient temperature of:

- a. 35°C
- b. 40°C
- c. 25°C
- d. 30°C

196. According to the Code the minimum insulation level for neutral conductor of residential installation which have solidly grounded system shall be ____.

- a. 300 V
- b. 600 V
- c. 750 V
- d. 1,000 V

196. According to the Code the minimum insulation level for neutral conductor of residential installation which have solidly grounded system shall be ____.

a. 300 V

b. 600 V

c. 750 V

d. 1,000 V

197. The ampacity of conductors that connect a capacitor to the terminals of a motor circuit conductors shall not be less than ____ the ampacity of the motor circuit conductors and in no case less than 135% of the rated capacitor current.

- a. $1/3$
- b. $1/4$
- c. $1/2$
- d. $1/5$

197. The ampacity of conductors that connect a capacitor to the terminals of a motor circuit conductors shall not be less than ____ the ampacity of the motor circuit conductors and in no case less than 135% of the rated capacitor current.

a. $1/3$

b. $1/4$

c. $1/2$

d. $1/5$

198. Conductors passing over roof surface, a vertical clearance of ____ shall be maintained.

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

198. Conductors passing over roof surface, a vertical clearance of ____ shall be maintained.

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

199. The point of connection between the facilities of the serving utility and the premises wiring.

- a. Load center
- b. Service head
- c. Junction box
- d. Service point

199. The point of connection between the facilities of the serving utility and the premises wiring.

- a. Load center
- b. Service head
- c. Junction box
- d. Service point**

200. The current in amperes a conductor can carry continuously under the conditions of use without exceeding its temperature rating.

- a. Ampacity
- b. Capacitvity
- c. Rating
- d. Amperage

200. The current in amperes a conductor can carry continuously under the conditions of use without exceeding its temperature rating.

- a. Ampacity
- b. Capacitvity
- c. Rating
- d. Amperage

201. Defined as the shortest distance measured between a point on the top surface of any direct buried conductor, cable, conduit and the top surface of finish grade.

- a. Trench
- b. Cover
- c. Tray
- d. Duct

201. Defined as the shortest distance measured between a point on the top surface of any direct buried conductor, cable, conduit and the top surface of finish grade.

a. Trench

b. Cover

c. Tray

d. Duct

202. Surface metal raceway should not be allowed in the following locations, except:

- a. Where it is subject to corrosive vapors
- b. Where location is dry and ventilated
- c. Where the voltage is over 300 volts
- d. Where subject to severe physical damage

202. Surface metal raceway should not be allowed in the following locations, except:

- a. Where it is subject to corrosive vapors
- b. Where location is dry and ventilated**
- c. Where the voltage is over 300 volts
- d. Where subject to severe physical damage

203. For all single phase motors, to protect them from short circuits and ground faults, a multiplying factor of ____ of its full load current rating shall be used the protective device selected is a non-time delay fuse and ____ if the protective device is a time delay fuse.

- a. 300% , 175%
- b. 300% , 150%
- c. 250% , 175%
- d. 250% , 150%

203. For all single phase motors, to protect them from short circuits and ground faults, a multiplying factor of ____ of its full load current rating shall be used the protective device selected is a non-time delay fuse and ____ if the protective device is a time delay fuse.

- a. 300% , 175%
- b. 300% , 150%
- c. 250% , 175%
- d. 250% , 150%

204. A factory assembly of parallel conductors formed integrally with an insulating material web specifically designed for field installation in metal surface raceway.

- a. Type FC (Flat Cable Assemblies)
- b. Type MI (Mineral Insulated Cable)
- c. Type TC (Power & Cable Tray Cable)
- d. Type FCC (Flat Conductor Cable)

204. A factory assembly of parallel conductors formed integrally with an insulating material web specifically designed for field installation in metal surface raceway.

- a. **Type FC (Flat Cable Assemblies)**
- b. Type MI (Mineral Insulated Cable)
- c. Type TC (Power & Cable Tray Cable)
- d. Type FCC (Flat Conductor Cable)

205. Surface mounted incandescent fixture shall be permitted to be installed in clothes closets provided there is a minimum clearance of ____ between the fixture and the nearest point of the storage area.

- a. 150 mm
- b. 200 mm
- c. 250 mm
- d. 300 mm

205. Surface mounted incandescent fixture shall be permitted to be installed in clothes closets provided there is a minimum clearance of ____ between the fixture and the nearest point of the storage area.

- a. 150 mm
- b. 200 mm
- c. 250 mm
- d. 300 mm

206. Snap switches shall not be grouped or ganged in enclosures unless they can be so arranged that the voltage between adjacent switches does not exceed ____.

- a. 250 V
- b. 300 V
- c. 150 V
- d. 100 V

206. Snap switches shall not be grouped or ganged in enclosures unless they can be so arranged that the voltage between adjacent switches does not exceed ____.

- a. 250 V
- b. 300 V**
- c. 150 V
- d. 100 V

207. Where passing through wood cross members in plastered partitions, conductors in concealed knob and tube wiring shall be protected by insulating tubes extending NOT less than _____ beyond the wood member.

- a. 80 mm
- b. 70 mm
- c. 76 mm
- d. 64 mm

207. Where passing through wood cross members in plastered partitions, conductors in concealed knob and tube wiring shall be protected by insulating tubes extending NOT less than _____ beyond the wood member.

- a. 80 mm
- b. 70 mm
- c. 76 mm
- d. 64 mm

208. A type of cable which is a single or multi-conductor solid dielectric insulated cable rated 2001 V or higher.

- a. MC (Metal Clad Cable)
- b. MV (Medium Voltage)
- c. FCC (Flat Conductor Cable)
- d. AC (Armored Cable)

208. A type of cable which is a single or multi-conductor solid dielectric insulated cable rated 2001 V or higher.

- a. MC (Metal Clad Cable)
- b. MV (Medium Voltage)**
- c. FCC (Flat Conductor Cable)
- d. AC (Armored Cable)

209. Each unit length of heating cable shall have a permanent legible marking of each non-heating lead located within ____ of the terminal end.

- a. 75 mm
- b. 70 mm
- c. 80 mm
- d. 85 mm

209. Each unit length of heating cable shall have a permanent legible marking of each non-heating lead located within ____ of the terminal end.

- a. 75 mm
- b. 70 mm
- c. 80 mm
- d. 85 mm

210. Heavy-duty lighting track is a lighting track identified for use exceeding ____.

- a. 15 A
- b. 20 A
- c. 30 A
- d. 10 A

210. Heavy-duty lighting track is a lighting track identified for use exceeding ____.

a. 15 A

b. 20 A

c. 30 A

d. 10 A

211. Thermal insulation shall not be installed within ____ of the recessed fixture enclosure.

- a. 40 mm
- b. 35 mm
- c. 38 mm
- d. 42 mm

211. Thermal insulation shall not be installed within ____ of the recessed fixture enclosure.

- a. 40 mm
- b. 35 mm
- c. 38 mm
- d. 42 mm

212. Branch circuit conductors supplying a single motor shall have an ampacity NOT less than ____ of the motor full load current rating.

- a. 115%
- b. 120%
- c. 125%
- d. 130%

212. Branch circuit conductors supplying a single motor shall have an ampacity NOT less than ____ of the motor full load current rating.

- a. 115%
- b. 120%
- c. 125%
- d. 130%

213. An exposed or enclosed upright panel carrying switches and other protective, controlling and measuring devices for electric machinery or equipment.

- a. Switchgear
- b. Panelboard
- c. Switchboard
- d. Switchbox

213. An exposed or enclosed upright panel carrying switches and other protective, controlling and measuring devices for electric machinery or equipment.

- a. Switchgear
- b. Panelboard
- c. Switchboard**
- d. Switchbox

214. This type of loads will NOT require Electrical Permits not Certificate of Inspection. Which type is this?

- a. Fixed water heater
- b. Fixed electric range
- c. Window type room air conditioners
- d. Portable appliances rated not more than 1,200 VA

214. This type of loads will NOT require Electrical Permits not Certificate of Inspection. Which type is this?

- a. Fixed water heater
- b. Fixed electric range
- c. Window type room air conditioners
- d. Portable appliances rated not more than 1,200 VA**

215. Lighting track load shall NOT be installed where less than ___ above the finished floor EXCEPT where protected from physical damage.

- a. 1,800 mm
- b. 1,500 mm
- c. 2,000 mm
- d. 1,000 mm

215. Lighting track load shall NOT be installed where less than ___ above the finished floor EXCEPT where protected from physical damage.

- a. 1,800 mm
- b. 1,500 mm**
- c. 2,000 mm
- d. 1,000 mm

216. In indoor wet locations, the entire wiring system including all boxes, fittings, control boards and panelboards shall be installed on walls with a minimum clearance. What is this clearance?

- a. 10 mm
- b. 5 mm
- c. 20 mm
- d. 15 mm

216. In indoor wet locations, the entire wiring system including all boxes, fittings, control boards and panelboards shall be installed on walls with a minimum clearance. What is this clearance?

- a. 10 mm
- b. 5 mm
- c. 20 mm
- d. 15 mm

217. Where circuit breakers are used to protect the primary side of a transformer over 600 V nominal their continuous current rating shall NOT exceed ____ of the rated primary current.

- a. 250%
- b. 300%
- c. 125%
- d. 200%

217. Where circuit breakers are used to protect the primary side of a transformer over 600 V nominal their continuous current rating shall NOT exceed ____ of the rated primary current.

- a. 250%
- b. 300%**
- c. 125%
- d. 200%

218. The primary winding of a step down transformer shall be protected on the primary side by an overcurrent device rated NOT more than a certain percentage of the primary currents, Which is this percentage?

- a. 110%
- b. 125%
- c. 80%
- d. 150%

218. The primary winding of a step down transformer shall be protected on the primary side by an overcurrent device rated NOT more than a certain percentage of the primary currents, Which is this percentage?

- a. 110%
- b. 125%**
- c. 80%
- d. 150%

219. For a two wire FCC (Flat Conductor Cable) system with grounding, the grounding conductor shall be ____ conductor.

- a. The middle
- b. The rightmost
- c. The leftmost
- d. Any

219. For a two wire FCC (Flat Conductor Cable) system with grounding, the grounding conductor shall be ____ conductor.

- a. The middle
- b. The rightmost
- c. The leftmost
- d. Any

220. To cut rigid metal conduits, an electrician should do one of the following. Which one is this?

- a. Order it cut to size from the supplier
- b. Use a three-wheel pipe cutter
- c. Use a cold chisel and ream the ends
- d. Use a hack saw and ream the ends

220. To cut rigid metal conduits, an electrician should do one of the following. Which one is this?

- a. Order it cut to size from the supplier
- b. Use a three-wheel pipe cutter
- c. Use a cold chisel and ream the ends
- d. Use a hack saw and ream the ends**

221. Type NM (Non-Metallic Sheathed) cable shall NOT be installed ____.

- a. Where exposed to corrosive material
- b. Where embedded in concrete
- c. In a shallow chase in masonry, concrete or adobe
- d. All of these

221. Type NM (Non-Metallic Sheathed) cable shall NOT be installed ____.

- a. Where exposed to corrosive material
- b. Where embedded in concrete
- c. In a shallow chase in masonry, concrete or adobe
- d. All of these**

222. Dry type transformers installed indoors and rated 112.5 kVA or less shall a separation of at least ____ from combustible material.

- a. 500 mm
- b. 400 mm
- c. 300 mm
- d. 200 mm

222. Dry type transformers installed indoors and rated 112.5 kVA or less shall a separation of at least ____ from combustible material.

- a. 500 mm
- b. 400 mm
- c. 300 mm
- d. 200 mm

223. A factory assembly of two or more insulated conductors in an extruded core of moisture resistant, flame retardant non-metallic material covered with an overlapping spiral metal tape and wire shield and jacketed with an extruded moisture, flame, oil, corrosion, fungus and sunlight resistance non-metallic material.

- a. Type SNM (Shielded Non-Metallic Sheathed) cable
- b. Type NM (Non-Metallic Sheathed) cable
- c. Type SE (Service Entrance) cable
- d. Type AC (Armored Cable) cable

223. A factory assembly of two or more insulated conductors in an extruded core of moisture resistant, flame retardant non-metallic material covered with an overlapping spiral metal tape and wire shield and jacketed with an extruded moisture, flame, oil, corrosion, fungus and sunlight resistance non-metallic material.

- a. **Type SNM (Shielded Non-Metallic Sheathed) cable**
- b. Type NM (Non-Metallic Sheathed) cable
- c. Type SE (Service Entrance) cable
- d. Type AC (Armored Cable) cable

224. Where the overload relay selected using the factor 125% is not sufficient to start the motor or to carry the load, the multiplying factor shall be increased but shall be increased but shall Not exceed ____.

- a. 130%
- b. 140%
- c. 150%
- d. 125%

224. Where the overload relay selected using the factor 125% is not sufficient to start the motor or to carry the load, the multiplying factor shall be increased but shall be increased but shall Not exceed ____.

- a. 130%
- b. 140%**
- c. 150%
- d. 125%

225. An insulator designed to electrically insulate the end of a type FCC (Flat Conductor Cable).

- a. Spool insulator
- b. Bonding insulator
- c. Insulating end
- d. Cable connector

225. An insulator designed to electrically insulate the end of a type FCC (Flat Conductor Cable).

- a. Spool insulator
- b. Bonding insulator
- c. **Insulating end**
- d. Cable connector

226. IMC (Intermediate Metal Conduit) shall be firmly fastened within ___ of each outlet box, junction box, cabinet or fitting.

- a. 750 mm
- b. 1,000 mm
- c. 800 mm
- d. 900 mm

226. IMC (Intermediate Metal Conduit) shall be firmly fastened within ___ of each outlet box, junction box, cabinet or fitting.

- a. 750 mm
- b. 1,000 mm
- c. 800 mm
- d. 900 mm

227. Consists of 3 or more flat copper conductor placed edge to edge separated and enclosed within an insulating assembly.

- a. Armored Cable (AC)
- b. Flat Cable Assemblies (FC)
- c. Sheathed Cable (NM)
- d. Flat Conductor Cable (FCC)

227. Consists of 3 or more flat copper conductor placed edge to edge separated and enclosed within an insulating assembly.

- a. Armored Cable (AC)
- b. Flat Cable Assemblies (FC)
- c. Sheathed Cable (NM)
- d. Flat Conductor Cable (FCC)**

228. Lampholders installed in wet or damp locations shall be of the _____ type.

- a. Heavy-duty
- b. Waterproof
- c. Weatherproof
- d. All of these

228. Lampholders installed in wet or damp locations shall be of the _____ type.

- a. Heavy-duty
- b. Waterproof
- c. **Weatherproof**
- d. All of these

229. An assembly of two insulated conductors within a non-metallic jacket or an extruded thermoplastic covering.

- a. Shielded non-metallic sheathed cable (SNM)
- b. Non-metallic sheathed cable (NM)
- c. Non-metallic extension
- d. None of these

229. An assembly of two insulated conductors within a non-metallic jacket or an extruded thermoplastic covering.

- a. Shielded non-metallic sheathed cable (SNM)
- b. Non-metallic sheathed cable (NM)
- c. Non-metallic extension**
- d. None of these

230. As compared with solid wires, stranded wires of the same cross sectional area have the following advantage EXCEPT one. Which one is this?

- a. It is larger in overall diameter.
- b. It is easier to skin off the insulation.
- c. It is better for high voltage.
- d. It has a higher current rating.

230. As compared with solid wires, stranded wires of the same cross sectional area have the following advantage EXCEPT one. Which one is this?

- a. It is larger in overall diameter.
- b. It is easier to skin off the insulation.**
- c. It is better for high voltage.
- d. It has a higher current rating.

231. The single phase conductors supplying the phase converter shall have an ampacity NOT less than ___ times the full load current rating of the motor or load being served.

- a. 2.50
- b. 1.25
- c. 2.16
- d. 1.75

231. The single phase conductors supplying the phase converter shall have an ampacity NOT less than ___ times the full load current rating of the motor or load being served.

- a. 2.50
- b. 1.25
- c. 2.16
- d. 1.75

232. Dry type transformer rated over _____ shall be installed in vaults.

- a. 25,000 V
- b. 10,000 V
- c. 35,000 V
- d. 50,000 V

232. Dry type transformer rated over _____ shall be installed in vaults.

- a. 25,000 V
- b. 10,000 V
- c. 35,000 V
- d. 50,000 V

233. In walls or ceilings of concrete, tile, or other non-combustible materials, boxes and fittings shall be installed that the front edge of the box or fitting will NOT set back of the finished surface more than ____.

- a. 5.0 mm
- b. 6.4 mm
- c. 6.2 mm
- d. 7.6 mm

233. In walls or ceilings of concrete, tile, or other non-combustible materials, boxes and fittings shall be installed that the front edge of the box or fitting will NOT set back of the finished surface more than ____.

- a. 5.0 mm
- b. 6.4 mm**
- c. 6.2 mm
- d. 7.6 mm

234. Wiring located above heated ceilings shall be spaced not less than ____ above the heated ceiling and shall be considered as operating at an ambient of 50°C.

- a. 100 mm
- b. 50 mm
- c. 75 mm
- d. 40 mm

234. Wiring located above heated ceilings shall be spaced not less than ____ above the heated ceiling and shall be considered as operating at an ambient of 50°C.

- a. 100 mm
- b. 50 mm**
- c. 75 mm
- d. 40 mm

235. In selecting the maximum setting of an instantaneous trip CB to be used to protect all AC motors from short circuit, a multiplying factor of ____ shall be used.

- a. 250%
- b. 300%
- c. 150%
- d. 700%

235. In selecting the maximum setting of an instantaneous trip CB to be used to protect all AC motors from short circuit, a multiplying factor of ____ shall be used.

- a. 250%
- b. 300%
- c. 150%
- d. 700%

236. Are rectangular sheet metal enclosures equipped with removable covers providing access to conductors inside.

- a. Metal clad cable
- b. Multiple cable conductors
- c. Busways
- d. Wireways

236. Are rectangular sheet metal enclosures equipped with removable covers providing access to conductors inside.

- a. Metal clad cable
- b. Multiple cable conductors
- c. Busways
- d. Wireways

237. A branch circuit supplying a fixed storage type water heater having a capacity of 450 Li or less shall have a rating not less than ____ of the nameplate rating of the water heater.

- a. 100%
- b. 115%
- c. 120%
- d. 125%

237. A branch circuit supplying a fixed storage type water heater having a capacity of 450 Li or less shall have a rating not less than ____ of the nameplate rating of the water heater.

- a. 100%
- b. 115%
- c. 120%
- d. 125%

238. For three-phase motors supplied by any 3-phase system, the number of overload units required shall be ____.

- a. Three, one in each phase
- b. Two, in any two of each phase
- c. One, in any one phase
- d. None of these

238. For three-phase motors supplied by any 3-phase system, the number of overload units required shall be ____.

- a. **Three, one in each phase**
- b. Two, in any two of each phase
- c. One, in any one phase
- d. None of these

239. What is the maximum number of overcurrent devices of a lighting and appliance panel board that shall be installed in a cabinet?

- a. 36 devices
- b. 24 devices
- c. 48 devices
- d. 52 devices

239. What is the maximum number of overcurrent devices of a lighting and appliance panel board that shall be installed in a cabinet?

- a. 36 devices
- b. 24 devices
- c. 48 devices**
- d. 52 devices

240. Each length of the rigid metal conduit shall be clearly and durably identified in every ____ as required.

- a. 3,000 mm
- b. 2,000 mm
- c. 4,000 mm
- d. 1,000 mm

240. Each length of the rigid metal conduit shall be clearly and durably identified in every ____ as required.

- a. 3,000 mm
- b. 2,000 mm
- c. 4,000 mm
- d. 1,000 mm

241. Flexible metal conduit shall be supported within ___ on each side of every outlet box, junction box, cabinet or fitting.

- a. 300 mm
- b. 200 mm
- c. 460 mm
- d. 150 mm

241. Flexible metal conduit shall be supported within ___ on each side of every outlet box, junction box, cabinet or fitting.

- a. 300 mm
- b. 200 mm
- c. 460 mm
- d. 150 mm

242. The maximum electrical trade size of electrical metallic tubing shall be ____.

- a. 125 mm
- b. 150 mm
- c. 100 mm
- d. 200 mm

242. The maximum electrical trade size of electrical metallic tubing shall be ____.

- a. 125 mm
- b. 150 mm
- c. 100 mm
- d. 200 mm

243. For installations of 2.0 mm² conductors in 600 V circuits. What is the minimum insulation resistance allowed by PEC?

- a. 1,000,000 ohms
- b. 750,000 ohms
- c. 250,000 ohms
- d. 500,000 ohms

243. For installations of 2.0 mm² conductors in 600 V circuits. What is the minimum insulation resistance allowed by PEC?

- a. 1,000,000 ohms
- b. 750,000 ohms
- c. 250,000 ohms
- d. 500,000 ohms**

244. Resistance type heating elements in electric space heating equipment shall be protected at NOT more than ____.

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

244. Resistance type heating elements in electric space heating equipment shall be protected at NOT more than ____.

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

245. What is the smallest electrical trade size of a liquidtight flexible non-metallic conduit?

- a. 15 mm
- b. 12 mm
- c. 20 mm
- d. 25 mm

245. What is the smallest electrical trade size of a liquidtight flexible non-metallic conduit?

- a. 15 mm
- b. 12 mm
- c. 20 mm
- d. 25 mm

246. Askarel insulated transformers installed indoors and rated over ____ shall be furnished with a pressure relief vent.

- a. 37.5 kVA
- b. 25 kVA
- c. 50 kVA
- d. 15 kVA

246. Askarel insulated transformers installed indoors and rated over ____ shall be furnished with a pressure relief vent.

- a. 37.5 kVA
- b. 25 kVA**
- c. 50 kVA
- d. 15 kVA

247. The following are types of protection for single phase induction motors, EXCEPT:

- a. Overload protection
- b. Ground fault protection
- c. Under voltage protection
- d. Single phasing protection

247. The following are types of protection for single phase induction motors, EXCEPT:

- a. Overload protection
- b. Ground fault protection
- c. Under voltage protection
- d. Single phasing protection

248. Busways shall be securely supported at intervals NOT exceeding ___ unless otherwise designed and marked.

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

248. Busways shall be securely supported at intervals NOT exceeding ___ unless otherwise designed and marked.

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

249. In straight pulls, the length of the pull box shall NOT be less than ___ times the trade diameter of the largest raceway.

- a. 8
- b. 6
- c. 10
- d. 5

249. In straight pulls, the length of the pull box shall NOT be less than ___ times the trade diameter of the largest raceway.

- a. 8
- b. 6
- c. 10
- d. 5

250. Boxes intended to enclose flush devices shall have an internal depth of NOT less than ____.

- a. 24 mm
- b. 20 mm
- c. 16 mm
- d. 28 mm

250. Boxes intended to enclose flush devices shall have an internal depth of NOT less than ____.

- a. 24 mm
- b. 20 mm
- c. 16 mm
- d. 28 mm

251. An assembly drawing for a switchboard appears to have some errors. As a supervisor, what step will you take?

- a. Report the apparent error to your supervisor.
- b. Make the connections per drawing but be prepared to correct it if ordered.
- c. Hold the job until you have checked with the person who initialed the plans.
- d. Proceed making correction on the drawing.

251. An assembly drawing for a switchboard appears to have some errors. As a supervisor, what step will you take?

- a. Report the apparent error to your supervisor.
- b. Make the connections per drawing but be prepared to correct it if ordered.
- c. Hold the job until you have checked with the person who initialed the plans.
- d. Proceed making correction on the drawing.

252. Vertical clearances of all service drop conductors above roofs shall not be less than one of the following values.

- a. 2,000 mm
- b. 2,750 mm
- c. 3,000 mm
- d. 2,500 mm

252. Vertical clearances of all service drop conductors above roofs shall not be less than one of the following values.

- a. 2,000 mm
- b. 2,750 mm
- c. 3,000 mm
- d. 2,500 mm

253. In no case shall be the grounding conductor be smaller than ____ copper.

- a. 5.5 mm²
- b. 8.0 mm²
- c. 3.5 mm²
- d. 2.0 mm²

253. In no case shall be the grounding conductor be smaller than ____ copper.

- a. 5.5 mm²
- b. 8.0 mm²**
- c. 3.5 mm²
- d. 2.0 mm²

254. Hazardous location in which flammable gases or vapors are present in the air in quantities sufficient to produce explosives or ignitable mixtures.

- a. Class IV
- b. Class III
- c. Class II
- d. Class I

254. Hazardous location in which flammable gases or vapors are present in the air in quantities sufficient to produce explosives or ignitable mixtures.

- a. Class IV
- b. Class III
- c. Class II
- d. Class I

255. According to its make, conduits maybe classified as:

- a. Rigid metal
- b. Rigid non-metal
- c. Flexible metal
- d. All of these

255. According to its make, conduits maybe classified as:

- a. Rigid metal
- b. Rigid non-metal
- c. Flexible metal
- d. All of these**

256. The system neutral conductor shall NOT be connected to ground, EXCEPT through the neutral _____.

- a. Grounding impedance
- b. Grounding electrode
- c. Grounding transformer
- d. Derived from other system

256. The system neutral conductor shall NOT be connected to ground, EXCEPT through the neutral _____.

- a. Grounding impedance
- b. Grounding electrode
- c. Grounding transformer
- d. Derived from other system

257. In damp or wet locations, cabinets and cutout boxes of the surface type shall be mounted with at least ____ air space between the enclosure and the wall.

- a. 6.0 mm
- b. 6.4 mm
- c. 7.0 mm
- d. 7.5 mm

257. In damp or wet locations, cabinets and cutout boxes of the surface type shall be mounted with at least ____ air space between the enclosure and the wall.

- a. 6.0 mm
- b. 6.4 mm**
- c. 7.0 mm
- d. 7.5 mm

258. The minimum diameter of a solid air terminal under Class I material requirements shall be ____ for copper and ____ for aluminum.

- a. 9.5 mm, 12.7 mm
- b. 12.7 mm, 9.5 mm
- c. 8.0 mm, 12.5 mm
- d. 12.5 mm, 8.0 mm

258. The minimum diameter of a solid air terminal under Class I material requirements shall be ____ for copper and ____ for aluminum.

- a. 9.5 mm, 12.7 mm
- b. 12.7 mm, 9.5 mm
- c. 8.0 mm, 12.5 mm
- d. 12.5 mm, 8.0 mm

259. Circuits with a nominal voltage of 600 V or less in a rigid metal conduit or intermediate metal conduit and placed in a trench below a 50 mm thick concrete or equivalent shall maintain a minimum cover distance of ___.

- a. 150 mm
- b. 250 mm
- c. 460 mm
- d. 300 mm

259. Circuits with a nominal voltage of 600 V or less in a rigid metal conduit or intermediate metal conduit and placed in a trench below a 50 mm thick concrete or equivalent shall maintain a minimum cover distance of ___.

- a. 150 mm
- b. 250 mm
- c. 460 mm
- d. 300 mm

260. Where the distance requirement in making holes cannot be maintained, the cable or raceway shall be protected from penetration by screws or nails by a steel plate or bushings at least ___ thk and of approved length and with to cover the area of the wiring.

- a. 2.0 mm
- b. 1.5 mm
- c. 1.8 mm
- d. 1.6 mm

260. Where the distance requirement in making holes cannot be maintained, the cable or raceway shall be protected from penetration by screws or nails by a steel plate or bushings at least ___ thk and of approved length and with to cover the area of the wiring.

- a. 2.0 mm
- b. 1.5 mm
- c. 1.8 mm
- d. 1.6 mm

261. The PEC, Part 1 does not cover wiring of equipment installed within or to or from one of the following. Which one is this?

- a. Trailers
- b. Mobile Homes
- c. Water Crafts
- d. Airplanes

261. The PEC, Part 1 does not cover wiring of equipment installed within or to or from one of the following. Which one is this?

- a. Trailers
- b. Mobile Homes
- c. Water Crafts
- d. Airplanes

262. The lightning conductor or ground terminal shall extend vertically NOT less than ____ into the earth.

- a. 2,000 mm
- b. 3,000 mm
- c. 4,000 mm
- d. 2,500 mm

262. The lightning conductor or ground terminal shall extend vertically NOT less than ___ into the earth.

- a. 2,000 mm
- b. 3,000 mm**
- c. 4,000 mm
- d. 2,500 mm

263. Which of the following sizes of fuse **NOT** standard?

- a. 80 A
- b. 45 A
- c. 125 A
- d. 75 A

263. Which of the following sizes of fuse **NOT** standard?

- a. 80 A
- b. 45 A
- c. 125 A
- d. 75 A

264. The circuit supplying an autotransformer type dimmer shall NOT exceed ____ between conductors.

- a. 240 V
- b. 250 V
- c. 230 V
- d. 200 V

264. The circuit supplying an autotransformer type dimmer shall NOT exceed ____ between conductors.

- a. 240 V
- b. 250 V
- c. 230 V
- d. 200 V

265. A spark occurring between nearby metallic objects or from such objects to the lightning protection system or to ground.

- a. Flashover
- b. Sideflash
- c. Sparkover
- d. Discharge

265. A spark occurring between nearby metallic objects or from such objects to the lightning protection system or to ground.

- a. Flashover
- b. Sideflash**
- c. Sparkover
- d. Discharge

266. Covers for boxes shall be permanently marked. The marking shall be on the outside of the box using the block type letters at least ____ in height.

- a. 10 mm
- b. 12 mm
- c. 15 mm
- d. 20 mm

266. Covers for boxes shall be permanently marked. The marking shall be on the outside of the box using the block type letters at least ____ in height.

- a. 10 mm
- b. 12 mm**
- c. 15 mm
- d. 20 mm

267. The smallest electrical trade size of IMC:

- a. 15 mm
- b. 20 mm
- c. 12 mm
- d. 25 mm

267. The smallest electrical trade size of IMC:

- a. 15 mm
- b. 20 mm
- c. 12 mm
- d. 25 mm

268. When wiring a raceway at least a certain length of free conductors shall be left at each outlet. What is this minimum length?

- a. 75 mm
- b. 100 mm
- c. 150 mm
- d. 200 mm

268. When wiring a raceway at least a certain length of free conductors shall be left at each outlet. What is this minimum length?

- a. 75 mm
- b. 100 mm
- c. 150 mm
- d. 200 mm

269. Rigid Metal Conduit (RMC) shall be shipped in standard lengths of ____.

- a. 3,000 mm
- b. 6,000 mm
- c. 4,000 mm
- d. 5,000 mm

269. Rigid Metal Conduit (RMC) shall be shipped in standard lengths of ____.

- a. 3,000 mm
- b. 6,000 mm
- c. 4,000 mm
- d. 5,000 mm

270. Where a rigid metal conduit (RMC) is used, there shall NOT be more than the equivalent of _____ quarter bends between pull points.

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

270. Where a rigid metal conduit (RMC) is used, there shall NOT be more than the equivalent of _____ quarter bends between pull points.

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

271. If the setting of the overcurrent device in a circuit ahead of the equipment is 60 A, the minimum equipment grounding conductor using copper shall be ____.

- a. 5.5 mm² (#10 AWG)
- b. 3.5 mm² (#12 AWG)
- c. 2.0 mm² (#14 AWG)
- d. 8.0 mm² (#8 AWG)

271. If the setting of the overcurrent device in a circuit ahead of the equipment is 60 A, the minimum equipment grounding conductor using copper shall be ____.

- a. 5.5 mm² (#10 AWG)
- b. 3.5 mm² (#12 AWG)
- c. 2.0 mm² (#14 AWG)
- d. 8.0 mm² (#8 AWG)

272. An exposed wiring support system using a messenger wire to support insulated conductors.

- a. Metal Clad Cable wiring
- b. Concealed knob and tube wiring
- c. Messenger cable wiring
- d. Messenger supported wiring

272. An exposed wiring support system using a messenger wire to support insulated conductors.

- a. Metal Clad Cable wiring
- b. Concealed knob and tube wiring
- c. Messenger cable wiring
- d. Messenger supported wiring

273. Air terminal shall be within ____ of outermost projection of roof edge.

- a. 700 mm
- b. 760 mm
- c. 800 mm
- d. 600 mm

273. Air terminal shall be within ____ of outermost projection of roof edge.

- a. 700 mm
- b. 760 mm
- c. 800 mm
- d. 600 mm

274. Electrical equipment except X-ray tube inside anesthetizing room shall be located at least _____ above the floor.

- a. 2,000 mm
- b. 2,500 mm
- c. 2,400 mm
- d. 2,300 mm

274. Electrical equipment except X-ray tube inside anesthetizing room shall be located at least _____ above the floor.

- a. 2,000 mm
- b. 2,500 mm
- c. 2,400 mm
- d. 2,300 mm

275. In replacing a busted fuse which of the following is important?

- a. Same size and type
- b. Same size but different rating
- c. Same type but different rating
- d. Different size and type

275. In replacing a busted fuse which of the following is important?

- a. Same size and type
- b. Same size but different rating
- c. Same type but different rating
- d. Different size and type

276. Which of the following wires has 75-ohm impedance?

- a. Foam-filled twin lead
- b. Coaxial
- c. Flat twin lead
- d. None of these

276. Which of the following wires has 75-ohm impedance?

- a. Foam-filled twin lead
- b. Coaxial**
- c. Flat twin lead
- d. None of these

277. Exposed non-current carrying metal parts of fixed equipment likely to become energized shall be grounded under the following conditions. Which one is NOT included?

- a. Where located in wet or damp locations
- b. Where in electrical contact with wooden floor
- c. Where in a classified hazardous locations
- d. Where supplied with a metal raceway or other wiring methods

277. Exposed non-current carrying metal parts of fixed equipment likely to become energized shall be grounded under the following conditions. Which one is NOT included?

- a. Where located in wet or damp locations
- b. Where in electrical contact with wooden floor**
- c. Where in a classified hazardous locations
- d. Where supplied with a metal raceway or other wiring methods

278. In a battery room, it is important that no hot spots due to loose connections or sparking will occur, due to a serious event may happen. What can this be?

- a. An explosion might follow
- b. A short circuit shock may occur
- c. An electric shock can happen to an electrician
- d. The electrolyte might overheat

278. In a battery room, it is important that no hot spots due to loose connections or sparking will occur, due to a serious event may happen. What can this be?

- a. **An explosion might follow**
- b. A short circuit shock may occur
- c. An electric shock can happen to an electrician
- d. The electrolyte might overheat

279. For the purpose of lightning protection, Class I ordinary building is one that is at less than ___ in height.

- a. 20 m
- b. 22 m
- c. 24 m
- d. 23 m

279. For the purpose of lightning protection, Class I ordinary building is one that is at less than ___ in height.

a. 20 m

b. 22 m

c. 24 m

d. 23 m

280. For dwelling units, the demand factor for the first 3000 VA of load is:

- a. 95%
- b. 85%
- c. 100%
- d. 80%

280. For dwelling units, the demand factor for the first 3000 VA of load is:

- a. 95%
- b. 85%
- c. 100%
- d. 80%

281. The maximum electrical trade size of flexible metallic tubing shall be:

- a. 15 mm
- b. 20 mm
- c. 32 mm
- d. 100 mm

281. The maximum electrical trade size of flexible metallic tubing shall be:

- a. 15 mm
- b. 20 mm**
- c. 32 mm
- d. 100 mm

282. The entire area of the aircraft hangar, including any adjacent communication areas not suitably cut-off from the hangar shall be classified as hazardous up to a level of ____ above the floor.

- a. 400 mm
- b. 460 mm
- c. 500 mm
- d. 480 mm

282. The entire area of the aircraft hangar, including any adjacent communication areas not suitably cut-off from the hangar shall be classified as hazardous up to a level of ____ above the floor.

- a. 400 mm
- b. 460 mm**
- c. 500 mm
- d. 480 mm

283. In which method of starting a motor is the starting current a minimum?

- a. Star-delta
- b. Starter-rotor starter
- c. Direct on line
- d. autotransformer

283. In which method of starting a motor is the starting current a minimum?

- a. **Star-delta**
- b. Starter-rotor starter
- c. Direct on line
- d. autotransformer

284. Electrical non-metallic tubing shall be clearly and durably marked at least every:

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

284. Electrical non-metallic tubing shall be clearly and durably marked at least every:

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

285. In television studios, wiring for stage, set lighting, stage effects and other electric equipment which are fixed shall be done with approved flexible cables protected by circuit breakers. The approved rating is which one of the following?

- a. 30 A
- b. 40 A
- c. 20 A
- d. 10 A

285. In television studios, wiring for stage, set lighting, stage effects and other electric equipment which are fixed shall be done with approved flexible cables protected by circuit breakers. The approved rating is which one of the following?

- a. 30 A
- b. 40 A
- c. 20 A
- d. 10 A

286. Plug fuses and fuses holders shall NOT be installed or used in circuits exceeding __ between conductors.

- a. 200 V
- b. 250 V
- c. 230 V
- d. 150 V

286. Plug fuses and fuses holders shall NOT be installed or used in circuits exceeding __ between conductors.

- a. 200 V
- b. 250 V**
- c. 230 V
- d. 150 V

287. All switches and circuit breakers used as switches shall be so installed that the center of the grip of the operating handle when in its highest position shall NOT be more than ____ above the floor or working platform.

- a. 2,000 mm
- b. 1,800 mm
- c. 1,500 mm
- d. 2,100 mm

287. All switches and circuit breakers used as switches shall be so installed that the center of the grip of the operating handle when in its highest position shall NOT be more than ____ above the floor or working platform.

- a. 2,000 mm
- b. 1,800 mm
- c. 1,500 mm
- d. 2,100 mm

288. A convenience outlet circuit consisting of 8 outlets connected across a 220 V supply considering 180 W per outlet, what is the maximum circuit current?

- a. 4.56 A
- b. 6.54 A
- c. 8 A
- d. None of these

288. A convenience outlet circuit consisting of 8 outlets connected across a 220 V supply considering 180 W per outlet, what is the maximum circuit current?

a. 4.56 A

b. 6.54 A

c. 8 A

d. None of these

289. Open wiring on insulators shall be supported at intervals **NOT** longer than what distance?

- a. 1,300 mm
- b. 500 mm
- c. 2,000 mm
- d. 750 mm

289. Open wiring on insulators shall be supported at intervals **NOT** longer than what distance?

- a. 1,300 mm
- b. 500 mm
- c. 2,000 mm
- d. 750 mm

290. Electrical metallic tubing shall be securely fastened in place at least every ____.

- a. 2,000 mm
- b. 1,800 mm
- c. 3,000 mm
- d. 1,500 mm

290. Electrical metallic tubing shall be securely fastened in place at least every ____.

- a. 2,000 mm
- b. 1,800 mm
- c. 3,000 mm
- d. 1,500 mm

291. Direct burial cables or conductors with nominal voltage of 600 V or less and passes under streets, hi-ways, roads, alleys, driveways and parking lots shall have a minimum cover distance of ____.

- a. 500 mm
- b. 600 mm
- c. 460 mm
- d. 550 mm

291. Direct burial cables or conductors with nominal voltage of 600 V or less and passes under streets, hi-ways, roads, alleys, driveways and parking lots shall have a minimum cover distance of ____.

- a. 500 mm
- b. 600 mm**
- c. 460 mm
- d. 550 mm

292. The zone of protection of an overhead ground wire is conventionally taken as a :

- a. Cone
- b. Cylinder
- c. Triangular prism
- d. All of these

292. The zone of protection of an overhead ground wire is conventionally taken as a :

- a. Cone
- b. Cylinder
- c. Triangular prism
- d. All of these

293. Line and ground connecting conductors to surge arresters shall NOT be smaller than ____ copper or ____ aluminum.

- a. 2.0 mm² , 2.0 mm²
- b. 3.5 mm² , 2.0 mm²
- c. 3.5 mm² , 3.5 mm²
- d. 2.0 mm² , 3.5 mm²

293. Line and ground connecting conductors to surge arresters shall NOT be smaller than ____ copper or ____ aluminum.

- a. 2.0 mm² , 2.0 mm²
- b. 3.5 mm² , 2.0 mm²
- c. 3.5 mm² , 3.5 mm²
- d. 2.0 mm² , 3.5 mm²

294. Ventilating pipes for motors, generators or other rotating electric machinery or for enclosures for electric equipment shall be of metal NOT less than ___ in thickness.

- a. 0.50 mm
- b. 0.45 mm
- c. 0.40 mm
- d. 0.60 mm

294. Ventilating pipes for motors, generators or other rotating electric machinery or for enclosures for electric equipment shall be of metal NOT less than ___ in thickness.

- a. 0.50 mm
- b. 0.45 mm
- c. 0.40 mm
- d. 0.60 mm

295. The term given to an insulated stranded wire.

- a. Durability
- b. Cord
- c. Length
- d. Volume

295. The term given to an insulated stranded wire.

a. Durability

b. Cord

c. Length

d. Volume

296. The minimum spacing between bare metal parts of opposite polarity where mounted on the same surface shall be ____ for voltages rated not over 250 V nominal.

- a. 26 mm
- b. 32 mm
- c. 30 mm
- d. 28 mm

296. The minimum spacing between bare metal parts of opposite polarity where mounted on the same surface shall be ____ for voltages rated not over 250 V nominal.

- a. 26 mm
- b. 32 mm**
- c. 30 mm
- d. 28 mm

297. A protective device for limiting surge voltages by discharging or by passing surge current.

- a. Arrester
- b. Circuit breaker
- c. Lightning rod
- d. Thermocouple

297. A protective device for limiting surge voltages by discharging or by passing surge current.

a. Arrester

b. Circuit breaker

c. Lightning rod

d. Thermocouple

298. For office building, a general lighting load of _____ shall be used.

- a. 12 VA/m²
- b. 16 VA/m²
- c. 24 VA/m²
- d. 28 VA/m²

298. For office building, a general lighting load of _____ shall be used.

- a. 12 VA/m²
- b. 16 VA/m²
- c. 24 VA/m²
- d. 28 VA/m²

299. For straight pulls, the length of the pull box shall NOT be less than ___ times the outside diameter of the largest non-shielded conductor or cable.

- a. 42
- b. 48
- c. 32
- d. 30

299. For straight pulls, the length of the pull box shall NOT be less than ___ times the outside diameter of the largest non-shielded conductor or cable.

- a. 42
- b. 48
- c. 32
- d. 30

300. Liquid tight flexible non-metallic conduit shall NOT be used in lengths longer than:

- a. 1,500 mm
- b. 1,800 mm
- c. 2,000 mm
- d. 2,500 mm

300. Liquid tight flexible non-metallic conduit shall NOT be used in lengths longer than:

- a. 1,500 mm
- b. 1,800 mm**
- c. 2,000 mm
- d. 2,500 mm

301. A wiring method using knobs, tubes and flexible non-metallic tubing for the protection and support of single insulated conductors concealed in hollow spaces of walls and ceilings of buildings.

- a. Open wiring on insulators
- b. Open wiring with knobs, tubes, etc
- c. Concealed knob and tube wiring
- d. Knob and tube wiring

301. A wiring method using knobs, tubes and flexible non-metallic tubing for the protection and support of single insulated conductors concealed in hollow spaces of walls and ceilings of buildings.

- a. Open wiring on insulators
- b. Open wiring with knobs, tubes, etc
- c. **Concealed knob and tube wiring**
- d. Knob and tube wiring

302. The minimum number of branch circuits shall be determined from the ____.

- a. Total computed load and the size of disconnect needed
- b. Total computed load and the rating of the circuits used
- c. Size or rating of the circuits used
- d. Minimum number required by the PEC

302. The minimum number of branch circuits shall be determined from the ____.

a. Total computed load and the size of disconnect needed

b. Total computed load and the rating of the circuits used

c. Size or rating of the circuits used

d. Minimum number required by the PEC

303. The ampacity of the branch circuit conductors and the rating or setting of overcurrent protective devices supplying fixed electric space heating equipment consisting of resistance elements with or without a motor shall NOT be less than ____ of the total load of the motors and the heaters.

- a. 125%
- b. 130%
- c. 115%
- d. 120%

303. The ampacity of the branch circuit conductors and the rating or setting of overcurrent protective devices supplying fixed electric space heating equipment consisting of resistance elements with or without a motor shall NOT be less than ____ of the total load of the motors and the heaters.

- a. 125%
- b. 130%
- c. 115%
- d. 120%

304. The disconnecting means for motor circuits rated up to 600 V, shall have an ampere rating of at least ____ of the full load current of the motor.

- a. 200%
- b. 115%
- c. 150%
- d. 125%

304. The disconnecting means for motor circuits rated up to 600 V, shall have an ampere rating of at least ____ of the full load current of the motor.

- a. 200%
- b. 115%**
- c. 150%
- d. 125%

305. A device for transferring one or more load conductor connections from one power source to another.

- a. Disconnecting switch
- b. Master switch
- c. Isolating switch
- d. Transfer switch

305. A device for transferring one or more load conductor connections from one power source to another.

- a. Disconnecting switch
- b. Master switch
- c. Isolating switch
- d. Transfer switch**

306. Where rear access is required to work on de-energized parts on the back of enclosed equipment, a minimum working space of ____ horizontally shall be provided.

- a. 1,000 mm
- b. 900 mm
- c. 800 mm
- d. 600 mm

306. Where rear access is required to work on de-energized parts on the back of enclosed equipment, a minimum working space of ____ horizontally shall be provided.

- a. 1,000 mm
- b. 900 mm
- c. 800 mm
- d. 600 mm

307. A one family dwelling unit shall have a disconnecting means of at least ___ where the initial computed load is 10 kVA or more.

- a. 60 A
- b. 90 A
- c. 100 A
- d. 30 A

307. A one family dwelling unit shall have a disconnecting means of at least ___ where the initial computed load is 10 kVA or more.

- a. 60 A
- b. 90 A
- c. 100 A
- d. 30 A

308. Underground communications conductors in a raceway, handhole or manhole containing electric light and power conductors, shall be in a section ____ from such conductors by means of a separator (brick, concrete or tile) under Art 10.1.3.2(a).

- a. Combined
- b. Separated
- c. Included
- d. Inside

308. Underground communications conductors in a raceway, handhole or manhole containing electric light and power conductors, shall be in a section ____ from such conductors by means of a separator (brick, concrete or tile) under Art 10.1.3.2(a).

- a. Combined
- b. Separated**
- c. Included
- d. Inside

309. For a transformer and dc rectifier arc welder having a time rating of one hour, the supply conductors shall NOT be less than ____ of its rated primary nameplate current.

- a. 90%
- b. 80%
- c. 75%
- d. 85%

309. For a transformer and dc rectifier arc welder having a time rating of one hour, the supply conductors shall NOT be less than ____ of its rated primary nameplate current.

- a. 90%
- b. 80%
- c. 75%
- d. 85%

310. Refers to the power plant mounted on wheels as used in railroad transportation industry.

- a. Electric locomotive
- b. Electric train
- c. LRT
- d. None of these

310. Refers to the power plant mounted on wheels as used in railroad transportation industry.

a. **Electric locomotive**

b. Electric train

c. LRT

d. None of these

311. If the terminal of the equipment grounding conductor is not visible, the conductor entrance hole shall be marked with the word ____.

- a. Green
- b. White
- c. Gray
- d. Black

311. If the terminal of the equipment grounding conductor is not visible, the conductor entrance hole shall be marked with the word ____.

- a. Green
- b. White
- c. Gray
- d. Black

312. Power and control tray cables (type TC) maybe used under one of the following condition. Which one is this?

- a. Where exposed to physical damage
- b. Where installed as open cable on brackets
- c. Where installed in industrial establishment where a registered master electrician will service the installation
- d. Where direct buried underground

312. Power and control tray cables (type TC) maybe used under one of the following condition. Which one is this?

- a. Where exposed to physical damage
- b. Where installed as open cable on brackets
- c. Where installed in industrial establishment where a registered master electrician will service the installation**
- d. Where direct buried underground

313. Type NMC (Non-metallic Sheathed Cable) shall have an outer covering which has the following characteristics. Which one is NOT included?

- a. Flame retardant
- b. Moisture resistant
- c. Corrosion resistant
- d. None of these

313. Type NMC (Non-metallic Sheathed Cable) shall have an outer covering which has the following characteristics. Which one is NOT included?

- a. Flame retardant
- b. Moisture resistant
- c. Corrosion resistant
- d. None of these

314. Fixtures wires shall NOT be used:

- a. For installation in lighting fixtures
- b. For connecting lighting fixtures to the branch circuit conductors
- c. As branch circuit conductors
- d. None of these

314. Fixtures wires shall NOT be used:

- a. For installation in lighting fixtures
- b. For connecting lighting fixtures to the branch circuit conductors
- c. **As branch circuit conductors**
- d. None of these

315. Large batteries are those connected to a charging device with an output of more than ____.

- a. 1.0 kW
- b. 1.5 kW
- c. 2.0 kW
- d. 2.5 kW

315. Large batteries are those connected to a charging device with an output of more than ____.

- a. 1.0 kW
- b. 1.5 kW
- c. 2.0 kW
- d. 2.5 kW

316. Which component of a dc motor is used to control the speed?

- a. Carbon brush assembly
- b. Armature winding
- c. Commutator
- d. Field winding

316. Which component of a dc motor is used to control the speed?

- a. Carbon brush assembly
- b. Armature winding
- c. Commutator
- d. Field winding

317. Switches used in watercrafts, shall be capable of breaking and making safely a load current equal to ____ of their rated current at the rated voltage.

- a. 100%
- b. 130%
- c. 125%
- d. 150%

317. Switches used in watercrafts, shall be capable of breaking and making safely a load current equal to ____ of their rated current at the rated voltage.

- a. 100%
- b. 130%
- c. 125%
- d. 150%

318. A repulsion motor equipped with one of the following. Which one is this?

- a. A set of slip rings
- b. A commutator
- c. Both commutator and slip ring
- d. Neither a commutator nor a slip ring

318. A repulsion motor equipped with one of the following. Which one is this?

- a. A set of slip rings
- b. A commutator
- c. **Both commutator and slip ring**
- d. Neither a commutator nor a slip ring

319. Communication conductors shall have a vertical clearance of NOT less than ___ from all points of roof above, which they pass.

- a. 2,500 mm
- b. 2,000 mm
- c. 2,400 mm
- d. 2,200 mm

319. Communication conductors shall have a vertical clearance of NOT less than ___ from all points of roof above, which they pass.

- a. 2,500 mm
- b. 2,000 mm
- c. 2,400 mm
- d. 2,200 mm

320. A frequency meter is connected as a potential device, which is connected across the line because of one of the following reasons. Which one is this?

- a. A transformer maybe used for different voltages.
- b. The reading will be independent of the varying current.
- c. Only the voltage has frequency.
- d. It is safer than a series device.

320. A frequency meter is connected as a potential device, which is connected across the line because of one of the following reasons. Which one is this?

- a. A transformer maybe used for different voltages.
- b. The reading will be independent of the varying current.**
- c. Only the voltage has frequency.
- d. It is safer than a series device.

321. A luminous discharge due to ionization of the air surrounding a conductor caused by a voltage gradient exceeding a certain critical value.

- a. Corona
- b. Skin effect
- c. Johnson's effect
- d. Surge

321. A luminous discharge due to ionization of the air surrounding a conductor caused by a voltage gradient exceeding a certain critical value.

- a. Corona
- b. Skin effect
- c. Johnson's effect
- d. Surge

322. Which of the following is NOT one of the considerations that must be evaluated in judging equipments?

- a. Electrical insulation
- b. Arcing effects
- c. Wire bending and connection space
- d. Longevity

322. Which of the following is NOT one of the considerations that must be evaluated in judging equipments?

a. Electrical insulation

b. Arcing effects

c. Wire bending and connection space

d. Longevity

323. Branch circuit that supplies a number of outlets for lighting and appliances.

- a. Multi-purpose branch circuit
- b. Special branch circuit
- c. Individual branch circuit
- d. General purpose branch circuit

323. Branch circuit that supplies a number of outlets for lighting and appliances.

- a. Multi-purpose branch circuit
- b. Special branch circuit
- c. Individual branch circuit
- d. General purpose branch circuit

324. Receptacle and attachment plugs shall be permitted to be of lower ampere rating than the branch circuit but NOT less than ____ of the fixture full load current.

- a. 100%
- b. 125%
- c. 115%
- d. 130%

324. Receptacle and attachment plugs shall be permitted to be of lower ampere rating than the branch circuit but NOT less than ____ of the fixture full load current.

- a. 100%
- b. 125%**
- c. 115%
- d. 130%

325. Type FCC shall NOT be used in any of the following EXCEPT:

- a. Outdoors
- b. Indoors
- c. Wet locations
- d. Hazardous locations

325. Type FCC shall NOT be used in any of the following EXCEPT:

- a. Outdoors
- b. Indoors**
- c. Wet locations
- d. Hazardous locations

326. In each conduit run entering an enclosure for switches, circuit breakers, relays and others that may produce high temperatures, seals on the conduit shall be installed within a certain length before entering the enclosure. What is this length?

- a. 900 mm
- b. 750 mm
- c. 250 mm
- d. 460 mm

326. In each conduit run entering an enclosure for switches, circuit breakers, relays and others that may produce high temperatures, seals on the conduit shall be installed within a certain length before entering the enclosure. What is this length?

- a. 900 mm
- b. 750 mm
- c. 250 mm
- d. 460 mm

327. The grounding electrode shall be which of the following?

- a. The nearest available effectively grounded structural metal member of the structure.
- b. The nearest available effectively grounded metal water pipe.
- c. The nearest concrete encased electrode
- d. Any of these

327. The grounding electrode shall be which of the following?

- a. The nearest available effectively grounded structural metal member of the structure.
- b. The nearest available effectively grounded metal water pipe.
- c. The nearest concrete encased electrode
- d. Any of these

328. A motor generator arc welder has a 70% duty cycle, the supply conductors shall NOT be less than ____ of its rated primary nameplate current.

- a. 86%
- b. 80%
- c. 84%
- d. 88%

328. A motor generator arc welder has a 70% duty cycle, the supply conductors shall NOT be less than ____ of its rated primary nameplate current.

- a. 86%
- b. 80%
- c. 84%
- d. 88%

329. Rigid Non-metallic Conduit approved for direct burial without concrete encasement shall have a minimum burial of:

- a. 500 mm
- b. 400 mm
- c. 460 mm
- d. 440 mm

329. Rigid Non-metallic Conduit approved for direct burial without concrete encasement shall have a minimum burial of:

- a. 500 mm
- b. 400 mm
- c. 460 mm
- d. 440 mm

330. The ground counterpoise when installed in earth shall be placed ____ above all cable in a trench.

- a. 75 mm
- b. 100 mm
- c. 80 mm
- d. 50 mm

330. The ground counterpoise when installed in earth shall be placed ____ above all cable in a trench.

- a. 75 mm
- b. 100 mm
- c. 80 mm
- d. 50 mm

331. A load where maximum current is expected to continue for three hours or more:

- a. Continuous load
- b. Connected load
- c. Maximum load
- d. Average load

331. A load where maximum current is expected to continue for three hours or more:

- a. Continuous load
- b. Connected load
- c. Maximum load
- d. Average load

332. For signaling circuits NOT exceeding ____, the current required shall not exceed one ampere.

- a. 24 V
- b. 12 V
- c. 30 V
- d. 40 V

332. For signaling circuits NOT exceeding ____, the current required shall not exceed one ampere.

- a. 24 V
- b. 12 V
- c. 30 V
- d. 40 V

333. All metal parts associated with the hot tub shall be bonded using copper bonding jumper, insulated, covered, or bare, not smaller than ____.

- a. 5.5 mm²
- b. 8.0 mm²
- c. 14.0 mm²
- d. 3.5 mm²

333. All metal parts associated with the hot tub shall be bonded using copper bonding jumper, insulated, covered, or bare, not smaller than ____.

- a. 5.5 mm²
- b. 8.0 mm²**
- c. 14.0 mm²
- d. 3.5 mm²

334. Communication conductors shall NOT be smaller than ____.

- a. 2.0 mm²
- b. 1.25 mm²
- c. 3.5 mm²
- d. 5.5 mm²

334. Communication conductors shall NOT be smaller than ____.

- a. 2.0 mm²
- b. 1.25 mm²
- c. 3.5 mm²
- d. 5.5 mm²

335. Non-Metallic boxes not over ____ shall be permitted only on non-metallic wiring method.

- a. 1,725 cm³
- b. 1,520 cm³
- c. 1,700 cm³
- d. 1,640 cm³

335. Non-Metallic boxes not over ____ shall be permitted only on non-metallic wiring method.

- a. 1,725 cm³
- b. 1,520 cm³
- c. 1,700 cm³
- d. 1,640 cm³

336. For Non-dwelling receptacle loads, the demand factor for the first 10 kVA or less shall be:

- a. 60%
- b. 70%
- c. 80%
- d. 100%

336. For Non-dwelling receptacle loads, the demand factor for the first 10 kVA or less shall be:

- a. 60%
- b. 70%
- c. 80%
- d. 100%**

337. All lighting fixtures, submersible pumps and other submersible equipment used in fountains shall operate at ____ or less between conductors.

- a. 230 V
- b. 300V
- c. 250V
- d. 500V

337. All lighting fixtures, submersible pumps and other submersible equipment used in fountains shall operate at ____ or less between conductors.

- a. 230 V
- b. 300V
- c. 250V
- d. 500V

338. The ampacity of the conductors and the rating or setting of overcurrent devices in a circuit of a solar photovoltaic system shall NOT be less than ____ of the computed current.

- a. 100%
- b. 115%
- c. 125%
- d. 130%

338. The ampacity of the conductors and the rating or setting of overcurrent devices in a circuit of a solar photovoltaic system shall NOT be less than ____ of the computed current.

- a. 100%
- b. 115%
- c. 125%
- d. 130%

339. In the schedule of loads for lighting, which of the following contents is NOT necessary?

- a. Protective device rating
- b. Panel as numbered in the feeder diagram
- c. Number of lighting outlets per circuit
- d. Frequency rating

339. In the schedule of loads for lighting, which of the following contents is NOT necessary?

- a. Protective device rating
- b. Panel as numbered in the feeder diagram
- c. Number of lighting outlets per circuit
- d. Frequency rating**

340. A wye-delta starter for a single voltage three phase squirrel cage 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

340. A wye-delta starter for a single voltage three phase squirrel cage 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

341. Where a feeder supplies continuous load or any combination of continuous and non-continuous load. The rating of the overcurrent load plus ____ of the continuous load.

- a. 125%
- b. 110%
- c. 150%
- d. 175%

341. Where a feeder supplies continuous load or any combination of continuous and non-continuous load. The rating of the overcurrent load plus ____ of the continuous load.

- a. 125%
- b. 110%
- c. 150%
- d. 175%

342. What size using non-time delay fuse does the Code require for a 2 hp, 208 V, single phase motor?

- a. 40 A
- b. 30 A
- c. 35 A
- d. 20 A

342. What size using non-time delay fuse does the Code require for a 2 hp, 208 V, single phase motor?

- a. 40 A
- b. 30 A
- c. 35 A
- d. 20 A

343. If potential exceeding ____ are employed, a permanent warning sign shall be displayed.

- a. 600 V
- b. 500 V
- c. 300 V
- d. 1,000 V

343. If potential exceeding ____ are employed, a permanent warning sign shall be displayed.

- a. 600 V
- b. 500 V
- c. 300 V
- d. 1,000 V

344. The ampacity of the conductors can be derated at most, how many times?

- a. 2
- b. 1
- c. 3
- d. 4

344. The ampacity of the conductors can be derated at most, how many times?

- a. 2
- b. 1
- c. 3
- d. 4

345. Faceplates of insulating material shall be non-combustible and NOT less than ____ in thickness.

- a. 2.0 mm
- b. 2.3 mm
- c. 3.0 mm
- d. 2.5 mm

345. Faceplates of insulating material shall be non-combustible and NOT less than ____ in thickness.

- a. 2.0 mm
- b. 2.3 mm**
- c. 3.0 mm
- d. 2.5 mm

346. At least how many receptacle outlet (s) shall be installed outdoors for a one family dwelling unit?

- a. 1
- b. 2
- c. 3
- d. None of these

346. At least how many receptacle outlet (s) shall be installed outdoors for a one family dwelling unit?

a. 1

b. 2

c. 3

d. None of these

347. For raceway 20 mm trade size of larger containing 22 mm² or larger, the minimum length of the box in straight pulls shall NOT be less than ____ times the trade diameter of the largest raceway.

- a. 8
- b. 10
- c. 6
- d. 12

347. For raceway 20 mm trade size of larger containing 22 mm² or larger, the minimum length of the box in straight pulls shall NOT be less than ____ times the trade diameter of the largest raceway.

- a. 8
- b. 10
- c. 6
- d. 12

348. Type MC cables shall NOT be used in which of the following?

- a. Where exposed to corrosive materials
- b. As direct burial to earth
- c. Where exposed to cinder fills
- d. All of these

348. Type MC cables shall NOT be used in which of the following?

- a. Where exposed to corrosive materials
- b. As direct burial to earth
- c. Where exposed to cinder fills
- d. All of these**

349. Using aluminum or copper clad aluminum conductors, the minimum size of service entrance conductors shall be ____.

- a. 8.0 mm²
- b. 14.0 mm²
- c. 5.5 mm²
- d. 3.5 mm²

349. Using aluminum or copper clad aluminum conductors, the minimum size of service entrance conductors shall be ____.

- a. 8.0 mm²
- b. 14.0 mm²**
- c. 5.5 mm²
- d. 3.5 mm²

350. Ground counterpoise conductor shall be soft copper wire NOT smaller than:

- a. 5.5 mm²
- b. 2.0 mm²
- c. 3.5 mm²
- d. 8.0 mm²

350. Ground counterpoise conductor shall be soft copper wire NOT smaller than:

- a. 5.5 mm²
- b. 2.0 mm²
- c. 3.5 mm²
- d. 8.0 mm²

351. Where a conduit enters a box, fitting or other enclosure, what shall be provided to protect the wire from abrasions?

- a. Lock nut
- b. Stud bolt
- c. Fastener
- d. Bushing

351. Where a conduit enters a box, fitting or other enclosure, what shall be provided to protect the wire from abrasions?

- a. Lock nut
- b. Stud bolt
- c. Fastener
- d. Bushing**

352. In hospitals, the general lighting load required shall be ____.

- a. 24 VA/m²
- b. 12 VA/m²
- c. 16 VA/m²
- d. 28 VA/m²

352. In hospitals, the general lighting load required shall be ____.

- a. 24 VA/m²
- b. 12 VA/m²
- c. 16 VA/m²
- d. 28 VA/m²

353. Rod electrodes of steel or iron shall be at least ____ in diameter.

- a. 10 mm
- b. 12 mm
- c. 14 mm
- d. 16 mm

353. Rod electrodes of steel or iron shall be at least ____ in diameter.

- a. 10 mm
- b. 12 mm
- c. 14 mm
- d. 16 mm**

354. Bonding jumpers which connect communications cable grounding conductors and the grounding electrode of the building shall NOT be smaller than what copper size?

- a. 5.5 mm²
- b. 8.0 mm²
- c. 14.0 mm²
- d. 3.5 mm²

354. Bonding jumpers which connect communications cable grounding conductors and the grounding electrode of the building shall NOT be smaller than what copper size?

- a. 5.5 mm²
- b. 8.0 mm²
- c. 14.0 mm²
- d. 3.5 mm²

355. Each plate electrode shall expose NOT less than ____ of surface to exterior soil.

- a. $\frac{1}{5}$ square meter
- b. $\frac{1}{4}$ square meter
- c. $\frac{1}{3}$ square meter
- d. $\frac{1}{2}$ square meter

355. Each plate electrode shall expose NOT less than ____ of surface to exterior soil.

- a. **1/5 square meter**
- b. 1/4 square meter
- c. 1/3 square meter
- d. 1/2 square meter

356. Non-Metallic sheathed cable shall NOT have a bending radius less than ____ times the diameter of the cable.

- a. 8
- b. 7
- c. 5
- d. 6

356. Non-Metallic sheathed cable shall NOT have a bending radius less than ____ times the diameter of the cable.

a. 8

b. 7

c. 5

d. 6

357. Conductors after the final overcurrent device and before the load served.

- a. Branch circuit conductors
- b. Service conductors
- c. Feeder conductors
- d. None of these

357. Conductors after the final overcurrent device and before the load served.

- a. **Branch circuit conductors**
- b. Service conductors
- c. Feeder conductors
- d. None of these

358. Type FCC cable shall be permitted for the following applications EXCEPT one. Which one is this?

- a. For branch circuits
- b. For service entrance
- c. In damp locations
- d. In heated floors

358. Type FCC cable shall be permitted for the following applications EXCEPT one. Which one is this?

- a. For branch circuits
- b. For service entrance**
- c. In damp locations
- d. In heated floors

359. In every drawing, the title block shall be a standard strip, which shall contain the name of the project, owner, title of the sheet, scale used, name and signature of the PEE. How wide is this strip?

- a. 35 mm
- b. 30 mm
- c. 40 mm
- d. 45 mm

359. In every drawing, the title block shall be a standard strip, which shall contain the name of the project, owner, title of the sheet, scale used, name and signature of the PEE. How wide is this strip?

- a. 35 mm
- b. 30 mm
- c. 40 mm
- d. 45 mm

360. Intermittent operation in which the load conditions is regularly recurrent.

- a. Varying duty
- b. Intermittent duty
- c. Periodic duty
- d. Short time duty

360. Intermittent operation in which the load conditions is regularly recurrent.

- a. Varying duty
- b. Intermittent duty
- c. **Periodic duty**
- d. Short time duty

361. Underground cable feeder and branch circuit cables shall be permitted for use in any of the following applications except one. Which one is this?

- a. Where embedded in poured concrete
- b. For interior wiring
- c. For direct burial
- d. Where used in corrosive locations

361. Underground cable feeder and branch circuit cables shall be permitted for use in any of the following applications except one. Which one is this?

- a. Where embedded in poured concrete
- b. For interior wiring**
- c. For direct burial
- d. Where used in corrosive locations

362. A factory assembly of two or more insulated conductors with or without associated bare or covered grounding conductor under a non-metallic sheath, approved for installation in cable trays or in raceways.

- a. Type NM
- b. Type FCC
- c. Type TC
- d. Type USE

362. A factory assembly of two or more insulated conductors with or without associated bare or covered grounding conductor under a non-metallic sheath, approved for installation in cable trays or in raceways.

- a. Type NM
- b. Type FCC
- c. Type TC
- d. Type USE

363. The minimum size of conductors to be used for lighting purposes is:

- a. 3.5 mm²
- b. 1.25 mm²
- c. 1.75 mm²
- d. 2.0 mm²

363. The minimum size of conductors to be used for lighting purposes is:

- a. 3.5 mm²
- b. 1.25 mm²
- c. 1.75 mm²
- d. 2.0 mm²

364. Conductors on poles shall have a separation of NOT less than ____ where not placed on racks or brackets.

- a. 300 mm
- b. 250 mm
- c. 400 mm
- d. 150 mm

364. Conductors on poles shall have a separation of NOT less than ____ where not placed on racks or brackets.

- a. 300 mm
- b. 250 mm
- c. 400 mm
- d. 150 mm

365. Non-Metallic surface extensions shall be secured in place by approved means at intervals NOT exceeding ____.

- a. 100 mm
- b. 500 mm
- c. 300 mm
- d. 200 mm

365. Non-Metallic surface extensions shall be secured in place by approved means at intervals NOT exceeding ____.

- a. 100 mm
- b. 500 mm
- c. 300 mm
- d. 200 mm**

366. Any unguarded metal sheathed service cable, service conduits, metal fixtures and similar non-current carrying parts, if located in urban districts and where liable to be charged to more than a certain voltage to ground shall be isolated or guarded to as not be exposed to accidental contact by unauthorized persons. What is this voltage?

- a. 1,000 V
- b. 500 V
- c. 150 V
- d. 300 V

366. Any unguarded metal sheathed service cable, service conduits, metal fixtures and similar non-current carrying parts, if located in urban districts and where liable to be charged to more than a certain voltage to ground shall be isolated or guarded to as not be exposed to accidental contact by unauthorized persons. What is this voltage?

- a. 1,000 V
- b. 500 V
- c. 150 V
- d. 300 V**

367. Auxiliary gutters may enclose conductors or busbars but shall NOT enclose which of the following?

- a. Switches
- b. Overcurrent devices
- c. Appliances
- d. All of these

367. Auxiliary gutters may enclose conductors or busbars but shall NOT enclose which of the following?

- a. Switches
- b. Overcurrent devices
- c. Appliances
- d. All of these

368. Where an IMC is used, there shall not be more than the equivalent of ___ quarter bends between pull points.

- a. 2
- b. 4
- c. 3
- d. 5

368. Where an IMC is used, there shall not be more than the equivalent of ___ quarter bends between pull points.

a. 2

b. 4

c. 3

d. 5

369. RMC shall be supported at least every ____.

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

369. RMC shall be supported at least every ____.

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

370. Service Entrance conductors passing over roofs shall have a clearance over the roof which they pass of:

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

370. Service Entrance conductors passing over roofs shall have a clearance over the roof which they pass of:

- a. 1,000 mm
- b. 2,000 mm
- c. 1,500 mm
- d. 2,500 mm**

371. Liquidtight metal conduit smaller than _____ electrical trade size shall NOT be used.

- a. 20 mm
- b. 15 mm
- c. 12 mm
- d. 10 mm

371. Liquidtight metal conduit smaller than _____ electrical trade size shall NOT be used.

- a. 20 mm
- b. 15 mm**
- c. 12 mm
- d. 10 mm

372. RMC smaller than ____ electrical trade size shall NOT be used.

- a. 15 mm
- b. 20 mm
- c. 12 mm
- d. 16 mm

372. RMC smaller than ____ electrical trade size shall NOT be used.

- a. 15 mm
- b. 20 mm
- c. 12 mm
- d. 16 mm

373. FMC shall be secured by an approved means at intervals NOT exceeding ____.

- a. 1,200 mm
- b. 1,300 mm
- c. 1,500 mm
- d. 1,400 mm

373. FMC shall be secured by an approved means at intervals NOT exceeding ____.

- a. 1,200 mm
- b. 1,300 mm**
- c. 1,500 mm
- d. 1,400 mm

374. Which of the following premises wiring installations is NOT covered in the scope of the PEC?

- a. Parking lots
- b. Dockyards
- c. Quarries and Mines
- d. Motor vehicles

374. Which of the following premises wiring installations is NOT covered in the scope of the PEC?

- a. Parking lots
- b. Dockyards
- c. Quarries and Mines
- d. Motor vehicles**

375. An auxiliary conductor used in connection with remote measuring devices or for operating apparatus at a distant point.

- a. Tie wire
- b. Jumper wire
- c. Pilot wire
- d. Dummy wire

375. An auxiliary conductor used in connection with remote measuring devices or for operating apparatus at a distant point.

- a. Tie wire
- b. Jumper wire
- c. Pilot wire
- d. Dummy wire

376. A unit or assembly of units or sections and associated fittings, forming a rigid structural system used to support cables.

- a. Cable tray
- b. Cable bus
- c. Wire way
- d. Busway

376. A unit or assembly of units or sections and associated fittings, forming a rigid structural system used to support cables.

- a. Cable tray
- b. Cable bus
- c. Wire way
- d. Busway

377. The conductors including splices and taps shall NOT fill the wireway to more than ____ of its area at that point.

- a. 65%
- b. 70%
- c. 75%
- d. 80%

377. The conductors including splices and taps shall NOT fill the wireway to more than ____ of its area at that point.

- a. 65%
- b. 70%
- c. 75%
- d. 80%

378. Overcurrent in transformers affect all of the following EXCEPT:

- a. Breather effectiveness
- b. Mechanical stresses
- c. Life insulation
- d. Rise in temperature

378. Overcurrent in transformers affect all of the following EXCEPT:

- a. Breather effectiveness
- b. Mechanical stresses
- c. Life insulation
- d. Rise in temperature

379. The rating the branch circuit using flat cable assemblies shall NOT exceed ____.

- a. 40 A
- b. 30 A
- c. 20 A
- d. 15 A

379. The rating the branch circuit using flat cable assemblies shall NOT exceed ____.

a. 40 A

b. 30 A

c. 20 A

d. 15 A

380. One or more non-metallic surface extensions shall be permitted to be run in any direction from an existing outlet, but NOT on the floor or within ____ from the floor.

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

380. One or more non-metallic surface extensions shall be permitted to be run in any direction from an existing outlet, but NOT on the floor or within ____ from the floor.

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

381. Service drop conductors passing over residential property and driveways and those commercial areas not subject to truck traffic shall have a vertical clearance of:

- a. 4,600 mm
- b. 5,500 mm
- c. 3,700 mm
- d. 4,800 mm

381. Service drop conductors passing over residential property and driveways and those commercial areas not subject to truck traffic shall have a vertical clearance of:

- a. 4,600 mm
- b. 5,500 mm
- c. 3,700 mm
- d. 4,800 mm

382. The equipment bonding jumper shall be permitted to be installed inside or outside of a raceway or enclosures where installed on the outside, the length of the equipment bonding jumper shall NOT exceed ____.

- a. 2,000 mm
- b. 1,500 mm
- c. 1,800 mm
- d. 1,200 mm

382. The equipment bonding jumper shall be permitted to be installed inside or outside of a raceway or enclosures where installed on the outside, the length of the equipment bonding jumper shall NOT exceed ____.

- a. 2,000 mm
- b. 1,500 mm
- c. 1,800 mm
- d. 1,200 mm

383. An electrician should consider all electrical equipment live unless he definitely knows that they are not. The main reason of this practice is to avoid:

- a. Personal injury
- b. Energizing the wrong circuit
- c. De-energizing the wrong circuit
- d. Unnecessary work

383. An electrician should consider all electrical equipment live unless he definitely knows that they are not. The main reason of this practice is to avoid:

- a. **Personal injury**
- b. Energizing the wrong circuit
- c. De-energizing the wrong circuit
- d. Unnecessary work

384. Electrical floor assemblies shall NOT be installed ____.

- a. Where subject to corroded vapors
- b. Outdoors
- c. In wet or damp locations
- d. All of these

384. Electrical floor assemblies shall NOT be installed ____.

- a. Where subject to corroded vapors
- b. Outdoors
- c. In wet or damp locations
- d. All of these

385. In cases where there are energized parts normally exposed on the front of switchboards or motor control centers, the working space in front shall NOT be less than ____.

- a. 1,000 mm
- b. 1,500 mm
- c. 2,000 mm
- d. 1,800 mm

385. In cases where there are energized parts normally exposed on the front of switchboards or motor control centers, the working space in front shall NOT be less than ____.

- a. 1,000 mm
- b. 1,500 mm
- c. 2,000 mm
- d. 1,800 mm

386. The rating of the branch circuit serving a continuous load shall NOT exceed ____ of the continuous load.

- a. 100%
- b. 130%
- c. 125%
- d. 115%

386. The rating of the branch circuit serving a continuous load shall NOT exceed ____ of the continuous load.

- a. 100%
- b. 130%
- c. 125%
- d. 115%

387. Cabinet and cutout boxes shall have an air space of at least ____ between the base of the device and the wall of any metal cabinet or cutout box in which the device is mounted.

- a. 1.5 mm
- b. 1.8 mm
- c. 2.0 mm
- d. 2.4 mm

387. Cabinet and cutout boxes shall have an air space of at least ____ between the base of the device and the wall of any metal cabinet or cutout box in which the device is mounted.

- a. 1.5 mm
- b. 1.8 mm
- c. 2.0 mm
- d. 2.4 mm

388. Service conductors in cable shall NOT be smaller than ____.

- a. 5.5 mm²
- b. 8.0 mm²
- c. 3.5 mm²
- d. 14.0 mm²

388. Service conductors in cable shall NOT be smaller than ____.

- a. 5.5 mm²
- b. 8.0 mm²
- c. 3.5 mm²
- d. 14.0 mm²

389. At least how many receptacle outlet(s) shall be installed in the bathroom?

- a. One
- b. Two
- c. Three
- d. None of these

389. At least how many receptacle outlet(s) shall be installed in the bathroom?

- a. One
- b. Two
- c. Three
- d. None of these

390. What is the maximum allowable voltage drop from the distribution panel to the farthest load?

- a. 10%
- b. 5%
- c. 3%
- d. 2%

390. What is the maximum allowable voltage drop from the distribution panel to the farthest load?

- a. 10%
- b. 5%**
- c. 3%
- d. 2%

391. Conductors in concealed knob and tube wiring shall maintain a clearance of NOT less than ___ between the conductor and the surface over which it passes.

- a. 30 mm
- b. 25 mm
- c. 28 mm
- d. 26 mm

391. Conductors in concealed knob and tube wiring shall maintain a clearance of NOT less than ___ between the conductor and the surface over which it passes.

- a. 30 mm
- b. 25 mm
- c. 28 mm
- d. 26 mm

392. The use of RMC shall be permitted under all atmospheric conditions subject to the following conditions EXCEPT one. Which one is this?

- a. Aluminum fittings and enclosures shall be permitted to be used with rigid steel conduits.
- b. Ferrous metal conduits shall be permitted to be installed in concrete.
- c. Conduits shall be permitted to be used in sand fill which is subject to permanent moisture.
- d. Where the ferrous raceways are protected solely by enamel. The use is permitted only indoors.

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- c. Conduits shall be permitted to be used in sand fill which is subject to permanent moisture.
- d. Where the ferrous raceways are protected solely by enamel. The use is permitted only indoors.

393. An exposed wiring method using cleats, knobs, tubes and flexible tubing for the protection and support of single insulated conductor run in or on building and not concealed by the building structure.

- a. Open wiring on insulators
- b. Concealed knob and tube wiring
- c. Armored cable wiring
- d. Metal clad cable wiring

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- a. Open wiring on insulators
- b. Concealed knob and tube wiring
- c. Armored cable wiring
- d. Metal clad cable wiring

394. The radius of the inner edge of any bend for type MI cables shall NOT be less than ____ times the diameter of the cable.

- a. 5
- b. 6
- c. 7
- d. 8

394. The radius of the inner edge of any bend for type MI cables shall NOT be less than ____ times the diameter of the cable.

a. 5

b. 6

c. 7

d. 8

395. General purpose and appliance branch circuits using type FCC cable shall have ratings NOT exceeding ____.

- a. 20 A
- b. 15 A
- c. 30 A
- d. 40 A

395. General purpose and appliance branch circuits using type FCC cable shall have ratings NOT exceeding ____.

a. 20 A

b. 15 A

c. 30 A

d. 40 A

396. Communication conductors shall NOT be attached to a cross arm below electric light and power conductors under Art 10.1.3.3(a)(2).

- a. No one cares
- b. True
- c. False
- d. Allowed with approval from utility

396. Communication conductors shall NOT be attached to a cross arm below electric light and power conductors under Art 10.1.3.3(a)(2).

a. No one cares

b. True

c. False

d. Allowed with approval from utility

397. Interlocked type armored cable or corrugated sheath cables shall have a bending radius of NOT less than ___ times the external diameter of the metallic sheath.

- a. 7
- b. 10
- c. 12
- d. 5

397. Interlocked type armored cable or corrugated sheath cables shall have a bending radius of NOT less than ___ times the external diameter of the metallic sheath.

- a. 7
- b. 10
- c. 12
- d. 5

398. Type AC cable shall be permitted in one of the following. Which one is it?

- a. For branch circuits
- b. For feeders
- c. In cable trays where identified for such usage
- d. All of these

398. Type AC cable shall be permitted in one of the following. Which one is it?

- a. For branch circuits
- b. For feeders
- c. In cable trays where identified for such usage
- d. All of these

399. In banks and office buildings, a unit load of ____ shall be included for the general purpose receptacle outlet when the actual number of outlets is unknown.

- a. 6 VA/m²
- b. 8 VA/m²
- c. 10 VA/m²
- d. 12 VA/m²

399. In banks and office buildings, a unit load of ____ shall be included for the general purpose receptacle outlet when the actual number of outlets is unknown.

a. 6 VA/m²

b. 8 VA/m²

c. 10 VA/m²

d. 12 VA/m²

400. When receptacles are connected to a 30 A branch circuit, the maximum allowable cord and plug connected load shall NOT be more than:

- a. 30 A
- b. 24 A
- c. 16 A
- d. 20 A

400. When receptacles are connected to a 30 A branch circuit, the maximum allowable cord and plug connected load shall NOT be more than:

a. 30 A

b. 24 A

c. 16 A

d. 20 A

401. Concealed knob and tube wiring shall **NOT** be used in:

- a. Theaters
- b. Motion picture studios
- c. Commercial garage
- d. All of these

401. Concealed knob and tube wiring shall NOT be used in:

- a. Theaters
- b. Motion picture studios
- c. Commercial garage
- d. All of these

402. As a general rule, equipment rated 1,000 A or more and measuring more than 1,900 mm wide, containing overcurrent devices, shall have an entrance at both ends of the switchboard room. The width and height of each entrance shall be NOT less than the following dimensions. Which one is correct?

- a. 800 mm wide x 2,000 mm high
- b. 600 mm wide x 2,000 mm high
- c. 600 mm wide x 2,200 mm high
- d. 800 mm wide x 2,200 mm high

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- a. 800 mm wide x 2,000 mm high
- b. 600 mm wide x 2,000 mm high**
- c. 600 mm wide x 2,200 mm high
- d. 800 mm wide x 2,200 mm high

403. The main disconnecting means for all electric driven irrigation machines shall be visible and NOT more than ___ from the machine.

- a. 10 m
- b. 15 m
- c. 12 m
- d. 8 m

403. The main disconnecting means for all electric driven irrigation machines shall be visible and NOT more than ___ from the machine.

a. 10 m

b. 15 m

c. 12 m

d. 8 m

404. A factory assembly of two or more insulated conductors having an outer sheath of moisture resistant flame-retardant, non-metallic material.

- a. Mineral Insulated Cable (MI)
- b. Armored Cable (AC)
- c. Medium Voltage Cable (MV)
- d. Non-Metallic Sheathed Cable (NM)

404. A factory assembly of two or more insulated conductors having an outer sheath of moisture resistant flame-retardant, non-metallic material.

- a. Mineral Insulated Cable (MI)
- b. Armored Cable (AC)
- c. Medium Voltage Cable (MV)
- d. Non-Metallic Sheathed Cable (NM)**

405. In a watercraft, when the source of electric power is a generator, it shall be automatically started and connected to the emergency switchboard within ____ of loss of the main source of electric power.

- a. 40 seconds
- b. 50 seconds
- c. 25 seconds
- d. 45 seconds

405. In a watercraft, when the source of electric power is a generator, it shall be automatically started and connected to the emergency switchboard within ____ of loss of the main source of electric power.

- a. 40 seconds
- b. 50 seconds
- c. 25 seconds
- d. 45 seconds**

406. Which is the most important thing to do when a person has been shocked by electricity?

- a. Separate the victim from the electric wire as soon as possible making sure that you do not become another victim
- b. Call for competent help
- c. Apply resuscitation
- d. Disconnect the switch

406. Which is the most important thing to do when a person has been shocked by electricity?

- a. Separate the victim from the electric wire as soon as possible making sure that you do not become another victim
- b. Call for competent help
- c. Apply resuscitation
- d. Disconnect the switch

407. The demand factor for two elevators on a single feeder shall be ____.

- a. 95%
- b. 96%
- c. 94%
- d. 97%

407. The demand factor for two elevators on a single feeder shall be ____.

- a. 95%
- b. 96%
- c. 94%
- d. 97%

408. A hoisting and lowering mechanism equipped with a car which moves in guides in a substantially vertical direction, the floor area of which does not exceed 0.85 m^2 and which is used exclusively for carrying materials.

- a. Elevator
- b. Stairway chair lifts
- c. Dumbwaiter
- d. None of these

408. A hoisting and lowering mechanism equipped with a car which moves in guides in a substantially vertical direction, the floor area of which does not exceed 0.85 m^2 and which is used exclusively for carrying materials.

- a. Elevator
- b. Stairway chair lifts
- c. **Dumbwaiter**
- d. None of these

409. IMC (Intermediate Metal Conduit) shall be supported at least every ____.

- a. 2.5 m
- b. 2.0 m
- c. 1.8 m
- d. 3.0 m

409. IMC (Intermediate Metal Conduit) shall be supported at least every ____.

- a. 2.5 m
- b. 2.0 m
- c. 1.8 m
- d. 3.0 m

410. Type AC (Armored Cable) shall be secured by approved staples, straps hangers or similar fittings within ___ from every outlet box, junction box, cabinet or fitting.

- a. 200 mm
- b. 150 mm
- c. 400 mm
- d. 300 mm

410. Type AC (Armored Cable) shall be secured by approved staples, straps hangers or similar fittings within ___ from every outlet box, junction box, cabinet or fitting.

- a. 200 mm
- b. 150 mm
- c. 400 mm
- d. 300 mm**

411. Maximum electrical trade size of liquidtight flexible metal conduit.

- a. 125 mm
- b. 150 mm
- c. 100 mm
- d. 200 mm

411. Maximum electrical trade size of liquidtight flexible metal conduit.

- a. 125 mm
- b. 150 mm
- c. 100 mm**
- d. 200 mm

412. A stranded wire is given the same designation as a solid wire if it has the same ____.

- a. Overall diameter
- b. Weight per foot
- c. Cross-sectional area
- d. Strength

412. A stranded wire is given the same designation as a solid wire if it has the same ____.

- a. Overall diameter
- b. Weight per foot
- c. Cross-sectional area
- d. Strength

413. Circuits with a voltage of 600 V or less in a rigid non-metallic conduit approved for direct burial without concrete encasement and placed in trench below a 50 mm thick concrete or equivalent shall have a minimum cover distance of ____.

- a. 300 mm
- b. 400 mm
- c. 460 mm
- d. 200 mm

413. Circuits with a voltage of 600 V or less in a rigid non-metallic conduit approved for direct burial without concrete encasement and placed in trench below a 50 mm thick concrete or equivalent shall have a minimum cover distance of ____.

- a. 300 mm
- b. 400 mm
- c. 460 mm
- d. 200 mm

414. Communication conductors shall be separated at least ____ from conductors of any electric light or power circuits.

- a. 50 mm
- b. 40 mm
- c. 60 mm
- d. 75 mm

414. Communication conductors shall be separated at least ____ from conductors of any electric light or power circuits.

- a. 50 mm
- b. 40 mm
- c. 60 mm
- d. 75 mm

415. For multiple motors on a single crane or hoist, the minimum circuit ampacity of the power conductors shall be the nameplate full load ampere rating of the largest motor for any single crane motion, plus ____ of the nameplate full load ampere rating of the next largest motor.

- a. 25%
- b. 30%
- c. 40%
- d. 50%

415. For multiple motors on a single crane or hoist, the minimum circuit ampacity of the power conductors shall be the nameplate full load ampere rating of the largest motor for any single crane motion, plus ____ of the nameplate full load ampere rating of the next largest motor.

- a. 25%
- b. 30%
- c. 40%
- d. 50%**

416. Receptacles used in circuits operating at less than 50 V shall have an ampere rating of not less than ____.

- a. 20 A
- b. 10 A
- c. 15 A
- d. 5 A

416. Receptacles used in circuits operating at less than 50 V shall have an ampere rating of not less than ____.

a. 20 A

b. 10 A

c. 15 A

d. 5 A

417. A general purpose single phase motor rated 0.5 hp has a current rating of 5 A. what should be the setting of the overload relay that is installed to protect the motor? Assume the service factor of the motor to be 1.0.

- a. 5.75 A
- b. 5.5 A
- c. 5.0 A
- d. 6.25 A

417. A general purpose single phase motor rated 0.5 hp has a current rating of 5 A. what should be the setting of the overload relay that is installed to protect the motor? Assume the service factor of the motor to be 1.0.

- a. 5.75 A
- b. 5.5 A
- c. 5.0 A
- d. 6.25 A

418. A single enclosed raceway for conductors or cables.

- a. Box
- b. Duct
- c. Cabinet
- d. Gutter

418. A single enclosed raceway for conductors or cables.

a. Box

b. Duct

c. Cabinet

d. Gutter

419. Type MI (Mineral Insulated) cables shall permitted for ____.

- a. Branch circuits
- b. Feeder circuits
- c. Services
- d. All of these

419. Type MI (Mineral Insulated) cables shall permitted for ____.

- a. Branch circuits
- b. Feeder circuits
- c. Services
- d. All of these

420. Generator neutral maybe connected in common, provided that the third harmonic content of the waveform of each generator does not exceed ____.

- a. 3%
- b. 4%
- c. 5%
- d. 6%

420. Generator neutral maybe connected in common, provided that the third harmonic content of the waveform of each generator does not exceed ____.

- a. 3%
- b. 4%
- c. 5%
- d. 6%

421. Enclosures for overcurrent devices shall be mounted in what position?

- a. Horizontal
- b. Vertical
- c. Diagonal
- d. Any of these

421. Enclosures for overcurrent devices shall be mounted in what position?

- a. Horizontal
- b. Vertical**
- c. Diagonal
- d. Any of these

422. To support conduit on a hollow block wall, use one of the following methods. Which one is this?

- a. Machine screw
- b. Lag screw
- c. Toggle bolt
- d. Trough bolt

422. To support conduit on a hollow block wall, use one of the following methods. Which one is this?

- a. Machine screw
- b. Lag screw
- c. Toggle bolt
- d. Trough bolt

423. As applied to lightning protection, an attachment to secure the conductor to the structure or building.

- a. Bonder
- b. Stapler
- c. Support
- d. Fastener

423. As applied to lightning protection, an attachment to secure the conductor to the structure or building.

- a. Bonder
- b. Stapler
- c. Support
- d. Fastener**

424. The bottom of sign and outline lighting enclosures shall NOT be less than ____ above areas accessible to vehicles.

- a. 5,000 mm
- b. 4,800 mm
- c. 4,700 mm
- d. 4,900 mm

424. The bottom of sign and outline lighting enclosures shall NOT be less than ____ above areas accessible to vehicles.

- a. 5,000 mm
- b. 4,800 mm
- c. 4,700 mm
- d. 4,900 mm

425. Circuits electric discharge lighting transformers exclusively shall NOT be rated in excess of ____.

- a. 20 A
- b. 30 A
- c. 15 A
- d. 40 A

425. Circuits electric discharge lighting transformers exclusively shall NOT be rated in excess of ____.

a. 20 A

b. 30 A

c. 15 A

d. 40 A

426. Each resistances welder shall have an overcurrent device rated or set at not more than ____ of the conductor rating.

- a. 300%
- b. 250%
- c. 175%
- d. 150%

426. Each resistances welder shall have an overcurrent device rated or set at not more than ____ of the conductor rating.

- a. 300%
- b. 250%
- c. 175%
- d. 150%

427. The transformer's secondary open circuit voltage used in electric signs shall not exceed:

- a. 15 kV
- b. 20 kV
- c. 12 kV
- d. 10 kV

427. The transformer's secondary open circuit voltage used in electric signs shall not exceed:

- a. 15 kV
- b. 20 kV
- c. 12 kV
- d. 10 kV

428. Conductors external to motors and controls in cranes and hoists shall NOT be smaller than _____.

- a. 2.0 mm²
- b. 1.25 mm²
- c. 3.5 mm²
- d. 0.75 mm²

428. Conductors external to motors and controls in cranes and hoists shall NOT be smaller than _____.

- a. 2.0 mm²
- b. 1.25 mm²**
- c. 3.5 mm²
- d. 0.75 mm²

429. An overcurrent device rated or set at NOT more than ___ of the conductor rating shall protect conductors that supply one or more motor-generator arc welders.

- a. 300%
- b. 200%
- c. 150%
- d. 125%

429. An overcurrent device rated or set at NOT more than ___ of the conductor rating shall protect conductors that supply one or more motor-generator arc welders.

- a. 300%
- b. 200%**
- c. 150%
- d. 125%

430. Which of the motor starters does not stress the motor winding severely?

- a. Across the line starter
- b. Wye-delta starter
- c. Soft-start starter
- d. Transformer-type starter

430. Which of the motor starters does not stress the motor winding severely?

- a. Across the line starter
- b. Wye-delta starter**
- c. Soft-start starter
- d. Transformer-type starter

431. Conductors in open wiring on insulators shall be rigidly supported at intervals **NOT** exceeding ____.

- a. 1.2 m
- b. 1.5 m
- c. 1.3 m
- d. 1.4 m

431. Conductors in open wiring on insulators shall be rigidly supported at intervals **NOT** exceeding ____.

- a. 1.2 m
- b. 1.5 m
- c. 1.3 m**
- d. 1.4 m

432. What is the minimum depth of clear working space in front of a switchboard rated at 4,160 V, where there are exposed energized parts on both sides of the workspace.

- a. 1.0 m
- b. 1.9 m
- c. 1.6 m
- d. 2.0 m

432. What is the minimum depth of clear working space in front of a switchboard rated at 4,160 V, where there are exposed energized parts on both sides of the workspace.

- a. 1.0 m
- b. 1.9 m**
- c. 1.6 m
- d. 2.0 m

433. A 2.0 mm² TW copper conductor has an ampacity equal to ____.

- a. 20 A
- b. 10 A
- c. 15 A
- d. 25 A

433. A 2.0 mm² TW copper conductor has an ampacity equal to ____.

- a. 20 A
- b. 10 A
- c. 15 A
- d. 25 A

434. Rigid Metal Conduit (RMC) shall be firmly fastened within ____ of each outlet box.

- a. 800 mm
- b. 900 mm
- c. 760 mm
- d. 600 mm

434. Rigid Metal Conduit (RMC) shall be firmly fastened within ____ of each outlet box.

- a. 800 mm
- b. 900 mm**
- c. 760 mm
- d. 600 mm

435. Type TW (Moisture Resistant Thermoplastic) conductors have a maximum operating temperatures of ____.

- a. 75%
- b. 50%
- c. 60%
- d. 90%

435. Type TW (Moisture Resistant Thermoplastic) conductors have a maximum operating temperatures of ____.

- a. 75%
- b. 50%
- c. 60%
- d. 90%

436. Which of the following statements is NOT correct?

- a. The use of an inductive ballast for fluorescent lamps is usually because it is the most efficient.
- b. Lighting fixtures having exposed ballasts shall be so installed that they will not be in contact with combustible materials.
- c. A ballast which incorporates an autotransformer to raise the voltage to more than 300 V shall be supplied only by a supply system which is grounded.
- d. A receptacle outlet installed outdoors shall be located so that water accumulation is not likely to touch the outlet cover or plate.

436. Which of the following statements is NOT correct?

- a. The use of an inductive ballast for fluorescent lamps is usually because it is the most efficient.
- b. Lighting fixtures having exposed ballasts shall be so installed that they will not be in contact with combustible materials.
- c. A ballast which incorporates an autotransformer to raise the voltage to more than 300 V shall be supplied only by a supply system which is grounded.
- d. A receptacle outlet installed outdoors shall be located so that water accumulation is not likely to touch the outlet cover or plate.

437. Smallest electrical trade size for flexible metal conduit.

- a. 15 mm
- b. 20 mm
- c. 25 mm
- d. 10 mm

437. Smallest electrical trade size for flexible metal conduit.

- a. 15 mm
- b. 20 mm
- c. 25 mm
- d. 10 mm

438. When pulling wires into a conduit, a certain percent of the conduit area should unoccupied. What is the purpose for this?

- a. To permit pulling in additional wires later.
- b. To permit pulling out of the wires for replacement even if the insulation has swelled.
- c. To allow pulling in the wire without strain on the conductors or abrasion.
- d. To permit circulation of air so that the insulation will not be damage by heat.

438. When pulling wires into a conduit, a certain percent of the conduit area should unoccupied. What is the purpose for this?

- a. To permit pulling in additional wires later.
- b. To permit pulling out of the wires for replacement even if the insulation has swelled.
- c. To allow pulling in the wire without strain on the conductors or abrasion.
- d. To permit circulation of air so that the insulation will not be damage by heat.

439. Enclosures of metal for electrodes of electric discharge tubing shall NOT be less than ____ thick sheet metal.

- a. 0.40 mm
- b. 0.35 mm
- c. 0.45 mm
- d. 0.50 mm

439. Enclosures of metal for electrodes of electric discharge tubing shall NOT be less than ____ thick sheet metal.

- a. 0.40 mm
- b. 0.35 mm
- c. 0.45 mm
- d. 0.50 mm

440. If a bare live conductor is touched accidentally, the severity of the electric shock is determined primarily by:

- a. The size of the conductor.
- b. The type of the power supply, whether AC or DC.
- c. The contact resistance between the bare wire and the person at the point of contact.
- d. The current flowing in the conductor.

440. If a bare live conductor is touched accidentally, the severity of the electric shock is determined primarily by:

- a. The size of the conductor.
- b. The type of the power supply, whether AC or DC.
- c. The contact resistance between the bare wire and the person at the point of contact.
- d. The current flowing in the conductor.

441. A factory assembly of one or more conductors each individually insulated and enclosed in a loose fit non-metallic flexible conduit as an integrated gas spacer.

- a. Type MC (Metal Clad Cable)
- b. Type NMC (Non-Metallic Sheathed Cable)
- c. Type FCC (Flat Conductor Cable)
- d. Type IGS

441. A factory assembly of one or more conductors each individually insulated and enclosed in a loose fit non-metallic flexible conduit as an integrated gas spacer.

- a. Type MC (Metal Clad Cable)
- b. Type NMC (Non-Metallic Sheathed Cable)
- c. Type FCC (Flat Conductor Cable)
- d. Type IGS

442. A generator set used for standby power systems shall have a time delay feature permitting a ____ setting to avoid retransfer in case of short time reestablishment of the normal source.

- a. 10 minutes
- b. 8 minutes
- c. 12 minutes
- d. 15 minutes

442. A generator set used for standby power systems shall have a time delay feature permitting a ____ setting to avoid retransfer in case of short time reestablishment of the normal source.

- a. 10 minutes
- b. 8 minutes
- c. 12 minutes
- d. 15 minutes**

443. Type UF (Underground Feeder and Branch Circuit) cable shall be permitted for use ____.

- a. Underground including direct burial to earth.
- b. Underground but concealed with a rigid metal conduit.
- c. Underground but not direct burial to earth.
- d. None of these.

443. Type UF (Underground Feeder and Branch Circuit) cable shall be permitted for use ____.

- a. **Underground including direct burial to earth.**
- b. Underground but concealed with a rigid metal conduit.
- c. Underground but not direct burial to earth.
- d. None of these.

444. Intermediate Metal Conduit (IMC) shall be shipped in standard lengths of ____.

- a. 5 m
- b. 4 m
- c. 2 m
- d. 3 m

444. Intermediate Metal Conduit (IMC) shall be shipped in standard lengths of ____.

- a. 5 m
- b. 4 m
- c. 2 m
- d. 3 m

445. The smallest copper conductor of type MC cable shall be ____.

- a. 2.0 mm²
- b. 1.25 mm²
- c. 0.75 mm²
- d. 3.5 mm²

445. The smallest copper conductor of type MC cable shall be ____.

- a. 2.0 mm²
- b. 1.25 mm²
- c. 0.75 mm²
- d. 3.5 mm²

446. The grounded conductor of type FC (Flat Conductor Assemblies) cable shall be identified by means of a distinctive and durable white or _____ markings.

- a. Green
- b. Natural gray
- c. Brown
- d. Yellow stripe

446. The grounded conductor of type FC (Flat Conductor Assemblies) cable shall be identified by means of a distinctive and durable white or _____ markings.

a. Green

b. Natural gray

c. Brown

d. Yellow stripe

447. Individually covered or insulated grounding conductors shall have a continuous outer finish that is either green, or green with one or more _____ stripes.

- a. White
- b. Gray
- c. Yellow
- d. Violet

447. Individually covered or insulated grounding conductors shall have a continuous outer finish that is either green, or green with one or more _____ stripes.

- a. White
- b. Gray
- c. Yellow
- d. Violet

448. Hazardous locations are classified by the PEC in how many classes?

- a. 2 classes
- b. 4 classes
- c. 3 classes
- d. 1 class

448. Hazardous locations are classified by the PEC in how many classes?

- a. 2 classes
- b. 4 classes
- c. 3 classes**
- d. 1 class

449. The branch circuit conductors supplying one or more units of a data processing system shall have an ampacity NOT less than ____ of the total connected load.

- a. 110%
- b. 125%
- c. 100%
- d. 115%

449. The branch circuit conductors supplying one or more units of a data processing system shall have an ampacity NOT less than ____ of the total connected load.

- a. 110%
- b. 125%**
- c. 100%
- d. 115%

450. As applied to circuit breaker, this term indicates that there is purposely introduced a delay in the tripping action of the circuit breaker. Which one?

- a. Delay-on
- b. Instantaneous trip
- c. Inverse time
- d. Delay-off

450. As applied to circuit breaker, this term indicates that there is purposely introduced a delay in the tripping action of the circuit breaker. Which one?

- a. Delay-on
- b. Instantaneous trip
- c. Inverse time**
- d. Delay-off

451. Contact device installed at the outlet for the connection of a single attachment plug.

- a. Junction box
- b. Reactor
- c. Rosette
- d. Receptacle

451. Contact device installed at the outlet for the connection of a single attachment plug.

- a. Junction box
- b. Reactor
- c. Rosette
- d. Receptacle

452. Circuits with a voltage of 600 V or less in a rigid metal conduit or in a rigid non-metallic conduit approved for direct burial and placed under driveways and parking areas of a one or two family dwelling units, shall have a minimum cover distance of ____.

- a. 300 mm
- b. 150 mm
- c. 460 mm
- d. 600 mm

452. Circuits with a voltage of 600 V or less in a rigid metal conduit or in a rigid non-metallic conduit approved for direct burial and placed under driveways and parking areas of a one or two family dwelling units, shall have a minimum cover distance of ____.

- a. 300 mm
- b. 150 mm
- c. 460 mm
- d. 600 mm

453. With respect to the safety value of the insulation on electrical maintenance tools, It can be said properly that:

- a. The insulation provides very little real protection.
- b. Its value is mainly to the untrained electrician helper.
- c. The insulation should not be used as the only protective measure.
- d. It adequately ensures the safety of the user.

453. With respect to the safety value of the insulation on electrical maintenance tools, It can be said properly that:

- a. The insulation provides very little real protection.
- b. Its value is mainly to the untrained electrician helper.
- c. **The insulation should not be used as the only protective measure.**
- d. It adequately ensures the safety of the user.

454. The PEC requires that no electrical installation, alteration or addition shall be connected or reconnected to any electrical power supply without ____.

- a. Payment of application fees
- b. A certificate of inspection
- c. An electrical permit
- d. A certificate of completion.

454. The PEC requires that no electrical installation, alteration or addition shall be connected or reconnected to any electrical power supply without ____.

- a. Payment of application fees
- b. A certificate of inspection**
- c. An electrical permit
- d. A certificate of completion.

455. For ranges of 8.75 kW or more in rating, the minimum branch circuit rating shall be ____.

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

455. For ranges of 8.75 kW or more in rating, the minimum branch circuit rating shall be ____.

a. 30 A

b. 40 A

c. 50 A

d. 60 A

456. Service heads and goosenecks in service entrance cable shall be ____ point of attachment of the service drops to the building.

- a. Above the
- b. Below the
- c. At the center of the
- d. At the back of the

456. Service heads and goosenecks in service entrance cable shall be ____ point of attachment of the service drops to the building.

a. Above the

b. Below the

c. At the center of the

d. At the back of the

457. A disruptive discharge around or over the surface of a solid or liquid insulator.

- a. Flashover
- b. Sparkover
- c. Corona
- d. Surge

457. A disruptive discharge around or over the surface of a solid or liquid insulator.

- a. Flashover
- b. Sparkover
- c. Corona
- d. Surge

458. Outlets for heavy-duty lamp holders shall be rated ____.

- a. 500 VA
- b. 600 VA
- c. 660 VA
- d. 550 VA

458. Outlets for heavy-duty lamp holders shall be rated ____.

- a. 500 VA
- b. 600 VA**
- c. 660 VA
- d. 550 VA

459. When fastening an outlet to a brick wall, the electrician should use one of the following. Which one is this?

- a. Expansion bolts
- b. Toggle bolts
- c. Temporary nail
- d. Wooden plug and nail

459. When fastening an outlet to a brick wall, the electrician should use one of the following. Which one is this?

- a. Expansion bolts
- b. Toggle bolts
- c. Temporary nail
- d. Wooden plug and nail

460. Where a neutral is NOT available, the grounding impedance shall be installed between the ____.

- a. Grounding electrode and any of the current carrying conductor.
- b. Grounding electrode and the neutral derived from a grounding transformer.
- c. Grounding electrode and the system neutral of other station.
- d. All of these

460. Where a neutral is NOT available, the grounding impedance shall be installed between the ____.

- a. Grounding electrode and any of the current carrying conductor.
- b. Grounding electrode and the neutral derived from a grounding transformer.**
- c. Grounding electrode and the system neutral of other station.
- d. All of these

461. Open conductors passing over public, streets, alleys, roads, parking areas subject to truck traffic shall maintain a vertical height ___ from finished grade.

- a. 3.7 m
- b. 4.6 m
- c. 5.5 m
- d. 3.1 m

461. Open conductors passing over public, streets, alleys, roads, parking areas subject to truck traffic shall maintain a vertical height ___ from finished grade.

- a. 3.7 m
- b. 4.6 m
- c. 5.5 m
- d. 3.1 m

462. When soldering two copper surfaces together, they should be kept clean while heating by:

- a. Applying the solder quickly.
- b. Not admitting the open flame to touch the copper surfaces.
- c. Frequently rubbing the tip with emery cloth.
- d. The use of flux.

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- a. Applying the solder quickly.
- b. Not admitting the open flame to touch the copper surfaces.
- c. Frequently rubbing the tip with emery cloth.
- d. **The use of flux.**

463. Using copper, the minimum size of service entrance conductors shall be ____.

- a. 14.0 mm²
- b. 8.0 mm²
- c. 5.5 mm²
- d. 3.5 mm²

463. Using copper, the minimum size of service entrance conductors shall be ____.

- a. 14.0 mm²
- b. 8.0 mm²**
- c. 5.5 mm²
- d. 3.5 mm²

464. A portion of a lightning protection system extending into the earth.

- a. Air terminal
- b. Counterpoise
- c. Surge arrester
- d. Ground terminal

464. A portion of a lightning protection system extending into the earth.

- a. Air terminal
- b. Counterpoise
- c. Surge arrester
- d. Ground terminal

465. When testing the insulation integrity of a new or old electrical wiring installation circuit of 5.5 mm² conductors, the Code specifies a minimum insulation resistance of what value?

- a. 1,000,000 ohms
- b. 250,000 ohms
- c. 500,000 ohms
- d. 100,000 ohms

465. When testing the insulation integrity of a new or old electrical wiring installation circuit of 5.5 mm² conductors, the Code specifies a minimum insulation resistance of what value?

- a. 1,000,000 ohms
- b. 250,000 ohms**
- c. 500,000 ohms
- d. 100,000 ohms

466. Power conductors on poles, below communication conductors shall maintain a spacing distance of ____.

- a. 760 mm
- b. 600 mm
- c. 800 mm
- d. 540 mm

466. Power conductors on poles, below communication conductors shall maintain a spacing distance of ____.

- a. 760 mm
- b. 600 mm
- c. 800 mm
- d. 540 mm

467. What test is usually made on cables after installation?

- a. Copper loss test
- b. No-load test
- c. Insulation resistance test
- d. Ampacity test

467. What test is usually made on cables after installation?

- a. Copper loss test
- b. No-load test
- c. Insulation resistance test**
- d. Ampacity test

468. For four to six conductors in a conduit, the derating factor for the conductor ampacity is ____.

- a. 70%
- b. 90%
- c. 80%
- d. 60%

468. For four to six conductors in a conduit, the derating factor for the conductor ampacity is ____.

- a. 70%
- b. 90%
- c. 80%
- d. 60%

469. In general, layout of motors and power outlets not exceeding a total of ____ maybe included in the lighting layout provided such inclusion will not make the reading, interpretation and or checking of the said plan difficult.

- a. 8
- b. 10
- c. 12
- d. 6

469. In general, layout of motors and power outlets not exceeding a total of ___ maybe included in the lighting layout provided such inclusion will not make the reading, interpretation and or checking of the said plan difficult.

a. 8

b. 10

c. 12

d. 6

470. For armories and auditoriums, the general lighting load shall be computed at ____.

- a. 8 VA/m^2
- b. 12 VA/m^2
- c. 10 VA/m^2
- d. 16 VA/m^2

470. For armories and auditoriums, the general lighting load shall be computed at ____.

- a. 8 VA/m²
- b. 12 VA/m²
- c. 10 VA/m²
- d. 16 VA/m²

471. Plate electrodes of non-ferrous metal shall be at least ____ in thickness.

- a. 1.2 mm
- b. 1.0 mm
- c. 1.5 mm
- d. 1.8 mm

471. Plate electrodes of non-ferrous metal shall be at least ____ in thickness.

- a. 1.2 mm
- b. 1.0 mm
- c. 1.5 mm
- d. 1.8 mm

472. Conductors are selected at not less than _____ of the nameplate rating of the water heater.

- a. 125%
- b. 100%
- c. 120%
- d. 130%

472. Conductors are selected at not less than _____ of the nameplate rating of the water heater.

- a. 125%
- b. 100%
- c. 120%
- d. 130%

473. Neutral current up to ____ is computed at 100% demand.

- a. 100 A
- b. 150 A
- c. 200 A
- d. 300 A

473. Neutral current up to ____ is computed at 100% demand.

- a. 100 A
- b. 150 A
- c. 200 A
- d. 300 A

474. Direct grade level access is defined as being located not more than ___ above grade level and being readily accessible.

- a. 2.0 m
- b. 1.5 m
- c. 1.8 m
- d. 2.5 m

474. Direct grade level access is defined as being located not more than ___ above grade level and being readily accessible.

- a. 2.0 m
- b. 1.5 m
- c. 1.8 m
- d. 2.5 m

475. Before an ammeter is disconnected from an energized current transformer circuit, one of the procedures should be followed. Which one is this?

- a. Primary winding should be shorted.
- b. Secondary winding should be shorted.
- c. Secondary winding should be opened.
- d. Primary winding should be opened.

475. Before an ammeter is disconnected from an energized current transformer circuit, one of the procedures should be followed. Which one is this?

- a. Primary winding should be shorted.
- b. Secondary winding should be shorted.
- c. Secondary winding should be opened.
- d. Primary winding should be opened.**

476. Direct buried conductors and cables emerging from the ground shall be protected by enclosures or raceways extending from the minimum cover distance required to a point ___ above finished grade.

- a. 2.0 m
- b. 2.5 m
- c. 2.4 m
- d. 3.0 m

476. Direct buried conductors and cables emerging from the ground shall be protected by enclosures or raceways extending from the minimum cover distance required to a point ___ above finished grade.

- a. 2.0 m
- b. 2.5 m
- c. 2.4 m
- d. 3.0 m

477. It is the intent of the PEC that factory installed internal wiring or the construction of equipment need not be inspected at the time of installation of the time of installation of the equipment EXCEPT:

- a. To test for continuity
- b. To test fro durability
- c. To detect alterations or damages
- d. All of these

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- a. To test for continuity
- b. To test fro durability
- c. To detect alterations or damages
- d. All of these

478. Give the minimum vertical clearance from finished grade of a service drop conductor installed between buildings on residential properties and driveways?

- a. 5.5 m
- b. 4.6 m
- c. 3.7 m
- d. 3.1 m

478. Give the minimum vertical clearance from finished grade of a service drop conductor installed between buildings on residential properties and driveways?

- a. 5.5 m
- b. 4.6 m
- c. 3.7 m
- d. 3.1 m

479. Where more than one electrode is used, each electrodes of one grounding system shall NOT be less than ___ from any other electrodes of another grounding system.

- a. 1.8 mm
- b. 2.0 m
- c. 2.4 m
- d. 1.9 m

479. Where more than one electrode is used, each electrodes of one grounding system shall NOT be less than ___ from any other electrodes of another grounding system.

- a. 1.8 mm
- b. 2.0 m
- c. 2.4 m**
- d. 1.9 m

480. When measuring to determine the size of stranded conductor, you would place the wire gage over ____.

- a. The insulation
- b. All of the strands
- c. One strand of the conductor
- d. The outer covering

480. When measuring to determine the size of stranded conductor, you would place the wire gage over ____.

- a. The insulation
- b. All of the strands**
- c. One strand of the conductor
- d. The outer covering

481. The voltage developed between the portable or mobile equipment frame and ground by the flow of maximum ground fault current shall NOT exceed ____.

- a. 100 V
- b. 50 V
- c. 150 V
- d. 30 V

481. The voltage developed between the portable or mobile equipment frame and ground by the flow of maximum ground fault current shall NOT exceed ____.

- a. 100 V
- b. 50 V
- c. 150 V
- d. 30 V

482. Plug fuses shall not be installed in circuits exceeding ____ between conductors.

- a. 125 V
- b. 250 V
- c. 300 V
- d. 150 V

482. Plug fuses shall not be installed in circuits exceeding ____ between conductors.

a. 125 V

b. 250 V

c. 300 V

d. 150 V

483. A single electrode consisting of a rod, pipe or plate shall have a resistance to ground of ____ or less.

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

483. A single electrode consisting of a rod, pipe or plate shall have a resistance to ground of ____ or less.

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

484. Mandatory rules of the PEC are characterized by the use of the word ____.

- a. Shall
- b. Should
- c. Both A and B
- d. Neither A nor B

484. Mandatory rules of the PEC are characterized by the use of the word ____.

- a. **Shall**
- b. Should
- c. Both A and B
- d. Neither A nor B

485. Who shall make the final decision in the interpretation of controversial provisions of the PEC?

- a. IIEE Board of Governors
- b. Board of Electrical Engineering
- c. Building Official
- d. IIEE Code Committee

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- a. IIEE Board of Governors
- b. Board of Electrical Engineering**
- c. Building Official
- d. IIEE Code Committee

486. For equipment protected by a 20 A overcurrent device, the minimum size of equipment grounding conductor using copper shall be ____.

- a. 2.0 mm²
- b. 3.5 mm²
- c. 1.25 mm²
- d. 5.5 mm²

486. For equipment protected by a 20 A overcurrent device, the minimum size of equipment grounding conductor using copper shall be ____.

- a. 2.0 mm²
- b. 3.5 mm²**
- c. 1.25 mm²
- d. 5.5 mm²

487. For warehouses or storage, a general lighting load of ____ shall be used.

- a. 2 VA/m^2
- b. 4 VA/m^2
- c. 8 VA/m^2
- d. 10 VA/m^2

487. For warehouses or storage, a general lighting load of ____ shall be used.

- a. 2 VA/m²
- b. 4 VA/m²
- c. 8 VA/m²
- d. 10 VA/m²

488. A continuous electrical load is one where the maximum current is expected to continue for a minimum duration of time. What is this minimum duration of time?

- a. 1 hour
- b. 4 hours
- c. 3 hours
- d. 2 hours

488. A continuous electrical load is one where the maximum current is expected to continue for a minimum duration of time. What is this minimum duration of time?

- a. 1 hour
- b. 4 hours
- c. 3 hours**
- d. 2 hours

489. The minimum clearances between the overhead ground wires and the highest protection on the protected structure shall be ____.

- a. 1.6 m
- b. 1.5 m
- c. 1.8 m
- d. 1.7 m

489. The minimum clearances between the overhead ground wires and the highest protection on the protected structure shall be ____.

- a. 1.6 m
- b. 1.5 m
- c. 1.8 m
- d. 1.7 m

490. S_2 means:

- a. Duplex switch
- b. Two-pole switch
- c. Two-way switch
- d. Two-throw switch

490. S_2 means:

- a. Duplex switch
- b. Two-pole switch
- c. Two-way switch
- d. Two-throw switch

491. Entrances to rooms and other guarded locations containing exposed energized parts shall be marked with a ____.

- a. Welcome sign
- b. No entry sign
- c. Warning sign
- d. All of these

491. Entrances to rooms and other guarded locations containing exposed energized parts shall be marked with a ____.

- a. Welcome sign
- b. No entry sign
- c. **Warning sign**
- d. All of these

492. The minimum size of service lateral conductors using copper wires shall be ____.

- a. 5.5 mm²
- b. 3.5 mm²
- c. 8.0 mm²
- d. 2.0 mm²

492. The minimum size of service lateral conductors using copper wires shall be ____.

- a. 5.5 mm²
- b. 3.5 mm²
- c. 8.0 mm²
- d. 2.0 mm²

493. Underfloor raceways may be occupied up to _____ of the area.

- a. 55%
- b. 38%
- c. 40%
- d. 30%

493. Underfloor raceways may be occupied up to _____ of the area.

a. 55%

b. 38%

c. 40%

d. 30%

494. The height of air terminals shall be such as to bring the tip not less than ____ above the object to be protected for 6,000 mm maximum intervals.

- a. 250 mm
- b. 254 mm
- c. 300 mm
- d. 150 mm

494. The height of air terminals shall be such as to bring the tip not less than ____ above the object to be protected for 6,000 mm maximum intervals.

- a. 250 mm
- b. 254 mm**
- c. 300 mm
- d. 150 mm

495. For installation to supply only limited loads of a single branch circuit, service entrance conductors shall NOT be smaller than ____ hard drawn copper.

- a. 3.5 mm²
- b. 8.0 mm²
- c. 5.5 mm²
- d. 14.0 mm²

495. For installation to supply only limited loads of a single branch circuit, service entrance conductors shall NOT be smaller than ____ hard drawn copper.

- a. 3.5 mm²
- b. 8.0 mm²
- c. 5.5 mm²
- d. 14.0 mm²

496. The uppermost portion of a lightning protection system.

- a. Surge arrester
- b. Lightning rod
- c. Ground terminal
- d. Air terminal

496. The uppermost portion of a lightning protection system.

- a. Surge arrester
- b. Lightning rod
- c. Ground terminal
- d. Air terminal

497. The minimum size of service drop copper conductors allowed by the PEC is one of the following. Which is this size?

- a. 3.5 mm²
- b. 5.5 mm²
- c. 2.0 mm²
- d. 8.0 mm²

497. The minimum size of service drop copper conductors allowed by the PEC is one of the following. Which is this size?

- a. 3.5 mm²
- b. 5.5 mm²
- c. 2.0 mm²
- d. 8.0 mm²

498. What is the maximum permitted load of 20 A branch circuit serving a continuous duty load?

- a. 10 A
- b. 25 A
- c. 20 A
- d. 16 A

498. What is the maximum permitted load of 20 A branch circuit serving a continuous duty load?

- a. 10 A
- b. 25 A
- c. 20 A
- d. 16 A

499. Appliance outlets installed in a dwelling unit for specific appliances, such as laundry equipment, shall be installed within ____ of the intended location of the appliance.

- a. 1.8 m
- b. 1.5 m
- c. 2.0 m
- d. 1.0 m

499. Appliance outlets installed in a dwelling unit for specific appliances, such as laundry equipment, shall be installed within ____ of the intended location of the appliance.

- a. 1.8 m
- b. 1.5 m
- c. 2.0 m
- d. 1.0 m

500. Which of the following conductors is applicable only on dry locations?

- a. Type THW (Moisture & Heat Resistant Thermoplastic)
- b. Type THWN (Moisture & Heat Resistant Thermoplastic)
- c. Type RH (Heat-Resistant Rubber)
- d. None of these

500. Which of the following conductors is applicable only on dry locations?

- a. Type THW (Moisture & Heat Resistant Thermoplastic)
- b. Type THWN (Moisture & Heat Resistant Thermoplastic)
- c. **Type RH (Heat-Resistant Rubber)**
- d. None of these