Question Bank 7

AR. ANGEL B. MANLAPAO, UAP, RMP

1. Why is it that slip rings are sometimes fitted on DC generators?

A. To apply excitation to the fieldB. To supply AC from the machineC. To convert the internal AC to DCD. To supply more current

1. Why is it that slip rings are sometimes fitted on DC generators?

A. To apply excitation to the field
B. To supply AC from the machine
C. To convert the internal AC to DC
D. To supply more current

2. The temperature of the shunt field motor increased from 20°C to 30°C after 3 hours of operation. This increase in temperatures produces what effect on the behavior of the motor?

- A. It will slow down due to decrease in field current
- B. I will have no effect
- C. It will slow down the motor due to increase of field circuit resistance
- D. It will speed up the motor due to decrease in the field current

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3. Electron flow produced by means of applying a pressure to a materials is called____.

- A. Electrochemistry
- B. Thermoelectricity
- C. Piezoelectricity
- D. Photo conduction

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- **B.** Thermoelectricity
- C. Piezoelectricity
- D. Photo conduction

4. A coil of wire placed in the armature core used to fill up the vacant slots but which is not connected to the armature windings.

- A. Damping coil
- B. Auxiliary coil
- C. Dummy coil
- D. Compensating coil

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- C. Dummy coil
- D. Compensating coil

5. Which one is the most commonly used cell?

- A. Silver-zinc
- B. Lead-acid
- C. Nickel-iron
- D. Lithium

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- A. Silver-zincB. Lead-acidC. Nickel-iron
- D. Lithium

6. Which instruments is most sensitive?

- A. Permanent magnet moving coil
- B. Dynamometer
- C. Moving iron
- D. Hot wire

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7. The shunt of an ammeter is made from.

- A. Copper
- B. Silver
- C. Manganese
- D. Manganin

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- A. CopperB. SilverC. Manganese
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8. The direction of rotation of a capacitor-start induction motor can be reversed by reversing

A. The starting winding leads
B. The running winding leads
C. Either A or B
D. Either B or B

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9. A three-phase load is balanced if all three phases have the same.

- A. Impedance
- B. Power factor
- C. Both A and B
- D. Resistance

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10. PVC is a widely used insulation or jacketing on a communication wires control cable, bell wire, building wire, appliance cord, etc. What do you mean by PVC?

- A. Propylene chloride
- B. Polyethylene chloride
- C. Polyester chloride
- D. Polyvinyl chloride

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- B. Polyethylene chloride
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- D. Polyvinyl chloride

11. An electrical timer switch for lighting is normally connected in _____ with the lighting circuit being controlled.

- A. Tandem
- B. Sequence
- C. Series
- D. Parallel

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- A. Tandem
- B. Sequence
- C. Series
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12. When using OHM'S law IR would solve for ____?

- A. Amperage
- B. Resistance
- C. Electrical power
- D. Voltage

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- A. Amperage
- B. Resistance
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- D. Voltage

13. Alternator voltage can be increase by_____.

A. Decreasing the prime mover speedB. Increasing the field circuit rheostatC. Increasing the prime mover speedD. Increasing the armature resistance

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A. Decreasing the prime mover speed
B. Increasing the field circuit rheostat
C. Increasing the prime mover speed
D. Increasing the armature resistance

14. Unit of electrical current flow.

A. AmpereB. CoulombC. WeberD. Volt

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15. International ohm is defined in terms of resistance of.

A. A cube of a carbonB. A column of mercuryC. A cube of copperD. A unit length of metal wire

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A. A cube of a carbon
B. A column of mercury
C. A cube of copper
D. A unit length of metal wire

16. At what percentage speed from rated will a centrifugal switch opens in a split-phase induction motor when started?

- A. 75%
- B. 50%
- C. 100%
- D. 60%

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A. 75%
B. 50%
C. 100%
D. 60%

17. The ratio of KW to KVA is called.

- A. Plant factor
- B. Utilization factor
- C. Factor of safety
- D. Power factor

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- A. Plant factor
- B. Utilization factor
- C. Factor of safety
- D. Power factor

18. Counter EMF is measured in.

- A. Amps
- B. Volts
- C. Ohms
- D. Ampere-turns
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- A. Amps
- B. Volts
- C. Ohms
- D. Ampere-turns

19. A fluorescent lamp unit connected to a 110-V AC line takes 1.20 A and requires 110 W power. What is its power factor?

A. 0.9
B. 0.833
C. 0.866
D. 0.8

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P = Eipf Pf = P / El Pf = 110 / 110(1.2) Pf = 0.833 20. An electric heater uses 20 KW-hr in 8 hours. If the voltage across the heater is 240 volts. What is the heater resistance?

- A. 25 Ω
 B. 83 Ω
 C. 23 Ω
- D. 12 Ω

20. An electric heater uses 20 KW-hr in 8 hours. If the voltage across the heater is 240 volts. What is the heater resistance?

A. 25Ω W = PtP = E² / RB. 83Ω P = W / tR = E² / PC. 23Ω P = 20 / 8R = 240² / 2,500 wD. 12Ω P = 2.5 KWR = 23.04 Ω

21. A rheostat is used to regulate the current in a circuit by.

A. Varying the voltage of the circuitB. Varying the power factor of the circuitC. Varying the resistance of the circuitD. Non of these

21. A rheostat is used to regulate the current in a circuit by.

A. Varying the voltage of the circuit
B. Varying the power factor of the circuit
C. Varying the resistance of the circuit
D. Non of these

22. Ohm's law is applicable to.

- A. Electric arcs
- B. Gas discharge lamps
- C. Rectifying devices
- D. Non of these

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- A. Electric arcs
- B. Gas discharge lamps
- C. Rectifying devicesD. Non of these

- A. Filter AC currents and pass DC currents
- B. Filter AC and DC currents
- C. Filter DC currents and pass AC currents
- D. Pass DC and AC currents

A. Filter AC currents and pass DC currents

- B. Filter AC and DC currents
- C. Filter DC currents and pass AC currents
- D. Pass DC and AC currents

24. In a series circuit, the total resistance is

- A. The sum of the reciprocals of all resistance
- B. The average of all resistance
- C. The sum of all resistance
- D. Smaller than the smallest resistance

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- A. The sum of the reciprocals of all resistance
- B. The average of all resistance
- C. The sum of all resistance
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25. The hot resistance of a 230-V incandescent lamp is 300 ohms. What current is required to operate the lamp?

A. 0.85 A
B. 0.77 A
C. 1.30 A
D. 0.74 A

25. The hot resistance of a 230-V incandescent lamp is 300 ohms. What current is required to operate the lamp?

A. 0.85 A
B. 0.77 A
C. 1.30 A
D. 0.74 A

I = E / R I = 230 / 300 I = 0.77 A 26. What voltage would be required to produce a flow of 10 A through a resistance of 12 ohms?

A. 125 V
B. 122 V
C. 121 V
D. 120 V

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A. 125 V
B. 122 V
C. 121 V
D. 120 V

E = IR E = 10 (12)E = 120 V 27. The advantage of wye-connected system is that _____.

- A. The line currents and phase currents are equal
- B. It is easy to troubleshoot due to it's a simple arrangement
- C. Two voltages can be used
- D. Non of these

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- A. The line currents and phase currents are equal
- B. It is easy to troubleshoot due to it's a simple arrangement
- C. Two voltages can be used
- D. Non of these

28. An AC circuit has a resistance of 4 ohms and a reactance of 3 ohms. What is the impedance?

A. 7 ohms
B. 5 ohms
C. 12 ohms
D. 8 ohms

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B. 5 ohms
C. 12 ohms
D. 8 ohms

Z = (square root of R² + X²) Z = (square root of 4² + 3² Z = 5 ohms 29. In a shunt-wound generator the rheostat is connected.

- A. In parallel with the field
- B. Across the line
- C. In series with the field
- D. Non of these

29. In a shunt-wound generator the rheostat is connected.

A. In parallel with the fieldB. Across the lineC. In series with the fieldD. Non of these

30. How may coils are there in a megger?

A. TwoB. FourC. OneD. Three

30. How may coils are there in a megger?

A. TwoB. FourC. OneD. Three

31. Washing machines usually uses what type of motor?

- A. Hysteresis motor
- B. Compound motor
- C. Shaded-pole motor
- D. Resistance-split phase motor

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- A. Hysteresis motor
- B. Compound motor
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32. The number of cycles of an AC voltage is known as.

- A. Frequency
- B. Wave form
- C. Phase angle
- D. Half mode

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- A. Frequency
- B. Wave form
- C. Phase angle
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33. One joule of electrical energy is equivalent to _____.

A. One watt-secondB. One watt-minuteC. One kilowatt-hourD. One watt per second

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34. Type of overload that contains a solder pot.

A. BimetallicB. MetallicC. Melting alloyD. Magnetic

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A. Bimetallic
B. Metallic
C. Melting alloy
D. Magnetic

35. A synchronous motor is excited with.

- A. An AC current
- B. A DC current
- C. A combination of AC & DC currents
- D. Any current

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- A. An AC current
- B. A DC current
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36. A cell supplies a load current of 0.5 A for a period of 20 hours until its terminal voltage falls to an unacceptable level. How long it could be expected to supply a current of 100 mA?

A. 50 hours
B. 100 hours
C. 60 hours
D. 70 hours
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B. 100 hours
C. 60 hours
D. 70 hours

Rating = Itt = Rating / IRating = (0.5)(20)t = 10 / 0.100Rating = 10 Aht = 100 hours

37. The physical of a resistor that determines its ability to dissipate heat is rated in.

- A. AmperesB. OhmsC. Volts
- D. Watts

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A. AmperesB. OhmsC. VoltsD. Watts

38. A 3-ohm resistor and a 6-ohm resistor are connected in series across a DC supply. If the 3-ohm resistor is 4 V, what is the voltage of the supply?

- A. 6 volts
- B. 8 volts
- C. 18 volts
- D. 12 volts

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- C. 18 volts

D. 12 volts

- It = E1/R1It = 4/3It = 1.333 A
- E = It (R1 + R2) E = 1.333 (3 + 6)E = 12 V

39. Solutions that are used in batteries are called _____.

- A. Pastes
- B. Catalyst
- C. Compounds
- D. Electrolytes

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- B. Catalyst
- C. Compounds
- **D. Electrolytes**

40. Lubrication is never used on.

- A. A commutator
- B. A knife switch
- C. A cutting die when threadingD. Wire being pulled into a conduit

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- A. A commutator
- B. A knife switch
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41. In a DC generator, the purpose of commutator is to _____.

- A. Rectify armature current
- B. Convert magnetic lines of force to flux
- C. Keep constant voltage
- D. Keep a constant amperage

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A. Rectify armature current

- B. Convert magnetic lines of force to flux
- C. Keep constant voltage
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42. If an atom has less than 4 valence electrons, the material is.

- A. An insulator
- B. A semi-conductor
- C. A super conductor
- D. A conductor

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- A. An insulator
- B. A semi-conductor
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43. Insulator are commonly made from _

- A. Mica
- B. Porcelain
- C. Ceramic
- D. All of these

43. Insulator are commonly made from _

- A. Mica
- B. Porcelain
- C. Ceramic
- D. All of these

44. A battery is a group of cells connected in.

- A. Parallel
- B. Series-parallel
- C. Series
- D. All of these

44. A battery is a group of cells connected in.

- A. Parallel
- B. Series-parallel
- C. Series
- D. All of these

Notes: In battery, for higher voltage rating, cells are connected in series and for higher current rating, cells are connected in parallel or both type of connections for both requirements

45. Another name for capacitance to ground.

- A. Dielectric capacitance
- B. Image capacitance
- C. Skin capacitance
- D. Stray capacitance

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- B. Image capacitance
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- D. Stray capacitance

46. What is the internal resistance of an ideal current source?

A. LowB. NegativeC. HighD. zero

46. What is the internal resistance of an ideal current source?

A. Low
B. Negative
C. High
D. zero

47. Which of the following is a requirements to induce a voltage and current in a wire?

- A. A magnetic field
- B. A conductor in a closed circuit
- C. Motion between A & B
- D. All of these

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- B. A conductor in a closed circuit
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48. Resistance commonly used in power circuits.

- A. Carbon composition
- B. Wire wound resistors
- C. Deposited film resistors
- D. Etched circuit resistor

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49. When selecting the size of wire to be used in a circuit, the most important tem to consider is the.

- A. Resistance of the circuit
- B. Amperage of the circuit
- C. Voltage of the circuit
- D. Amount of wire to be used

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- B. Amperage of the circuit
- C. Voltage of the circuit
- D. Amount of wire to be used

50. How can a short circuit be detected.

- A. By using an ohmmeter
- B. By using a megger
- C. By using an oscilloscope
- D. By using ammeter

50. How can a short circuit be detected.

- A. By using an ohmmeter
- B. By using a megger
- C. By using an oscilloscope
- D. By using ammeter

51. Sheet metal troughs with hinged or removable covers for housing and protecting electric wires and cables and which conductors are laid in place after this object has been installed as a complete system.

- A. Wireways
- B. Busways
- C. Cable trays
- D. Non-metallic extensions

51. Sheet metal troughs with hinged or removable covers for housing and protecting electric wires and cables and which conductors are laid in place after this object has been installed as a complete system.

- A. Wireways
- B. Busways
- C. Cable trays
- D. Non-metallic extensions

52. The minimum size of branch circuit capacity to supply laundry receptacle outlets shall be _____.

- A. 20 A
- B. 15 A
- C. 25 A
- D. 30 A

52. The minimum size of branch circuit capacity to supply laundry receptacle outlets shall be _____.

A. 20 AB. 15 A

C. 25 A

D. 30 A

53. The grounding electrode conductor shall be _____.

A. CopperB. Copper-clad –aluminumC. Aluminum

D. All of these

53. The grounding electrode conductor shall be _____.

A. Copper
B. Copper-clad –aluminum
C. Aluminum
D. All of these

54. Conductors in open wiring on insulators shall be rigidly supported within _____ from a tap or splice.

- A. 200 mm
- B. 100 mm
- C. 250 mm
- D. 150 mm
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- A. 200 mm
- B. 100 mm
- C. 250 mm
- D. 150 mm

55. Main and equipment bonding jumper shall be made from.

- A. CopperB. Aluminum
- C. Both A & B
- D. Neither A or B

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A. CopperB. Aluminum

C. Both A & B

D. Neither A or B

56. Which of the following statements is NOT one of the primary objective of the Philippine Electrical Code?

A. To establish electrical work standards

- B. To establish basic material qualities
- C. To ensure safety in using electricity
- D. Non of these

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A. To establish electrical work standards
B. To establish basic material qualities
C. To ensure safety in using electricity
D. Non of these

57. Connection between conductive or inductive metal object in an element of a lighting protection system to accomplish electrical continuity.

- A. Connectors
- B. Interlink
- C. Counterpoise
- D. Bonding

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- A. Connectors
- B. Interlink
- C. Counterpoise
- D. Bonding

58. The minimum insulation level for neutral conductors of solidly grounded system shall be _____.

A. 500 V
B. 300 V
C. 600 V
D. 750 V

58. The minimum insulation level for neutral conductors of solidly grounded system shall be _____.

A. 500 V
B. 300 V
C. 600 V
D. 750 V

59. Flexible cords used in locations where there is a lot of flying flint or fibers shall comply with following EXCEPT one. Which one is this?

- A. It shall be approved for used in location which are vapor filled
- B. It shall contain in addition to the conductors, a grounding conductor
- C. It shall be of type approved for extra hard usage
- D. It shall be provided with suitable seal to

59. Flexible cords used in locations where there is a lot of flying flint or fibers shall comply with following EXCEPT one. Which one is this?

- A. It shall be approved for used in location which are vapor filled
- B. It shall contain in addition to the conductors, a grounding conductor
- C. It shall be of type approved for extra hard usage
- D. It shall be provided with suitable seal to

60. For class II lightning materials, the minimum diameter of a solid copper air terminal shall be _____.

- A. 15.9 mm
- B. 12.7 mm
- C. 10.5 mm
- D. 9.5 mm

60. For class II lightning materials, the minimum diameter of a solid copper air terminal shall be _____.

- A. 15.9 mm
- B. 12.7 mm
- C. 10.5 mm
- D. 9.5 mm

61. Art. 1.10.2 of PEC 1 requires working space for equipment operating 600V nominal or less to ground. This is required for live parts on the other side, like concrete, brick or the tile walls and shall be considered as grounded. What is this minimum distance for condition 2?

- A. 1300 mm
- B. 1400 mm
- C. 1200 mm
- D. 1100 mm

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- A. 1300 mm
- B. 1400 mm
- C. 1200 mm
- D. 1100 mm

62. Surge of unidirectional polarity.

- A. Skin effect
- B. Corona
- C. Flashover
- D. Impulse

62. Surge of unidirectional polarity.

- A. Skin effect
- B. Corona
- C. Flashover
- D. Impulse

63. Auxiliary gutter shall be supported throughout it entire length at intervals _____

- A. 1,500 mm
- B. 1,800 mm
- C. 1,200 mm
- D. 1,600 mm

63. Auxiliary gutter shall be supported throughout it entire length at intervals _____

- A. 1,500 mm
- B. 1,800 mm
- C. 1,200 mm
- D. 1,600 mm

64. When installing cables or raceway type wiring method parallel to the framing members such as joist, rafters or studs, the cable or raceway shall be installed and supported so that the nearest outside surface of the cable or raceway is NOT less than a certain distance from the nearest edge of the framing member. What is this distance?

- A. 20 mm
- B. 30 mm
- C. 10 mm
- D. 50 mm

64. When installing cables or raceway type wiring method parallel to the framing members such as joist, rafters or studs, the cable or raceway shall be installed and supported so that the nearest outside surface of the cable or raceway is **NOT** less than a certain distance from the nearest edge of the framing member. What is this distance?

- A. 20 mm
- B. 30 mm
- C. 10 mm
- D. 50 mm

65. Mats of insulating rubber or other suitable floor insulation shall be provided for the operator where the voltage to ground exceeds _____.

A. 150 V
B. 100 V
C. 250 V
D. 120 V

65. Mats of insulating rubber or other suitable floor insulation shall be provided for the operator where the voltage to ground exceeds _____.

A. 150 V B. 100 V C. 250 V D. 120 V 66. A point at which the load of a given area is assumed to be concentrated.

- A. Switchboard
- B. Outlet
- C. Panelboard
- D. Load center

66. A point at which the load of a given area is assumed to be concentrated.

- A. Switchboard
- B. Outlet
- C. Panelboard
- D. Load center

67. How many 20 A branch circuit shall be provided for all receptacle outlets for the small appliance load?

- A. One or more
- B. At least two
- C. Only one
- D. Non of these

67. How many 20 A branch circuit shall be provided for all receptacle outlets for the small appliance load?

- A. One or more
- B. At least two
- C. Only one
- D. Non of these

68. For a one family dwelling unit having an initial load of 10 KVA or more, the minimum service entrance capacity shall be.

A. 100 A
B. 90 A
C. 60 A
D. 30 A

68. For a one family dwelling unit having an initial load of 10 KVA or more, the minimum service entrance capacity shall be.

A. 100 A
B. 90 A
C. 60 A
D. 30 A

69. The workspace about electrical equipment shall be adequate to permit at least _____ degree opening of doors or hinged panel.

A. 90°

B. 45°

C. 60°

D. 75°

69. The workspace about electrical equipment shall be adequate to permit at least _____ degree opening of doors or hinged panel.

- A. 90°
- B. 45°
- C. 60°
- D. 75°

70. The multiplying factor for determining the size of branch circuit protection for non-time delay fuse is.

- A. 300 %
- B. 175 %
- C. 250 %
- D. 150 %

70. The multiplying factor for determining the size of branch circuit protection for non-time delay fuse is.

A. 300 %
B. 175 %
C. 250 %
D. 150 %

71. Portable appliances equipped with proper cord and plug caps and NOT more than ______ maybe installed without an electrical permit.

- A. 1,200 VA
- B. 1,500 VA
- C. 1,000 VA
- D. 1,800 VA

71. Portable appliances equipped with proper cord and plug caps and NOT more than _____ maybe installed without an electrical permit.

A. 1,200 VA
B. 1,500 VA
C. 1,000 VA
D. 1,800 VA

72. Each transformer up to 600 V nominal shall be protected by an individual overcurrent device on the primary side at not more than a certain percentage of the rated primary current of the transformer. What is this maximum percentage?

- A. 110 %
- B. 125 %
- C. 100 %
- D. 140 %
72. Each transformer up to 600 V nominal shall be protected by an individual overcurrent device on the primary side at not more than a certain percentage of the rated primary current of the transformer. What is this maximum percentage?

- A. 110 %
- **B.** 125 %
- C. 100 %
- D. 140 %

73. Tools and portable handlamps likely to be used in wet and conductive location shall not be required to be grounded where supplied through isolating transformer with an undergrounded secondary of not more than _____.

- A. 100 V
- **B.** 150 V
- C. 50 V
- D. 60 V

73. Tools and portable handlamps likely to be used in wet and conductive location shall not be required to be grounded where supplied through isolating transformer with an undergrounded secondary of not more than _____.

- A. 100 V
- B. 150 V
- C. 50 V
- D. 60 V

74. What is the maximum fuse rating allowed by the code to protect a single phase motor that draws 20 A at full load against short circuit but at the same time will fail at start?

- A. 30 A
- **B.** 60 A
- C. 50 A
- D. 20 A

74. What is the maximum fuse rating allowed by the code to protect a single phase motor that draws 20 A at full load against short circuit but at the same time will fail at start?

A. 30 A
B. 60 A
C. 50 A
D. 20 A

75. The code has been approved and adopted by the Board, PRC. What does the acronym PRC stands for?

- A. Philippine Registration Commission
- **B.** Professional Regulation Commission
- C. Philippine Regulation Commission
- **D.** Professional Registration Commission

75. The code has been approved and adopted by the Board, PRC. What does the acronym PRC stands for?

- A. Philippine Registration Commission
- **B. Professional Regulation Commission**
- C. Philippine Regulation Commission
- **D.** Professional Registration Commission

76. Which of the following is not a standard content of an electrical plan?

- A. Location plan
- B. Legend and general notes
- C. Schedule of maintenance
- **D.** Specifications

76. Which of the following is not a standard content of an electrical plan?

- A. Location plan
- B. Legend and general notes
- C. Schedule of maintenance
- **D.** Specifications

77. Conductors supplying one or more motorcompressors with or without additional loads shall have an ampacity not less than the sum of the rated load plus _____ percent of the highest motor-compressor rating in the group.

- A. 30
- **B.** 25
- C. 20
- D. 15

77. Conductors supplying one or more motorcompressors with or without additional loads shall have an ampacity not less than the sum of the rated load plus _____ percent of the highest motor-compressor rating in the group.

- A. 30
- **B.** 25
- C. 20
- D. 15

78. Which of the following conductors is NOT applicable on wet locations?

A. Type THHNB. Type THWC. Type RHWD. Type THWN

78. Which of the following conductors is NOT applicable on wet locations?

A. Type THHNB. Type THWC. Type RHWD. Type THWN

79. Size 1.25 mm² fixture wire has an ampacity of _____.

A. 10 A
B. 8 A
C. 12 A
D. 9 A

79. Size 1.25 mm² fixture wire has an ampacity of _____.

A. 10 A
B. 8 A
C. 12 A
D. 9 A

80. Motor A has a full load current of 8 A and motor B, 10 A. What is the ampacity of the feeder conductor supplying this two motors?

A. 9 A
B. 20.5 A
C. 18 A
D. 24. 2 A

80. Motor A has a full load current of 8 A and motor B, 10 A. What is the ampacity of the feeder conductor supplying this two motors?

A. 9 A
B. 20.5 A
C. 18 A
D. 24. 2 A

Load = $\sum load + 25\%$ of largest load Load = $8 + 10 + (0.25 \times 10)$ Load = 20.5 A 81.For banks, the general lighting load shall be computed at _____ per square meters of the floor area.

- A. 24
- **B.** 20
- C. 30
- D. 28

81.For banks, the general lighting load shall be computed at _____ per square meters of the floor area.

- A. 24
- **B.** 20
- C. 30
- D. 28

82. Cabinet and cutout boxes shall have an air space of at least _____ between any energized metal parts of enclosed fuses and the door.

- A. 20 mm
- B. 13 mm
- C. 25 mm
- D. 15 mm

82. Cabinet and cutout boxes shall have an air space of at least _____ between any energized metal parts of enclosed fuses and the door.

A. 20 mm
B. 13 mm
C. 25 mm
D. 15 mm

83. Open wiring on insulators shall be permitted on system of up to _____.

A. 600 V
B. 500 V
C. 230 V
D. 300 V

83. Open wiring on insulators shall be permitted on system of up to _____.

A. 600 √
B. 500 √
C. 230 √
D. 300 √

84. Conductors in concealed knob and tube wiring shall maintain a clearance of NOT less than _____ between conductors?

- A. 64 mm
- B. 50 mm
- C. 76 mm
- D. 100 mm

84. Conductors in concealed knob and tube wiring shall maintain a clearance of NOT less than _____ between conductors?

- A. 64 mm B. 50 mm
- **C.** 76 mm
- D. 100 mm

85. The minimum size of wire used in electric wiring is the former number 14 AWG under the metric system shown in the PEC, the diameter is.

- A. 2.0 mm
- B. 3.2 mm
- C. 1.6 mm
- D. 2.6 mm

85. The minimum size of wire used in electric wiring is the former number 14 AWG under the metric system shown in the PEC, the diameter is.

A. 2.0 mm
B. 3.2 mm
C. 1.6 mm
D. 2.6 mm

A = $\pi d^2 / 4$ $d^2 = 4(A) / \pi$ $d^2 = 4(2) / \pi$ d = 1.595 or 1.6 mm 86. Non-metallic sheathed cable shall be secured in place at intervals NOT exceeding

- A. 1,300 mm
- B. 1,200 mm
- C. 1,500 mm
- D. 1,800 mm

86. Non-metallic sheathed cable shall be secured in place at intervals NOT exceeding

- A. 1,300 mm
- B. 1,200 mm
- C. 1,500 mm
- D. 1,800 mm

87. The bending radius of type SNM cable shall NOT be less than _____ times the diameter of the cable.

A. 3
B. 4
C. 5
D. 6

87. The bending radius of type SNM cable shall NOT be less than _____ times the diameter of the cable.

A. 3
B. 4
C. 5
D. 6

88. The ampacity of type UF cable shall be of that _____ conductor.

A. 60 °F B. 140 °C C. 60 °C D. 75 °C

88. The ampacity of type UF cable shall be of that _____ conductor.

A. 60 °F B. 140 °C C. 60 °C D. 75 °C 89. Flexible metallic tubing shall NOT be used in lengths longer than _____.

- A. 2,000 mm
- B. 1,800 mm
- C. 1,900 mm
- D. Non of these

89. Flexible metallic tubing shall NOT be used in lengths longer than _____.

- A. 2,000 mm B. <u>1,800 mm</u>
- C. 1,900 mm
- D. Non of these

90. For each small appliance branch circuit, the feeder load shall be _____ per 20 A circuit.

A. 1,000 VA
B. 1,200 VA
C. 1,500 VA
D. 1,800 VA
90. For each small appliance branch circuit, the feeder load shall be _____ per 20 A circuit.

A. 1,000 VA
B. 1,200 VA
C. 1,500 VA
D. 1,800 VA

91. A lighting and appliance branch circuit panelboard is one having more than _____ percent of its overcurrent device rated 30-A or less.

A. 10

B. 12

C. 15

D. 16

91. A lighting and appliance branch circuit panelboard is one having more than _____ percent of its overcurrent device rated 30-A or less.

A. 10B. 12C. 15

D. 16

92. What is the nominal supply voltage specified by the Philippines Electrical Code for residential homes?

- A. 225 volts ac
- B. 230 volts ac
- C. 240 volts ac
- D. 220 volts ac

92. What is the nominal supply voltage specified by the Philippines Electrical Code for residential homes?

- A. 225 volts ac
- B. 230 volts ac
- C. 240 volts ac
- D. 220 volts ac

93. Non-metallic sheathed cable shall be supported within _____ from every cabinet, box or fitting.

- A. 150 mm
- B. 200 mm
- C. 250 mm
- D. 300 mm

93. Non-metallic sheathed cable shall be supported within _____ from every cabinet, box or fitting.

- A. 150 mm
- B. 200 mm
- C. 250 mm
- D. 300 mm

94. Messenger supported wiring shall NOT be used in _____.

A. Hoistways

- B. Multi-conductor underground feeder
- C. Metal clad cable
- D. All of these

94. Messenger supported wiring shall NOT be used in _____.

A. Hoistways

- B. Multi-conductor underground feeder
- C. Metal clad cable
- D. All of these

95. Heating cable shall be furnished complete with factory assembled non-heating leads at least _____ in length.

- A. 2,000 mm
- B. 2,200 mm
- C. 2,300 mm
- D. 2,100 mm

95. Heating cable shall be furnished complete with factory assembled non-heating leads at least _____ in length.

- A. 2,000 mm
- B. 2,200 mm
- C. 2,300 mm
- D. 2,100 mm

96. Rosettes shall be rated at 660 W, 250 V with a maximum current rating of _____.

A. 6 A
B. 10 A
C. 4 A
D. 12 A

96. Rosettes shall be rated at 660 W, 250 V with a maximum current rating of _____.

A. 6 A
B. 10 A
C. 4 A
D. 12 A

97. When thermal overload relay are used for the protection of a three-phase induction motor, their primary purpose is to protect the motor in case of.

- A. Short circuit
- B. Reversal of phase sequence
- C. High voltage
- D. Sustained overload

97. When thermal overload relay are used for the protection of a three-phase induction motor, their primary purpose is to protect the motor in case of.

- A. Short circuit
- B. Reversal of phase sequence
- C. High voltage
- D. Sustained overload

98. In type AC cable, all bends shall be made so that the cable will not damaged and the radius of the curve of the inner edge of any bend shall NOT be less than _____times the diameter.

A. 4
B. 5
C. 6
D. 3

98. In type AC cable, all bends shall be made so that the cable will not damaged and the radius of the curve of the inner edge of any bend shall NOT be less than _____times the diameter.

A. 4
B. 5
C. 6
D. 3

99. The electrical plans for residential house include the following items EXCEPT one. Which one is this?

- A. Substation plan
- B. Location plan
- C. Floor plan showing location of service
- D. Layout of wiring plan for general lighting and receptacle outlets

99. The electrical plans for residential house include the following items **EXCEPT** one. Which one is this?

- A. Substation plan
- B. Location plan
- C. Floor plan showing location of service
- D. Layout of wiring plan for general lighting and receptacle outlets

100. Temporary electrical power and lighting installations shall be permitted for a period not to exceed ______ for Christmas decorative lighting, carnivals and similar purposes.

- A. 100 days
- B. 120 days
- C. 90 days
- D. 60 days

100. Temporary electrical power and lighting installations shall be permitted for a period not to exceed ______ for Christmas decorative lighting, carnivals and similar purposes.

- A. 100 daysB. 120 days
- C. 90 days
- D. 60 days

Question Bank 8

1. Negatively charge component of an atom.

- A. Electron
- B. Proton
- C. Neutron
- D. Ion

1. Negatively charge component of an atom.

- A. Electron
- B. Proton
- C. Neutron
- D. Ion

2. A battery whose internal resistance is 5ohms is connected to an external resistor of10 ohms. The battery's terminal voltage is 15V, what is the EMF of the battery?

A. 17.5 V
B. 25.0 V
C. 22.5 V
D. 14.2 V

2. A battery whose internal resistance is 5 ohms is connected to an external resistor of 10 ohms. The battery's terminal voltage is 15 V, what is the EMF of the battery?

A. 17.5 V B. 25.0 V C. 22.5 V D. 14.2 V

 $I = Er / R \qquad E = I (r + R)$ $I = 15 / 10 \qquad E = 1.5 (5 + 10)$ $I = 1.5 A \qquad E = 22.5 V$ 3.

- A. A meter for measuring the thickness of insulation
- B. An instrument for measuring current
- C. A hand-crank AC generator
- D. A hand-crank DC generator

4. Another name for counter EMF.

- A. Back EMF
- B. Opposite EMF
- C. Mutual EMF
- D. Self induced EMF

4. Another name for counter EMF.

- A. Back EMF
- B. Opposite EMF
- C. Mutual EMF
- D. Self induced EMF

5.

5. A DC ammeter is connected in series with a battery whose current is to be measured. If the positive terminal of the meter is connected with negative terminal of the battery, what will happen?

- A. The pointer of the meter will deflect downscale
- B. The pointer of the meter will deflect upscale
- C. The pointer of the meter will not move D. Non of these

6.

6. If the 3-phase load is balanced, at least how many wattmeters are needed to measure the power?

- A. One B. Two C. Three
- D. Four

7.

7. Charging a lead-acid cell causes the electrolyte to be come.

- A. Stronger B. Weaker
- C. Water
- D. Stable
8.

8. If the resistance of the circuit is doubled while the applied voltage is held constant. The current will _____. $I_1 = E/R$

- $I_1 = 1 / 2 condition 1$
- A. Increase by half as much

 $I_2 = E / 2R$ $I_2 = 1 / 2 [E / R] - condition 2$

- B. Remains the same
- C. Decrease to half as much
- D. Twice as much

9. Five carbon-zinc cells are in series. The open circuit voltage at the output is.

A. 5.5 V
B. 10 V
C. 7.5 V
D. 6.5 V

9. Five carbon-zinc cells are in series. The open circuit voltage at the output is.

A. 5.5 V B. 10 V C. 7.5 V D. 6.5 V

Note: The voltage per cell of a carbon-zinc cell is 1.5 V

Etotal = $1.5 \text{ V/cell} \times 5 \text{ cell}$ Etotal = 7.5 V 10.

10. Electrical symbol represented by a rectangle with a circle inside.

A. Fluorescent lamp outlet

- B. Incandescent lamp outlet
- C. Lighting panelboard
- D. Safety switch

11. At AC steady state, an indicator acts like

A. An open circuit
B. A short circuit
C. A capacitor
D. An insulator

11. At AC steady state, an indicator acts like

A. An open circuit
B. A short circuit
C. A capacitor

D. An insulator

12. The shunt resistance of an ammeter is usually a _____.

A. Low resistanceB. High resistanceC. Either A or BD. Neither A or B

12. The shunt resistance of an ammeter is usually a _____.

A. Low resistanceB. High resistanceC. Either A or BD. Neither A or B

13. Damping provides.

- A. Counter torque
- B. Starting torque on pointer
- C. Good accuracy
- D. Braking action on the meter pointer

13. Damping provides.

- A. Counter torque
- B. Starting torque on pointer
- C. Good accuracy
- D. Braking action on the meter pointer

14. Which of the following motors is well adapted to start large heavy inertia loads?

- A. Series wound motors
- B. Repulsion induction motors
- C. Shunt motor
- D. Stepper motor

14. Which of the following motors is well adapted to start large heavy inertia loads?

A. Series wound motors

- B. Repulsion induction motors
- C. Shunt motor
- D. Stepper motor

15. Three horsepower is equivalent to kilowatts.

A. 0.764 KW
B. 2.238 KW
C. 0.764 KW
D. 2.292 KW

15. Three horsepower is equivalent to kilowatts.

A. 0.764 KW
B. 2.238 KW
C. 0.764 KW
D. 2.292 KW

1 hp = 0.746 KW

16. A diode has a specified PIV rating. What do you mean by PIV?

- A. Peak instantaneous voltage
- B. Peak insulation voltage
- C. Peak inverse voltage
- D. Peak inverse voltage

16. A diode has a specified PIV rating. What do you mean by PIV?

A. Peak instantaneous voltage
B. Peak insulation voltage
C. Peak inverse voltage
D. Peak inverse voltage

17. A circuit has capacitance of 35 microfarad and an inductance of 0.2 H. Calculate the resonant frequency of the circuit.

A. 65 Hz
B. 60 Hz
C. 50 Hz
D. 55 Hz

17. A circuit has capacitance of 35 microfarad and an inductance of 0.2 H. Calculate the resonant frequency of the circuit.

A. 65 Hz
B. 60 Hz
C. 50 Hz
D. 55 Hz

 $f = 1 / 2\pi \text{ (square root LC)}$ f = 1 / 2\pi (square root (0.2)(35 x 10 - 6)) f = 60 Hz 18. Which of the following DC motors is used in high-speed application such as in compressors, blowers, fans, etc?

- A. Series motor
- B. Shunt motor
- C. Cumulative compound motor
- D. Differential compound motor

18. Which of the following DC motors is used in high-speed application such as in compressors, blowers, fans, etc?

- A. Series motor
- B. Shunt motor
- C. Cumulative compound motor
- D. Differential compound motor

19. A battery having a total EMF of 7.5 volts and a total internal resistance of 1.25 ohms. What external resistance will send a current of 2 A?

- A. 2.0 ohms
- B. 1.0 ohms
- C. 1.75 ohms
- D. 2.5 ohms

19. A battery having a total EMF of 7.5 volts and a total internal resistance of 1.25 ohms. What external resistance will send a current of 2 A?

A. 2.0 ohms
B. 1.0 ohms
C. 1.75 ohms
D. 2.5 ohms

I = E / r + R R = E / I - r R = 7.5 / 2 - 1.25R = 2.5 ohms

20. Cells are connected in parallel to increase.

- A. The current capacity of the cells
- B. The voltage capacity of the cells
- C. The resistance capacity of the cells
- D. All of these

20. Cells are connected in parallel to increase.

- A. The current capacity of the cells
- B. The voltage capacity of the cells
- C. The resistance capacity of the cells
- D. All of these

21. The proper way to mix the electrolyte for a battery is to add.

A. Alkaline water to acid
B. Acid to distilled water
C. Distilled water to acid

D. Acid to alkaline water

21. The proper way to mix the electrolyte for a battery is to add.

A. Alkaline water to acid
B. Acid to distilled water
C. Distilled water to acid

D. Acid to alkaline water

22. A 230-V, 3-phase motor takes 8 A at full load at 0.8 power factor lagging. How much power in KW does it take from the line?

A. 1.84 KW
B. 2.55 KW
C. 3.18 KW
D. 1.47 KW

22. A 230-V, 3-phase motor takes 8 A at full load at 0.8 power factor lagging. How much power in KW does it take from the line?

A. 1.84 KW
B. 2.55 KW
C. 3.18 KW
D. 1.47 KW

P = (square root 3) Elpf

P = (square root 3) (230) (8) (0.8)

P = 2,549.578 watts or 2.55 KW

23. As the temperature increases, the resistance of most conductors also increases, EXCEPT.

- A. Brass
- B. Carbon
- C. Silver
- D. copper

23. As the temperature increases, the resistance of most conductors also increases, EXCEPT.

- A. Brass
- B. Carbon
- C. Silver
- D. copper

24. A 25 KVA 2,000 / 200 V, single phase transformer has a rated primary current of.

A. 10 A
B. 12.5 A
C. 7.22 A
D. 125 A

24. A 25 KVA 2,000 / 200 V, single phase transformer has a rated primary current of.

A. 10 A
B. 12.5 A
C. 7.22 A
D. 125 A

Ip = Srated / EpIp = 25,000 / 2000Ip = 12.5 A

25. What happens if a transformer will be accidentally plugged into a DC circuit?

- A. It would blow a fuse
- B. The primary would overload and the secondary would be dead
- C. The secondary would burn out
- D. All of these

25. What happens if a transformer will be accidentally plugged into a DC circuit?

A. It would blow a fuse

- B. The primary would overload and the secondary would be dead
- C. The secondary would burn out
- D. All of these
26. Which of the following power plant has the longest life.

- A. Diesel power plant
- B. Nuclear power plan
- C. Geothermal power plant
- D. Hydroelectric power plant

26. Which of the following power plant has the longest life.

- A. Diesel power plantB. Nuclear power planC. Geothermal power plant
- D. Hydroelectric power plant

27. The first step in removing a generator from parallel operation.

- A. Remove the load from the off going generator
- B. Trip the generator off the bus bar
- C. Increase the cycle of the generator
- D. Turn of all electrical equipment

27. The first step in removing a generator from parallel operation.

- A. Remove the load from the off going generator
- B. Trip the generator off the bus bar
- C. Increase the cycle of the generator
- D. Turn of all electrical equipment

28. If a resistor is connected in series with the coil of a galvanometer designed to be used as a voltmeter, the resistor is use to _____.

- A. Increase the current rating of the voltmeter
- B. Increase the resistance rating of the voltmeter
- C. Increase the voltage rating of the voltmeter
- D. All of these

28. If a resistor is connected in series with the coil of a galvanometer designed to be used as a voltmeter, the resistor is use to ____.

- A. Increase the current rating of the voltmeter
- B. Increase the resistance rating of the voltmeter
- C. Increase the voltage rating of the voltmeter
- D. All of these

29. A circuit or installation that prevents the motor from being reversed without first allowing the motor to stop.

- A. Plugging
- B. Anti-plugging
- C. Braking
- D. Jogging

29. A circuit or installation that prevents the motor from being reversed without first allowing the motor to stop.

- A. Plugging
- B. Anti-plugging
- C. Braking
- D. Jogging

30. A car battery supplies a current of 50 A to the starter motor. How much charge passes through the starter in $\frac{1}{2}$ minute.

- A. 1,500 coulombs
- B. 1,800 coulombs
- C. 3,000 coulombs
- D. 2,000 coulombs

30. A car battery supplies a current of 50 A to the starter motor. How much charge passes through the starter in $\frac{1}{2}$ minute.

- A. 1,500 coulombs
- B. 1,800 coulombs
- C. 3,000 coulombs
- D. 2,000 coulombs

Q = It Q = (50)(0.5 min. x 60s/1 min.) Q = 1,500 coulmbs 31. A series circuit has a resistance of 10 ohms and a reactance of 5 ohms. What is the circuit power factor?

A. 0.50
B. 0.866
C. 0.75
D. 0.89

31. A series circuit has a resistance of 10 ohms and a reactance of 5 ohms. What is the circuit power factor?

A. 0.50
B. 0.866
C. 0.75
D. 0.89

Z = (square root R² + X²) Z = (square root 10² + 5²)Z = 11.18 ohms

Pf = R / Z Pf = 10 / 11.18 Pf = 0.894 32. A bank of lamps operates a current of 12 A and a voltage of 120 V. What power is taken from the AC mains?

A. 1.44 KW
B. 1.20 KW
C. 1.34 KW
D. 1.22 KW

32. A bank of lamps operates a current of 12 A and a voltage of 120 V. What power is taken from the AC mains?

A. 1.44 KW
B. 1.20 KW
C. 1.34 KW
D. 1.22 KW

P = Elpf

P = 120 (12)(1.0)

P = 1440 watts or 1.44 KW

33. Most utility companies requires a minimum load power factor of.

A. 0.50
B. 0.866
C. 0.75
D. 0.80

33. Most utility companies requires a minimum load power factor of.

A. 0.50
B. 0.866
C. 0.75
D. 0.80

34. The power factor of the circuit is zero, when the load of the circuit is a pure _____only.

- A. Resistance
- B. Reactance
- C. Conductance
- D. Admittance

34. The power factor of the circuit is zero, when the load of the circuit is a pure _____only.

- A. Resistance
- **B.** Reactance
- C. Conductance
- D. Admittance

35. If an atom losses some of its electron or accepts extra electrons from another atom, the atom will be called _____.

- A. An element
- B. A lattice
- C. A neutron
- D. An ion

35. If an atom losses some of its electron or accepts extra electrons from another atom, the atom will be called _____.

- A. An element
- B. A lattice
- C. A neutron
- D. An ion

36. Hysteresis loss in a transformer depends upon the.

- A. Reactance of windings
 B. Type of core material
 C. Applied volters
- C. Applied voltage
- D. Number of laminations

36. Hysteresis loss in a transformer depends upon the.

A. Reactance of windings
B. Type of core material
C. Applied voltage
D. Number of laminations

37. Which of the following gases is given off by lead-acid storage batteries?

- A. Oxygen
- B. Hydrogen
- C. Nitrogen
- D. Carbon monoxide

37. Which of the following gases is given off by lead-acid storage batteries?

- A. Oxygen
- B. Hydrogen
- C. Nitrogen
- D. Carbon monoxide

38. Which of the following would cause one bar of a commutator to blacken?

- A. A ground coil
- B. An open coil
- C. A shorted coil
- D. All of these

38. Which of the following would cause one bar of a commutator to blacken?

- A. A ground coilB. An open coilC. A shorted coil
- D. All of these

39. An instrument used to measure electrical current in a circuit?

- A. Wattmeter
- B. Megger
- C. Ammeter
- D. Galvanometer

39. An instrument used to measure electrical current in a circuit?

- A. Wattmeter
- B. Megger
- C. Ammeter
- D. Galvanometer

40. The synchronous speed of a 4-pole, 60 cycle AC motor is.

- A. 2,000 rpm
- B. 3,600 rpm
- C. 1,800 rpm
- D. 1,200 rpm

40. The synchronous speed of a 4-pole, 60 cycle AC motor is.

A. 2,000 rpm
B. 3,600 rpm
C. 1,800 rpm
D. 1,200 rpm

N = 120f / PN = 120(60) / 4N = 1,800 rpm

41. A transformer is associated with _ current.

- A. Direct
- B. Alternating
- C. Neither AC or DC
- D. Either AC or DC

41. A transformer is associated with _ current.

- A. Direct
- B. Alternating
- C. Neither AC or DC
- D. Either AC or DC

42. The capacitor used in power factor correction is normally rated in _____.

A. KWB. KVAC. KVARD. KV

42. The capacitor used in power factor correction is normally rated in _____.

A. KW
B. KVA
C. KVAR
D. KV

43. What is the first thing to do if a generator over speeds?

- A. Adjust the rheostat
- B. Trip the overspeed trip
- C. Trip the circuit breaker
- D. Secure the stem

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- A. Adjust the rheostat
 B. Trip the overspeed trip
 C. Trip the oir out brocker
- C. Trip the circuit breaker
- D. Secure the stem
44. The power factor of an induction motor is

A. LeadingB. LaggingC. UnityD. Zero

44. The power factor of an induction motor is

A. LeadingB. LaggingC. UnityD. Zero

- A. Insulation resistance
- B. Voltage
- C. Grounded voltage
- D. Deenergized circuit

45. A megger measures _____

- A. Insulation resistance
- B. Voltage
- C. Grounded voltage
- D. Deenergized circuit

46. Nominal open circuit voltage of a carbonzinc cell.

A. 1.35 V
B. 2.1 V
C. 3.0 V
D. 1.5 V

46. Nominal open circuit voltage of a carbonzinc cell.

A. 1.35 V
B. 2.1 V
C. 3.0 V
D. 1.5 V

47. Which type of AC motors needs a DC excitation?

- A. capacitor-start and run motor
- B. Shaded pole motor
- C. Wound rotor induction motor
- D. Synchronous motor

47. Which type of AC motors needs a DC excitation?

- A. capacitor-start and run motor
- B. Shaded pole motor
- C. Wound rotor induction motor
- D. Synchronous motor

C. 10,000 D. 100,000

- B. 1,000,000
- A. 1,000

48. Mega is a prefix equivalent to.

48. Mega is a prefix equivalent to.

A. 1,000
B. 1,000,000
C. 10,000
D. 100,000

Symbol	Prefix	Multiplication Factor	
Т	tera	10 ¹²	1,000,000,000,000
G	giga	109	1,000,000,000
M	mega	10 ⁶	1,000,000
k	kilo	10^{3}	1,000
h	hecto	10^{2}	100
da	deka	10 ¹	10
d	deci	10-1	0.1
C	centi	10-2	0.01
m	milli	10-3	0.001
μ	micro	10-6	0.000,001
n	nano	10-9	0.000,000,001
р	pico	10-12	0.000,000,000,001

49. Practical unit of energy.

- A. Watt
- B. Kilowatt
- C. Megawatt
- D. Kilowatt-hour

49. Practical unit of energy.

- A. Watt
- B. Kilowatt
- C. Megawatt
- D. Kilowatt-hour

50. The symbol S_{2P} shall mean _____

- A. A two-way switch
- B. A two-position switch
- C. A two-pole switch
- D. Duplex switch

50. The symbol S_{2P} shall mean _____

- A. A two-way switch
- B. A two-position switch
- C. A two-pole switch
- D. Duplex switch

51. Generator's compartments shall be lined with galvanized steel, not less than _____ thick.

- A. 0.40 mm
- B. 0.50 mm
- C. 0.30 mm
- D. 0.60 mm

51. Generator's compartments shall be lined with galvanized steel, not less than _____ thick.

- A. 0.40 mm
 B. 0.50 mm
 C. 0.30 mm
- D. 0.60 mm

52. A s rule branch circuits shall NOT be supplied by.

- A. An autotransformer
- B. A generator
- C. A transformer
- D. A motor-generator set

52. A s rule branch circuits shall NOT be supplied by.

- A. An autotransformer
- B. A generator
- C. A transformer
- D. A motor-generator set

53. For a rigid steel conduit of trade diameter 50-mm, the field bend shall be so made that the radius of the inner edge shall not be less than a certain radius for conductors without lead sheathed. What is this radius?

- A. 450 mm
- B. 250 mm
- C. 300 mm
- D. 375 mm

53. For a rigid steel conduit of trade diameter 50-mm, the field bend shall be so made that the radius of the inner edge shall not be less than a certain radius for conductors without lead sheathed. What is this radius?

- A. 450 mm
- B. 250 mm
- C. 300 mm
- D. 375 mm

54. Disruptive discharge between electrodes of a measuring gap.

- A. Lightning
- B. Flashover
- C. Surge
- D. Sparkover

54. Disruptive discharge between electrodes of a measuring gap.

- A. Lightning
- B. Flashover
- C. Surge
- D. Sparkover

55. For all deck or floor plans, the standard scale to be used is

- A. 1:50
- **B.** 1:10
- C. 1:100
- D. 1:500

55. For all deck or floor plans, the standard scale to be used is

A. 1:50
B. 1:10
C. 1:100
D. 1:500

56. The Electrical Code requires that electrical plans and drawings shall be drawn on sheets of the following standard size. Which one is NOT considered standard?

- A. 600 x 900 mm
- B. 217 x 279 mm
- C. 760 x 1000 mm
- D. 500 x 760 mm

56. The Electrical Code requires that electrical plans and drawings shall be drawn on sheets of the following standard size. Which one is NOT considered standard?

- A. 600 x 900 mm
- B. 217 x 279 mm
- C. 760 x 1000 mm
- D. 500 x 760 mm

57. Service entrance cables shall be supported at intervals NOT exceeding.

- A. 900 mm
- B. 800 mm
- C. 760 mm
- D. 1,000 mm

57. Service entrance cables shall be supported at intervals NOT exceeding_

- A. 900 mm
- B. 800 mm
- C. 760 mm
- D. 1,000 mm

58. Type SE service entrance cables shall be permitted in interior wiring systems where all of the circuit conductors of the cable are of the _____ type.

- I. Rubber-covered
- II. Thermoplastic
- III. Metal
- A. I, II & III
- B. II only
- C. II & III only
- D. I & II only

58. Type SE service entrance cables shall be permitted in interior wiring systems where all of the circuit conductors of the cable are of the _____ type.

- I. Rubber-covered
- II. Thermoplastic
- III. Metal
- A. I, II & III
- B. II only
- C. II & III only
- D. I & II only

59. How many sets of the complete electrical plans and specifications signed and sealed by a PEE shall be submitted, as on of the requirements in filling for an electrical permit?

A. 5
B. 4
C. 3
D. 2

59. How many sets of the complete electrical plans and specifications signed and sealed by a PEE shall be submitted, as on of the requirements in filling for an electrical permit?

A. 5
B. 4
C. 3
D. 2

60. In locations where flammable anesthetics are employed the entire area shall be considered hazardous location which shall extend upward to a level _____ above the floor.

- A. 1,000 mm
- B. 1,300 mm
- C. 1,800 mm
- D. 1,500 mm

60. In locations where flammable anesthetics are employed the entire area shall be considered hazardous location which shall extend upward to a level _____ above the floor.

- A. 1,000 mm
- B. 1,300 mm
- C. 1,800 mm
- D. 1,500 mm

61. A multi-contact switch, which fixes the operation sequence of the major device during starting and stopping or during other sequential switching operations.

- A. Motor operation sequence switch
- B. Manual transfer switch
- C. Position switch
- D. Field circuit sequence switch

61. A multi-contact switch, which fixes the operation sequence of the major device during starting and stopping or during other sequential switching operations.

- A. Motor operation sequence switch
- B. Manual transfer switch
- C. Position switch
- D. Field circuit sequence switch
62. Circuits from portable switchboards directly supplying equipment containing incandescent lamps of not over 300 w shall be protected by overcurrent device having a setting of _____.

- A. 15 A
- B. 20 A
- C. 30 A
- D. 40 A

62. Circuits from portable switchboards directly supplying equipment containing incandescent lamps of not over 300 w shall be protected by overcurrent device having a setting of _____.

A. 15 A
B. 20 A
C. 30 A
D. 40 A

63. The chassis-grounding terminal of the battery shall be bonded to vehicle chassis with a copper conductor of ______ size or its equivalent.

- A. 5.5 mm²
- B. 3.5 mm²
- C. 8.0 mm²
- D. 2.0 mm²

63. The chassis-grounding terminal of the battery shall be bonded to vehicle chassis with a copper conductor of ______ size or its equivalent.

- A. 5.5 mm²
- B. 3.5 mm²
- C. 8.0 mm²
- D. 2.0 mm²

64. The length of the cord from the face of the attachment plug cap to the point where the cord enters the mobile home shall NOT be less than _____.

- A. 5 m
- **B.** 10 m
- C. 8 m
- D. 6 m

64. The length of the cord from the face of the attachment plug cap to the point where the cord enters the mobile home shall NOT be less than____.

- A. 5 m
- B. 10 m
- C. 8 m
- D. 6 m

65. Non-metallic sheathed cables shall be supported within _____ of a non-metallic outlet box without cable clamps?

- A. 200 mm
- B. 150 mm
- C. 180 mm
- D. 220 mm

65. Non-metallic sheathed cables shall be supported within _____ of a non-metallic outlet box without cable clamps?

- A. 200 mm
- B. 150 mm
- C. 180 mm
- D. 220 mm

66. A test lamp using an ordinary bulb is used to test one of the following. Which one is this?

- A. Overload test
- B. DC or AC check
- C. Polarity check
- D. Ground check

66. A test lamp using an ordinary bulb is used to test one of the following. Which one is this?

- A. Overload test
- B. DC or AC check
- C. Polarity check
- D. Ground check

67. Air conditioning load has a demand load of

- A. 80 %
- B. 100 %
- C. 125 %
- D. 150 %

67. Air conditioning load has a demand load of

A. 80 %

B. 100 %

C. 125 %

D. 150 %

68. If there will be six or more 2-wire branch circuits for a one family dwelling unit, the minimum service entrance capacity shall be

A. 60 A
B. 100 A
C. 90 A
D. 120 A

68. If there will be six or more 2-wire branch circuits for a one family dwelling unit, the minimum service entrance capacity shall be

A. 60 A
B. 100 A
C. 90 A
D. 120 A

69. For hallways of _____ or more in length, at least one receptacle outlet shall be installed.

- A. 2,000 mm
- B. 4,000 mm
- C. 5,000 mm
- D. 3,000 mm

69. For hallways of _____ or more in length, at least one receptacle outlet shall be installed.

- A. 2,000 mm
- B. 4,000 mm
- C. 5,000 mm
- D. 3,000 mm

70. In every kitchen, family room, dining room, living room, parlor, library, bedroom or similar rooms or area of dwelling units, receptacle outlets shall be installed so that no point along the floor line in any wall space is more than ______ measured horizontally from an outlet in that space.

- A. 2,000 mm
- B. 1,800 mm
- C. 1,900 mm
- D. 2,100 mm

70. In every kitchen, family room, dining room, living room, parlor, library, bedroom or similar rooms or area of dwelling units, receptacle outlets shall be installed so that no point along the floor line in any wall space is more than measured horizontally from an outlet in that space.

- A. 2,000 mm
- **B.** 1,800 mm
- C. 1,900 mm
- D. 2,100 mm

71. An over current device with a circuit opening fusible part that is heated and severed by the passage of overcurrent through it.

- A. Overload relayB. Fuse
- C. Thermocouple
- D. Magnetic contactor

71. An over current device with a circuit opening fusible part that is heated and severed by the passage of overcurrent through it.

- A. Overload relayB. Fuse
- C. Thermocouple
- D. Magnetic contactor

72. Branch circuit conductors supplying a single motor-compressor shall have an ampacity not less than _____ of either the motor-compressor rated load or the branch circuit selection current, whichever is larger.

- A. 100 %B. 125 %
- C. 115 %
- D. 130 %

72. Branch circuit conductors supplying a single motor-compressor shall have an ampacity not less than ______ of either the motor-compressor rated load or the branch circuit selection current, whichever is larger.

A. 100 %
B. 125 %
C. 115 %
D. 130 %

73. The minimum headroom of working space about service equipment, switchboards, panelboards, etc shall be _____.

- A. 1,800 mm
- B. 2,000 mm
- C. 1,700 mm
- D. 1,900 mm

73. The minimum headroom of working space about service equipment, switchboards, panelboards, etc shall be _____.

- A. 1,800 mm
- B. 2,000 mm
- C. 1,700 mm
- D. 1,900 mm

74.The ampacity of conductors supplying therapeutic equipment shall NOT be less than of the current rating of the equipment.

- A. 125 %
- B. 115 %
- C. 130 %
- D. 100 %

74.The ampacity of conductors supplying therapeutic equipment shall NOT be less than of the current rating of the equipment.

- A. 125 %
- B. 115 %
- C. 130 %
- D. 100 %

75. Each autotransformer up to 600 V shall be protected by an individual overcurrent device rated not more than _____percent of its rated full load current.

- A. 125 %
- B. 150 %
- C. 175 <u>%</u>
- D. 300 %

75. Each autotransformer up to 600 V shall be protected by an individual overcurrent device rated not more than _____percent of its rated full load current.

A. 125 %
B. 150 %
C. 175 %

D. 300 %

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

- A. He asks that the instruction be repeated and clarified
- B. He does the job the way he thinks best
- C. He works out the solution to the problem himself
- D. He gets on the other electricians to do the job

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

- A. He asks that the instruction be repeated and clarified
- B. He does the job the way he thinks best
- C. He works out the solution to the problem himself
- D. He gets on the other electricians to do the job

77. What size of branch circuit shall be permitted to supply fixed lighting units with heavy-duty lamp holders?

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

77. What size of branch circuit shall be permitted to supply fixed lighting units with heavy-duty lamp holders?

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

78. The branch circuit load for drying equipment is the larger of either the VA rating of the nameplate or _____.

- A. 5,000 VA
- B. 6,000 VA
- C. 4,000 VA
- D. 3,000 VA

78. The branch circuit load for drying equipment is the larger of either the VA rating of the nameplate or _____.

- A. 5,000 VAB. 6,000 VA
- C. 4,000 VA
- D. 3,000 VA

79. A unit of an electrical system which is intended to carry but not utilize electric energy.

- A. Wire
- B. Device
- C. Outlet
- D. Utilization equipment

79. A unit of an electrical system which is intended to carry but not utilize electric energy.

- A. Wire
- B. Device
- C. Outlet
- D. Utilization equipment
80. The equipment-grounding conductor of a branch circuit shall be identified by a continuous ______color.

- A. White
- B. Yellow
- C. Green
- D. Gray

80. The equipment-grounding conductor of a branch circuit shall be identified by a continuous ______color.

- A. White
- B. Yellow
- C. Green
- D. Gray

81. The sum of the continuous ratings of the load consuming apparatus connected to the system or any part thereof.

- A. Peak load
- B. Connected load
- C. Average load
- D. Continuous load

81. The sum of the continuous ratings of the load consuming apparatus connected to the system or any part thereof.

- A. Peak load
- **B.** Connected load
- C. Average load
- D. Continuous load

82. An outlet box should be fastened to a concrete wall by the use of.

- A. Wood plug and nail
- B. Toggle bolts
- C. Porcelain insert and screw
- D. Expansion bolts

82. An outlet box should be fastened to a concrete wall by the use of.

- A. Wood plug and nail
- B. Toggle bolts
- C. Porcelain insert and screw
- D. Expansion bolts

83. The path to ground from circuits equipment and metal enclosures for conductors shall _____.

- A. Have capacity to conduct safety any fault current
- B. Have sufficiently low impedance
- C. Be permanent and continuous
- D. All of these

83. The path to ground from circuits equipment and metal enclosures for conductors shall _____.

- A. Have capacity to conduct safety any fault current
- B. Have sufficiently low impedance
- C. Be permanent and continuous
- D. All of these

84. For 800 A circuits, the minimum insulation resistance shall be.

- A. 12,000 ohmsB. 6,000 ohms
- C. 5,000 ohms
- D. 8,000 ohms

84. For 800 A circuits, the minimum insulation resistance shall be.

A. 12,000 ohms
B. 6,000 ohms
C. 5,000 ohms
D. 8,000 ohms

85. Aircraft energizers shall be so designed and mounted that all electric equipment and fixed wiring shall be at least _____above the floor level.

- A. 460 mm
- B. 500 mm
- C. 640 mm
- D. 400 mm

85. Aircraft energizers shall be so designed and mounted that all electric equipment and fixed wiring shall be at least <u>above the</u> floor level.

- A. 460 mm
- B. 500 mm
- C. 640 mm
- D. 400 mm

86. Capacitors containing more than ______ liters of flammable liquid shall be encased in vaults or outdoor fenced enclosures.

A. 10
B. 12
C. 9
D. 11

86. Capacitors containing more than ______ liters of flammable liquid shall be encased in vaults or outdoor fenced enclosures.

A. 10
B. 12
C. 9
D. 11

87. Wiring methods/materials allowed by the Code for gasoline stations include all the following EXCEPT on. Which one is this?

- A. Type MI cable with approved terminal fitting
- B. Threaded steel intermediate conduit
- C. Rigid non-metallic conduit
- D. Threaded rigid metal conduit

87. Wiring methods/materials allowed by the Code for gasoline stations include all the following EXCEPT on. Which one is this?

- A. Type MI cable with approved terminal fitting
- B. Threaded steel intermediate conduit
- C. Rigid non-metallic conduit
- D. Threaded rigid metal conduit

88. A man bonding jumper shall be a

- A. Bus
- B. Screw
- C. Wire
- D. Any of these

88. A man bonding jumper shall be a

- A. Bus
- B. Screw
- C. Wire
- D. Any of these

89. What does the symbol consisting of rectangle with solid shading indicate?

- A. Fuse cut-out
- B. Telephone exchange
- C. Safety switch
- D. Lighting panelboard

89. What does the symbol consisting of rectangle with solid shading indicate?

- A. Fuse cut-out
- B. Telephone exchange
- C. Safety switch
- D. Lighting panelboard

90. What is the maximum load of a 15 A circuit breaker protecting a branch circuit that supplies a continuous load?

A. 15 A
B. 20 A
C. 12 A
D. 10 A

90. What is the maximum load of a 15 A circuit breaker protecting a branch circuit that supplies a continuous load?

Note: As a standard rule, for branch circuits serving a continuous load, it must be loaded only up to 80% of its rated capacity.

C. 12 A Load = 80% of rating D. 10 A Load = 0.8 (15) Load = 12 A

A. 15 A

B. 20 A

91. Potential transformer installed indoors or enclosed shall be protected with _____ fuses.

- A. Primary
- B. Secondary
- C. Both A & B
- D. Neither A or B

91. Potential transformer installed indoors or enclosed shall be protected with _____ fuses.

- A. Primary
- B. Secondary
- C. Both A & B
- D. Neither A or B

92. Branch circuits shall be classified according to the maximum permitted _____

- A. KW ratingB. Voltage rating
- C. Ampere rating
- D. All of these

92. Branch circuits shall be classified according to the maximum permitted _____

A. KW rating
B. Voltage rating
C. Ampere rating
D. All of these

93. Cells in rubber or composition containers shall require no additional insulating supports where the total nominal voltage of all cells in series does NOT exceed a certain level of voltage. What is the level?

- A. 100 V
- B. 150 V
- C. 200 V
- D. 300 V

93. Cells in rubber or composition containers shall require no additional insulating supports where the total nominal voltage of all cells in series does NOT exceed a certain level of voltage. What is the level?

A. 100 V
B. 150 V
C. 200 V
D. 300 V

94. Medium voltage cable shall be permitted for installation on the following EXCEPT one. Which one is this?

- A. Where installed in cable trays
- B. Where exposed to direct sunlight
- C. Power system up to 35,000 volts in dry locations
- D. Power system up to 35,000 volts in wet locations

94. Medium voltage cable shall be permitted for installation on the following EXCEPT one. Which one is this?

- A. Where installed in cable trays
- B. Where exposed to direct sunlight
- C. Power system up to 35,000 volts in dry locations
- D. Power system up to 35,000 volts in wet locations

95. Each of three 3.5 mm² TW copper conductors are in a conduit has an ampacity of 20 A. If there will be six of them in the conduit, what will be the ampacity of each conductor?

A. 12 A
B. 20 A
C. 16 A
D. 15 A

95. Each of three 3.5 mm² TW copper conductors are in a conduit has an ampacity of 20 A. If there will be six of them in the conduit, what will be the ampacity of each conductor?

A. 12 A
B. 20 A
C. 16 A
D. 15 A

96. When removing insulation resistance from the wire before making the splice, care should be taken to avoid nicking the wire (slightly cutting into the wire) because of the following. Which one is this?

- A. The wire might break
- B. The ampacity will be reduced
- C. The wire tinning (protective coating) will be injured
- D. The resistance will increase

96. When removing insulation resistance from the wire before making the splice, care should be taken to avoid nicking the wire (slightly cutting into the wire) because of the following. Which one is this?

A. The wire might break

- B. The ampacity will be reduced
- C. The wire tinning (protective coating) will be injured

D. The resistance will increase

97. Which of the following is NOT a standard size of disconnect?

A. 30 A
B. 60 A
C. 50 A
D. 100 A

97. Which of the following is NOT a standard size of disconnect?

A. 30 A
B. 60 A
C. 50 A
D. 100 A
98. A disconnecting means shall be provided in each ungrounded conductor for each capacitor bank and shall NOT be less than _____ percent of the rated current of the capacitor.

- A. 125 %
- B. 115 %
- C. 150 %
- D. 135 %

98. A disconnecting means shall be provided in each ungrounded conductor for each capacitor bank and shall NOT be less than _____ percent of the rated current of the capacitor.

A. 125 %
B. 115 %
C. 150 %
D. 135 %

99. If a 640-V switchboard has exposed parts on one side and grounded parts or concrete on the opposite side, what working clearance between the two sides is permitted by the Code?

- A. 500 mm
- B. 1,900 mm
- C. 1,500 mm
- D. 1,100 mm

99. If a 640-V switchboard has exposed parts on one side and grounded parts or concrete on the opposite side, what working clearance between the two sides is permitted by the Code?

- A. 500 mm
- B. 1,900 mm
- C. 1,500 mm
- D. 1,100 mm

100. Each patient bed location where in patient care is provided shall be supplied by at least _____ branch circuit?

- A. One
- B. Two
- C. Three
- D. Four

100. Each patient bed location where in patient care is provided shall be supplied by at least _____ branch circuit?

A. One

B. Two

C. Three

D. Four