

Question Bank 5

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1. Two resistors of 5 & 10 ohms respectively are connected in parallel. If the total current to the branch is 24 A, find the current in the 5-ohm resistance?

A. 16 A

B. 15 A

C. 10 A

D. 8 A

1. Two resistors of 5 & 10 ohms respectively are connected in parallel. If the total current to the branch is 24 A, find the current in the 5-ohm resistance?

A. 16 A

B. 15 A

C. 10 A

D. 8 A

$$I_1 = I_t R_t / R_1 + R_2$$

$$I_1 = 24(10) / 5 + 10$$

$$I_1 = 16 \text{ A}$$

2. Overload protective device are rated in _____.

- A. Amperes
- B. Coulombs
- C. Watts
- D. Volts

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A. Amperes

B. Coulombs

C. Watts

D. Volts

3. A no load test is performed on a transformer for determining _____.

A. Copper loss

B. Magnetizing current and loss

C. Efficiency of the transformer

D. Shorts

3. A **no load** test is performed on a transformer for determining _____.

A. Copper loss

B. Magnetizing current and loss

C. Efficiency of the transformer

D. Shorts

4. An inverse time characteristic of a fuse means _____.

- A. Higher fault current, longer time needed to cut-off
- B. Lower fault current, shorter time needed to cut-off
- C. Higher fault current, shorter time needed to cut-off
- D. Non of these

4. An **inverse time characteristic** of a fuse means _____.

- A. Higher fault current, longer time needed to cut-off
- B. Lower fault current, shorter time needed to cut-off
- C. Higher fault current, shorter time needed to cut-off**
- D. Non of these

5. If the individual resistance are 5, 10 & 15 ohms respectively. What potential must the battery supply to force a current of 0.50 A through the circuit?

A. 15 V

B. 30 V

C. 10 V

D. 60 V

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A. 15 V

B. 30 V

C. 10 V

D. 60 V

$$R_t = 5 + 10 + 15$$

$$R_t = 30 \text{ ohms}$$

$$E = IR_t$$

$$E = 0.5(30)$$

$$E = 15 \text{ V}$$

6. What level of electrical license is needed as one of the requirements to be appointed as members of the Board of Electrical Engineering?

A. RME

B. REE

C. PEE

D. All of these

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D. All of these

7. What is the function of the zero adjust control in multimeter?

- A. The moving parts can be tightened
- B. It serves to conduct the current
- C. With this control, the sensitivity of the instrument can be changed
- D. The zero point is corrected with the help of this control

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A. The moving parts can be tightened

B. It serves to conduct the current

C. With this control, the sensitivity of the instrument can be changed

D. The zero point is corrected with the help of this control

8. Which of the following devices is NOT found on DC board?

A. Synchroscope

B. Ammeter

C. Voltmeter

D. Rheostat

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A. Synchroscope

B. Ammeter

C. Voltmeter

D. Rheostat

9. The compressed mixture of air and petrol is burnt by means of.

A. Spark of spark plug

B. Distributor

C. Compression

D. Non of these

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A. Spark of spark plug

B. Distributor

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D. Non of these

10. A step-down transformer.

- A. Lowers both the voltage and current
- B. Lower the voltage and increase the current
- C. Lowers the current and increase the voltage
- D. Increase both the voltage and current

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A. Lowers both the voltage and current

B. Lower the voltage and increase the current

C. Lowers the current and increase the voltage

D. Increase both the voltage and current

11. The inducing EMF within the circuit itself caused by any change of current within that circuit.

A. Mutual inductance

B. Friction

C. Self inductance

D. Losses

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A. Mutual inductance

B. Friction

C. Self inductance

D. Losses

12. The resistance of a material is inversely proportional to its.

A. Length

B. Diameter

C. Cross-sectional area

D. Volume

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A. Length

B. Diameter

C. Cross-sectional area

D. Volume

13. Which of the following DC generators are preferable for parallel operations due to their drooping voltage characteristics?

- A. Series generators
- B. Shunt generators
- C. Compound generators
- D. All of these

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- A. Series generators
- B. Shunt generators**
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14. Flux in a magnetic circuit is comparable to what in electric circuit?

A. Voltage

B. Resistance

C. Current

D. Power

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A. Voltage

B. Resistance

C. Current

D. Power

15. In a series RL circuit, the current _____ the voltage.

A. Leads

B. Lags

C. Both A & B

D. Neither A or B

15. In a series **RL circuit**, the current _____ the voltage.

A. Leads

B. Lags

C. Both A & B

D. Neither A or B

16. An open resistor reads _____ ohms in an ohmmeter.

A. Infinite

B. Zero

C. 1 megohm

D. None of these

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A. Infinite

B. Zero

C. 1 megohm

D. None of these

17. Which type of DC armature windings is used for high current applications?

- A. Wye
- B. Wave
- C. Delta
- D. Lap

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- A. Wye
- B. Wave
- C. Delta
- D. Lap

18. The total opposition to current flow in AC circuits.

- A. Resonance
- B. Impedance
- C. Admittance
- D. Reluctance

18. The **total opposition to current flow in AC circuits.**

A. Resonance

B. Impedance

C. Admittance

D. Reluctance

19. The reciprocal of impedance.

A. Conductance

B. Reluctance

C. Admittance

D. Susceptance

19. The **reciprocal of impedance**.

A. Conductance

B. Reluctance

C. Admittance

D. Susceptance

20. Which of the following statements is TRUE?

- A. The smaller the diameter of a conductor, the higher the resistance
- B. The larger the diameter of a conductor, the higher the resistance
- C. The smaller the diameter of a conductor, the lesser the resistance
- D. The diameter of conductor does not affect the resistance

20. Which of the following statements is **TRUE**?

- A. **The smaller the diameter of a conductor, the higher the resistance**
- B. The larger the diameter of a conductor, the higher the resistance
- C. The smaller the diameter of a conductor, the lesser the resistance
- D. The diameter of conductor does not affect the resistance

21. The power factor of an incandescent bulb is.

A. 0.707 lagging

B. 0.707 leading

C. 1.0

D. Zero

21. The power factor of an incandescent bulb is.

A. 0.707 lagging

B. 0.707 leading

C. 1.0

D. Zero

22. The iron losses of a DC motor occur in the _____.

A. Field

B. Armature

C. Yoke

D. Commutator

22. The **iron losses** of a DC motor occur in the _____.

A. Field

B. Armature

C. Yoke

D. Commutator

23. Commutator segments are normally made from _____.

A. Iron

B. Hard drawn copper

C. Brass

D. Aluminum

23. Commutator segments are normally made from _____.

A. Iron

B. Hard drawn copper

C. Brass

D. Aluminum

24. When 30 V is applied across two equal resistances in series, 10 mA of current flows. Find the value of each resistance.

- A. 1.5 kilo ohms
- B. 3.0 kilo ohms
- C. 150 kilo ohms
- D. 300 kilo ohms

24. When 30 V is applied across two equal resistances in series, 10 mA of current flows. Find the value of each resistance.

A. 1.5 kilo ohms

B. 3.0 kilo ohms

C. 150 kilo ohms

D. 300 kilo ohms

$$I = E / R+R$$

$$I = E / 2R$$

$$R = 1500 \text{ ohms or } 1.5 \text{ Kilo ohms}$$

25. Megger in its operational is based upon.

- A. Electrostatic meter
- B. Moving coil meter
- C. Dynamic meter
- D. Moving iron meter

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A. Electrostatic meter

B. Moving coil meter

C. Dynamic meter

D. Moving iron meter

26. A tool used for pulling gears, bearings, and bushing on the shaft of a motor or a generator.

A. C-clamp

B. Hickey

C. Puller

D. Monkey wrench

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A. C-clamp

B. Hickey

C. Puller

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27. A hydrometer is used to measure which of the following?

- A. Specific gravity of the battery electrolyte
- B. Water content of the battery
- C. Internal temperature of a battery
- D. Acid content of a battery

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- A. **Specific gravity of the battery electrolyte**
- B. Water content of the battery
- C. Internal temperature of a battery
- D. Acid content of a battery

28. Applicants for registered master electrician examination must be at least _____ years of age.

A. 18

B. 19

C. 17

D. 21

28. Applicants for registered master electrician examination must be at least _____ years of age.

A. 18

B. 19

C. 17

D. 21

29. If the generator field is excited from a battery, the machine is classified as what type of generator.

- A. Separately excited
- B. Self excited
- C. Synchronous
- D. Non of these

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A. Separately excited

B. Self excited

C. Synchronous

D. Non of these

30. In a given circuit, when the power factor is unity, the reactive volt-ampere is.

A. Maximum

B. Zero

C. Equal to real power

D. Equal to apparent power

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A. Maximum

B. Zero

C. Equal to real power

D. Equal to apparent power

31. One advantage of the moving coil instruments is that its scale is.

A. Non-linear

B. Linear

C. Logarithmic

D. Exponential

31. One **advantage** of the moving coil instruments is that its scale is.

A. Non-linear

B. Linear

C. Logarithmic

D. Exponential

32. Which of the following is an advantage of a CB over a fuse?

A. It is more reliable

B. It is cheaper

C. It is easy to detect open, close or trip positions

D. It has a higher current rating

32. Which of the following is an **advantage of a CB over a fuse?**

A. It is more reliable

B. It is cheaper

C. It is easy to detect open, close or trip positions

D. It has a higher current rating

33. The speed of a DC motor is directly proportional to its.

- A. Armature current
- B. Flux per pole
- C. Back EMF
- D. Torque

33. The **speed of a DC motor** is directly proportional to its.

A. Armature current

B. Flux per pole

C. Back EMF

D. Torque

34. The prefix pico means.

A. 10^{-12} of a unit

B. 10^{-6} of a unit

C. 10^{-15} of a unit

D. 10^{-9} of a unit

34. The prefix **pico** means.

A. 10^{-12} of a unit

B. 10^{-6} of a unit

C. 10^{-15} of a unit

D. 10^{-9} of a unit

Symbol	Prefix	Multiplication Factor	
T	tera	10^{12}	1,000,000,000,000
G	giga	10^9	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
p	pico	10^{-12}	0.000,000,000,001

35. Which one is the same as RMS value of an alternating wave?

- A. Average value
- B. Instantaneous value
- C. Effective value
- D. Absolute value

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- A. Average value
- B. Instantaneous value
- C. Effective value**
- D. Absolute value

36. Current that continually reverses its direction.

A. Pulsating direct current

B. Alternating current

C. Direct current

D. Pulsating alternating current

36. Current that continually reverses its direction.

A. Pulsating direct current

B. Alternating current

C. Direct current

D. Pulsating alternating current

37. Device use to pull wire through the conduit.

A. Straps

B. Fish tape

C. Wire tongs

D. Puller

37. Device **use to pull wire** through the conduit.

A. Straps

B. Fish tape

C. Wire tongs

D. Puller

38. It was experimentally found by James Prescott Joule that the heat produced in a current carrying conductor is proportional to.

- A. The square of the current
- B. The current
- C. Square of resistance
- D. None of these

38. It was **experimentally found by James Prescott Joule** that the heat produced in a current carrying conductor is proportional to.

A. The square of the current

B. The current

C. Square of resistance

D. None of these

39. A three-layer semi-conductor device.

A. Potentiometer

B. Diode

C. Transistor

D. Vacuum tube

39. A three-layer semi-conductor device.

A. Potentiometer

B. Diode

C. Transistor

D. Vacuum tube

40. An applicant for registered master electrician's examination must at least completed a _____ year electrician course and has a specific record of _____ years of apprenticeship after completion of the course.

- A. Two, three
- B. One, one
- C. Two, two
- D. One, two

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- A. Two, three
- B. One, one
- C. Two, two**
- D. One, two

41. Which of the following cannot be used as medium for extinguishing the arc of a CB?

- A. Vacuum
- B. SF₆ gas
- C. Water
- D. Open air

41. Which of the following cannot be used as medium for extinguishing the arc of a CB?

A. Vacuum

B. SF₆ gas

C. Water

D. Open air

42. Magnetism that remain in a magnet even after the magnetizing force has been withdrawn.

- A. Natural
- B. Saturation
- C. Ideal
- D. Residual

42. **Magnetism that remain in a magnet** even after the magnetizing force has been withdrawn.

A. Natural

B. Saturation

C. Ideal

D. Residual

43. Meter accuracy is determined by.

A. Full scale deflection

B. One fourth of full scale deflection

C. Zero deflection

D. Half scale deflection

43. Meter accuracy is determined by.

A. Full scale deflection

B. One fourth of full scale deflection

C. Zero deflection

D. Half scale deflection

44. In DC circuit, inductance and capacitance are irrelevant in circuit analysis due to.

- A. DC supply has no frequency
- B. They do not exist in DC circuits
- C. All of these

44. In DC circuit, inductance and capacitance are **irrelevant in circuit analysis** due to.

A. DC supply has no frequency

B. They do not exist in DC circuits

C. All of these

45. Equalizer connections are necessary in paralleling two or more. What type of generator?

- A. Shunt generators
- B. Series generators
- C. Compound generators
- D. All of these

45. **Equalizer connections** are necessary in paralleling two or more. What type of generator?

- A. Shunt generators
- B. Series generators
- C. Compound generators**
- D. All of these

46. In motor controls, a maintaining contact is what type of contact?

- A. Normally open
- B. Normally close
- C. Delay-on
- D. Delay-off

46. In motor controls, a **maintaining contact** is what type of contact?

- A. Normally open**
- B. Normally close
- C. Delay-on
- D. Delay-off

47. Which of the following instruments is most sensitive?

- A. Moving iron type
- B. Induction type
- C. Electrostatic type
- D. Permanent magnet type

47. Which of the following instruments is **most sensitive**?

A. Moving iron type

B. Induction type

C. Electrostatic type

D. Permanent magnet type

48. What type of relay is used for protection of motors against overload?

- A. Thermal relay
- B. Magnetic contactor
- C. Buchholz relay
- D. Differential relay

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- A. Thermal relay
- B. Magnetic contactor
- C. Buchholz relay
- D. Differential relay

49. An oven takes 11 A at 220 V. It is desired to reduce the current to 10 A. What resistance must be connected in series?

A. 2 Ω

B. 22 Ω

C. 20 Ω

D. 5 Ω

49. An oven takes **11 A** at **220 V**. It is desired to reduce the current to **10 A**. What resistance must be **connected in series**?

A. 2 Ω

$$R1 = E / I$$

$$I_{\text{new}} = E / R1 + R2$$

B. 22 Ω

$$R1 = 220 / 11$$

$$R2 = E / I_{\text{new}} - R1$$

C. 20 Ω

$$R1 = 20 \Omega$$

$$R2 = 220/10 - 20$$

D. 5 Ω

$$R2 = 2 \Omega$$

50. What component of a DC generator is NOT found on a separately excited AC generator?

- A. Yoke
- B. Field poles
- C. Commutator
- D. Armature

50. What component of a DC generator is NOT found on a separately excited AC generator?

A. Yoke

B. Field poles

C. Commutator

D. Armature

51. For single phase AC or DC motors supplied by a two wire, single phase AC or DC with one conductor grounded how many overload units shall be required?

- A. one, in the grounded conductor
- B. One, in the underground conductor
- C. Two, in both conductor
- D. No overload units required

51. For single phase AC or DC motors supplied by a two wire, single phase AC or DC **with one conductor grounded** how many overload units shall be required?

- A. one, in the grounded conductor
- B. One, in the underground conductor**
- C. Two, in both conductor
- D. No overload units required

52. Stage equipment like footlights, border lights and others shall be so arranged that no branch circuit supplying such equipment will carry a load exceeding_____.

A. 20 A

B. 15 A

C. 30 A

D. 10 A

52. **Stage equipment** like footlights, border lights and others shall be so arranged that no branch circuit supplying such equipment will carry a load exceeding_____.

A. 20 A

B. 15 A

C. 30 A

D. 10 A

53. Metal poles _____ permitted to be used to support lighting fixture and enclosed supply conductors?

- A. Shall be
- B. Shall not be
- C. Both A & B
- D. Neither A or B

53. **Metal poles** _____ permitted to be used to support lighting fixture and enclosed supply conductors?

A. Shall be

B. Shall not be

C. Both A & B

D. Neither A or B

54. The branch circuit conductors that supply one or more units of data processing system shall have an ampacity NOT less than _____ percent of the total connected load.

- A. 150 %
- B. 100 %
- C. 125 %
- D. 200 %

54. The branch circuit conductors that supply one or more units of **data processing system** shall have an ampacity NOT less than _____ percent of the total connected load.

- A. 150 %
- B. 100 %
- C. 125 %**
- D. 200 %

55. Which of the raceway method is NOT allowed to be used in a hazardous location?

- A. Rigid metal conduit
- B. Liquidtight flexible metal conduit
- C. Rigid non-metallic conduit
- D. Non of these

55. Which of the **raceway** method is **NOT** allowed to be used in a **hazardous location**?

- A. Rigid metal conduit
- B. Liquidtight flexible metal conduit
- C. Rigid non-metallic conduit**
- D. Non of these

56. Where nails or screws are used to mount knobs, they shall be a length sufficient to penetrate the wood to a depth equal to at least _____ the height of the knob.

- A. Two-third
- B. Three-fourth
- C. One-half
- D. One-third

56. Where nails or screws are used to mount knobs, they shall be a length sufficient to penetrate the wood to a depth equal to at least _____ the height of the knob.

- A. Two-third
- B. Three-fourth
- C. One-half**
- D. One-third

57. How many side of any pull box shall be removable?

- A. Only one side
- B. Two opposite sides
- C. Two adjacent sides
- D. One or more sides

57. How many side of any pull box **shall be removable?**

- A. Only one side
- B. Two opposite sides
- C. Two adjacent sides
- D. One or more sides**

58. Dimmers installed in underground conductors shall be protected by OCPD not exceeding _____ percent of their rating.

A. 100 %

B. 115 %

C. 125 %

D. 150 %

58. **Dimmers** installed in underground conductors shall be protected by **OCPD** not exceeding _____ percent of their rating.

A. 100 %

B. 115 %

C. 125 %

D. 150 %

59. Location which are hazardous because of the presence of easily ignitable fibers of flying's.

- A. Class I
- B. Class II
- C. Class III
- D. Class IV

59. Location which are hazardous because of the presence of easily ignitable fibers of flying's.

- A. Class I
- B. Class II
- C. Class III
- D. Class IV

60. Explosion hazards exist due to the presence of the following material EXCEPT one. Which one is this.

- A. Combustible dust
- B. Flammable vapors
- C. Flammable liquids
- D. Carbon dioxide gas

60. Explosion hazards exist due to the presence of the following material **EXCEPT** one. Which one is this.

- A. Combustible dust
- B. Flammable vapors
- C. Flammable liquids
- D. Carbon dioxide gas**

61. Smallest size of EMT (electrical metallic tubing).

A. 20 mm

B. 15 mm

C. 10 mm

D. 12 mm

61. Smallest size of EMT (electrical metallic tubing).

A. 20 mm

B. 15 mm

C. 10 mm

D. 12 mm

62. The nominal gas pressure used in type IGS cable shall be.

A. 200 kPa

B. 150 kPa

C. 138 kPa

D. 140 kPa

62. The **nominal gas pressure** used in type **IGS** cable shall be.

A. 200 kPa

B. 150 kPa

C. 138 kPa

D. 140 kPa

63. What is the temperature rating of THHN insulation?

A. 60 °C

B. 90 °C

C. 85 °C

D. 75 °C

63. What is the **temperature rating** of THHN insulation?

A. 60 °C

B. 90 °C

C. 85 °C

D. 75 °C

64. All AC squirrel cage motors and synchronous motors with autotransformer starting shall have an overcurrent protective device using inverse time circuit breaker with a maximum setting of _____ of its full load current rating.

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

64. All AC squirrel cage motors and synchronous motors with autotransformer starting shall have an overcurrent protective device using **inverse time circuit breaker** with a maximum setting of _____ of its full load current rating.

- A. 250 %
- B. 150 %
- C. 300 %
- D. 200 %**

65. Some of the principal factors that affect the operating temperature of a cable are the following EXCEPT one. Which one is this?

- A. Voltage
- B. Ambient temperature
- C. Ventilation
- D. Load current

65. Some of the principal factors that affect the operating temperature of a cable are the following **EXCEPT** one. Which one is this?

A. Voltage

B. Ambient temperature

C. Ventilation

D. Load current

66. Self-excited generators supplying powers to _____ shall have a potential of NOT more than _____.

A. 15 V

B. 24 V

C. 30 V

D. 60 V

66. **Self-excited generators** supplying powers to _____ shall have a potential of NOT more than _____.

A. 15 V

B. 24 V

C. 30 V

D. 60 V

67. Mobile home service equipment's shall be rated NOT less than.

- A. 90 A
- B. 60 A
- C. 100 A
- D. 125 A

67. **Mobile home** service equipment's shall be rated NOT less than.

A. 90 A

B. 60 A

C. 100 A

D. 125 A

68. Communication wires and cables shall have a voltage rating of NOT less than.

A. 300 V

B. 250 V

C. 500 V

D. 600 V

68. Communication wires and cables shall have a voltage rating of **NOT** less than.

A. 300 V

B. 250 V

C. 500 V

D. 600 V

69. The ampacity of the neutral conductor of a dual voltage feeder shall be _____ of the ampacity of the underground conductors.

A. 100 %

B. 150 %

C. 200 %

D. 125 %

69. The **ampacity of the neutral conductor** of a dual voltage feeder shall be _____ of the ampacity of the underground conductors.

A. 100 %

B. 150 %

C. 200 %

D. 125 %

70. Metal clad cable shall be supported and secured at intervals NOT exceeding

A. 1800 mm

B. 1500 mm

C. 1600 mm

D. 2000 mm

70. **Metal clad cable** shall be supported and secured at intervals NOT exceeding

A. 1800 mm

B. 1500 mm

C. 1600 mm

D. 2000 mm

71. The ampacities of type UF (underground feeder) cable shall be that of _____ conductors.

A. 60 °C

B. 75 °C

C. 90 °C

D. 40 °C

71. The ampacities of type UF (underground feeder) cable shall be that of _____ conductors.

A. 60 °C

B. 75 °C

C. 90 °C

D. 40 °C

72. No motor circuit in any watercraft shall have conductors less than.

A. 5.5 mm²

B. 3.5 mm²

C. 2.0 mm²

D. 1.25 mm²

72. No motor **circuit in any watercraft** shall have conductors less than.

A. 5.5 mm²

B. 3.5 mm²

C. 2.0 mm²

D. 1.25 mm²

73. Sizes of a building wires manufactures in the Philippines are standardized in square millimeters. What is the area of copper conductor, which is next larger than 8 mm²

- A. 12 mm²
- B. 10 mm²
- C. 14 mm²
- D. 9 mm²

73. Sizes of a building wires manufactures in the Philippines are standardized in square millimeters. What is the area of copper conductor, which is **next larger than 8 mm²**

A. 12 mm²

B. 10 mm²

C. 14 mm²

D. 9 mm²

74. Each patient bed location shall be provided with a minimum of how many receptacles?

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

74. Each **patient bed** location shall be provided with a minimum of how many receptacles?

A. 4

B. 2

C. 3

D. 5

75. Flexible cords or data processing cables used to connect computer units shall be _____ as part of the system.

A. Isolated

B. Approved

C. Both A & B

D. Neither A & B

75. Flexible cords or data processing cables used to connect computer units shall be _____ as part of the system.

A. Isolated

B. Approved

C. Both A & B

D. Neither A & B

76. Branch circuits to receptacles under raised floors in computer rooms shall be wired with.

- A. EMT
- B. IMC
- C. AC cable
- D. All of these

76. Branch circuits to receptacles **under raised floors** in computer rooms shall be wired with.

- A. EMT
- B. IMC
- C. AC cable
- D. All of these**

77. According to the NEC, the minimum insulation level for neutral conductors of residential installations, which have solidly grounded system, shall NOT be less than this voltage, which one is this?

- A. 1,000 volts
- B. 300 volts
- C. 600 volts
- D. 750 volts

77. According to the NEC, the **minimum insulation level for neutral conductors of residential** installations, which have solidly grounded system, shall NOT be less than this voltage, which one is this?

A. 1,000 volts

B. 300 volts

C. 600 volts

D. 750 volts

78. The use of non-metallic raceway shall be permitted in _____.

- A. Wet locations only
- B. Dry locations only
- C. Both A & B
- D. Neither A or B

78. The use of **non-metallic raceway** shall be permitted in _____.

A. Wet locations only

B. Dry locations only

C. Both A & B

D. Neither A or B

79. As to the general rule, floating buildings shall be supplied by _____ set of feeder conductors from their service equipment.

A. One

B. Two

C. Three

D. All of these

79. As to the general rule, **floating buildings** shall be supplied by _____ set of feeder conductors from their service equipment.

A. One

B. Two

C. Three

D. All of these

80. Which of the following electric wires has the highest ampacity?

A. 5.5 mm²

B. 8.0 mm²

C. 30 mm²

D. 50 mm²

80. Which of the following electric wires has the **highest ampacity**?

A. 5.5 mm²

B. 8.0 mm²

C. 30 mm²

D. 50 mm²

81. Rosettes for use with conduit boxes or raceway shall have bases high enough to keep wire and terminals at least _____ from the surface wired over.

- A. 12 mm
- B. 10 mm
- C. 13 mm
- D. 15 mm

81. **Rosettes** for use with conduit boxes or raceway shall have bases high enough to keep wire and terminals at least _____ from the surface wired over.

- A. 12 mm
- B. 10 mm**
- C. 13 mm
- D. 15 mm

82. Indoor antennas and indoor lead-in conductors shall NOT be run nearer than _____ to conductors of other wiring system in the premises.

- A. 40 mm
- B. 30 mm
- C. 60 mm
- D. 50 mm

82. Indoor antennas and indoor lead-in conductors shall NOT be run nearer than _____ to conductors of other wiring system in the premises.

- A. 40 mm
- B. 30 mm
- C. 60 mm
- D. 50 mm

83. Exit lights on watercrafts shall be provided at each point. The word “EXIT” shall be red letters not less than _____ high.

- A. 50 mm
- B. 60 mm
- C. 64 mm
- D. 40 mm

83. Exit lights on watercrafts shall be provided at each point. The word “EXIT” shall be **red letters** not less than _____ high.

- A. **50 mm**
- B. 60 mm
- C. 64 mm
- D. 40 mm

84. Receptacles located on stages in theaters shall NOT exceed _____ percent of their ratings for continuous duty loads.

A. 50

B. 60

C. 70

D. 80

84. Receptacles located on stages in **theaters** shall NOT exceed _____ percent of their ratings for continuous duty loads.

A. 50

B. 60

C. 70

D. 80

85. Storage batteries used, as source of power for emergency system shall maintain a voltage applied to the load without falling below a certain percentage of a normal value. What is this percentage?

- A. 95.3 %
- B. 87.5 %
- C. 84.2 %
- D. 93.7 %

85. Storage batteries used, as source of power for **emergency system** shall maintain a voltage applied to the load without falling below a certain percentage of a normal value. What is this percentage?

- A. 95.3 %
- B. 87.5 %**
- C. 84.2 %
- D. 93.7 %

86. It is known in the field as PVC.

- A. Rigid metal conduit
- B. Flexible non-metallic conduit
- C. Rigid non-metallic conduit
- D. Cable tray

86. It is known in the field as **PVC**.

- A. Rigid metal conduit
- B. Flexible non-metallic conduit
- C. Rigid non-metallic conduit**
- D. Cable tray

87. The nominal voltage used in elevator, dumbwaiter, escalator and moving walk driving machine brakes and motor-generator sets shall NOT exceed.

A. 1,000 V

B. 500 V

C. 600 V

D. 300 V

87. The nominal voltage used in elevator, dumbwaiter, escalator and moving walk driving machine brakes and motor-generator sets shall NOT exceed.

A. 1,000 V

B. 500 V

C. 600 V

D. 300 V

88. A 15-A or a 20-A branch circuit shall be permitted to supply lighting units and other utilization devices. The rating of any one cord and plug connected appliance shall NOT exceed a certain percentage of the branch circuit rating. What is this percentage.

- A. 80 %
- B. 90 %
- C. 70 %
- D. 60 %

88. A 15-A or a 20-A branch circuit shall be permitted to supply lighting units and other **utilization devices**. The rating of any one cord and plug connected appliance shall NOT exceed a certain percentage of the branch circuit rating. What is this percentage.

- A. 80 %
- B. 90 %
- C. 70 %
- D. 60 %

89. A cable made-up of electric conductors which provides electrical connection between an elevator or dumbwaiter car and fixed outlet in a hoistway.

- A. Coaxial cable
- B. Metal-clad cable
- C. Flat-conductor cable
- D. Travelling cable

89. A cable made-up of electric conductors which **provides electrical connection between an elevator or dumbwaiter car and fixed outlet in a hoistway.**

- A. Coaxial cable
- B. Metal-clad cable
- C. Flat-conductor cable
- D. Travelling cable**

90. Lighting fixtures exposed to cleansing water in agricultural building shall be_____.

- A. Drip proof
- B. Watertight
- C. Waterproof
- D. Any of these

90. Lighting fixtures **exposed to cleansing water** in agricultural building shall be_____.

A. Drip proof

B. Watertight

C. Waterproof

D. Any of these

91. Metal clad cables shall be permitted for installations in the following locations EXCEPT one. Which one is this?

- A. Signal circuit
- B. Branch circuit
- C. Direct burial in the earth
- D. Aerial cable

91. Metal clad cables shall be permitted for installations in the following locations **EXCEPT** one. Which one is this?

- A. Signal circuit
- B. Branch circuit
- C. Direct burial in the earth**
- D. Aerial cable

92. What is the minimum weight of a fixture that requires a support that is independent of the outlet box.

- A. 20 kg
- B. 25 kg
- C. 23 kg
- D. 24 kg

92. What is the **minimum weight of a fixture that requires a support** that is independent of the outlet box.

A. 20 kg

B. 25 kg

C. 23 kg

D. 24 kg

93. Open conductors on insulators shall be separated at least _____ from metal raceways, piping or other conducting materials.

- A. 50 mm
- B. 60 mm
- C. 70 mm
- D. 40 mm

93. **Open conductors** on insulators shall be **separated** at least _____ from metal raceways, piping or other conducting materials.

A. 50 mm

B. 60 mm

C. 70 mm

D. 40 mm

94. Rigid metal conduit and intermediate metal conduit when used underground shall have a minimum burial of _____.

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

94. Rigid metal conduit and intermediate metal conduit when used underground shall have a minimum burial of _____.

A. 100 mm

B. 200 mm

C. 250 mm

D. 150 mm

95. Driven rods maybe used as grounding electrodes provided the driven depth shall NOT be less than.

- A. 2,000 mm
- B. 2,450 mm
- C. 2,540 mm
- D. 2,040 mm

95. Driven rods maybe used as grounding electrodes provided the driven depth shall NOT be less than.

A. 2,000 mm

B. 2,450 mm

C. 2,540 mm

D. 2,040 mm

96. One set of service entrance conductors shall be permitted to supply more than _____ sets of service equipment.

A. One

B. Two

C. Three

D. Non of these

96. **One set of service entrance** conductors shall be permitted to supply more than _____ sets of service equipment.

A. One

B. Two

C. Three

D. Non of these

97. Concealed knob and tube wiring shall be supported within _____ of each side of each tap or splice.

A. 150 mm

B. 125 mm

C. 100 mm

D. 200 mm

97. **Concealed knob and tube wiring** shall be supported within _____ of each side of each tap or splice.

A. 150 mm

B. 125 mm

C. 100 mm

D. 200 mm

98. An enclosed channel designed expressly for holding wires, cable or busbars with additional functions as permitted.

A. Cage

B. Cabinet

C. Junction box

D. Raceway

98. An enclosed channel designed **expressly for holding wires**, cable or busbars with additional functions as permitted.

A. Cage

B. Cabinet

C. Junction box

D. Raceway

99. What is the insulation resistance acceptable by the Philippine Electrical Code for 600-V circuits consisting of 2.0 mm² conductor.

- A. 250,000 ohms
- B. 750,000 ohms
- C. 500,000 ohms
- D. 1,000,000 ohms

99. What is the **insulation resistance** acceptable by the Philippine Electrical Code for **600-V circuits consisting of 2.0 mm² conductor**.

- A. 250,000 ohms
- B. 750,000 ohms
- C. 500,000 ohms**
- D. 1,000,000 ohms

100. A metal raceway of circular cross section with integral or associated couplings, connectors and fittings approved for the installation of electrical conductors.

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

100. A metal raceway of **circular cross section with integral of associated couplings**, connectors and fittings approved for the installation of electrical conductors.

- A. Rigid metal conduit
- B. Surface metal raceway
- C. Electrical metallic tubing
- D. Intermediate metal conduit**

Question Bank 6

1. The frame of a DC generator or a motor is made of what metal?

A. Soft iron

B. Aluminum

C. Cast steel

D. Hard drawn copper

1. The **frame of a DC generators** or a motor is made of what metal?

A. Soft iron

B. Aluminum

C. Cast steel

D. Hard drawn copper

2.If the maximum current on a circuit is 70 amps, the ammeter will read.

A. 60.4 A

B. 49.49 A

C. Inductors

D. Diodes

2. If the maximum current on a circuit is 70 amps, the ammeter will read.

A. 60.4 A

B. 49.49 A

C. Inductors

D. Diodes

$$I_{rms} = I_{max} / \text{square root } 2$$

$$I_{rms} = 70 / \text{square root } 2$$

$$I_{rms} = 49.49 \text{ A}$$

3. What circuit elements used to resonate with capacitors?

- A. Resistors
- B. Transistors
- C. Inductors
- D. Diodes

3. What circuit elements used to resonate with capacitors?

A. Resistors

B. Transistors

C. Inductors

D. Diodes

4. Which of the following is characteristic of a wye-connected three phase alternator?

A. The line current is less than the phase current

B. The line voltage is equal to the phase voltage

C. The line voltage is greater than the phase voltage

D. The line current is greater than the phase current.

4. Which of the following is characteristic of a **wye-connected three phase** alternator?

A. The line current is less than the phase current

B. The line voltage is equal to the phase voltage

C. The line voltage is greater than the phase voltage

D. The line current is greater than the phase current.

5. Which one refers to the generator's mechanical driver?

A. Exciter

B. Prime mover

C. Coupler

D. Transducer

5. Which one refers to the generator's mechanical driver?

A. Exciter

B. Prime mover

C. Coupler

D. Transducer

6. In a series circuit, the current is.

A. Proportional to the resistance

B. Different in different resistors

C. Constant

D. Non of these

6. In a **series circuit**, the current is.

A. Proportional to the resistance

B. Different in different resistors

C. Constant

D. Non of these

7. Copper when exposed to ordinary atmospheres becomes oxidized turning into what color?

- A. Brown
- B. Light gray
- C. Light orange
- D. Black

7. Copper when **exposed to ordinary atmospheres** becomes oxidized turning into what color?

- A. Brown
- B. Light gray
- C. Light orange
- D. Black**

8. A 200-V lamp has a hot resistance of 400 ohms. The power rating in watts of the lamp is?

A. 100 W

B. 200 W

C. 600 W

D. 300 W

8. A 200-V lamp has a hot resistance of 400 ohms. The power rating in watts of the lamp is?

A. 100 W

B. 200 W

C. 600 W

D. 300 W

$$\begin{aligned} & 200^2 / 400 \\ & = 100 \text{ W} \end{aligned}$$

9. Which of the following is a unit of conductance?

A. Gauss

B. Mho

C. Ohm

D. Lumen

9. Which of the following is a **unit of conductance**?

A. Gauss

B. Mho

C. Ohm

D. Lumen

10. Contamination of transformer oil is because of?

A. Moisture

B. Heating

C. Decomposition of oil

D. All of these

10. **Contamination** of transformer oil is because of?

A. Moisture

B. Heating

C. Decomposition of oil

D. All of these

11. Electrical symbol represent by a solid line.

- A. Intercom wiring
- B. Telephone wiring
- C. Conduit
- D. Service entrance

11. **Electrical symbol** represent by a **solid line**.

- A. Intercom wiring
- B. Telephone wiring
- C. Conduit**
- D. Service entrance

12. The larger the conductor, the _____.

- A. Higher the voltage
- B. Higher the resistance
- C. Lower the resistance
- D. Lower the ampacity

12. The **larger the conductor**, the _____.

- A. Higher the voltage
- B. Higher the resistance
- C. Lower the resistance**
- D. Lower the ampacity

13. Before storing a lead-acid battery for a long time, the battery should be.

- A. Discharge and covered with canvas
- B. Discharge but the electrolyte is not drained
- C. Keep electrolyte level low
- D. Discharge and the electrolyte is drained

13. **Before storing** a lead-acid battery for a long time, the battery should be.

- A. Discharge and covered with canvas
- B. Discharge but the electrolyte is not drained
- C. Keep electrolyte level low
- D. Discharge and the electrolyte is drained**

14. The armature of a generator has a resistance of 0.20 ohm. When the current through the armature is 5 A, the terminal voltage is 224 V. What is its EMF?

- A. 226 V
- B. 225 V
- C. 230 V
- D. 224 V

14. The armature of a generator has a resistance of **0.20 ohm**. When the current through the armature is **5 A**, the terminal voltage is **224 V**. What is its EMF?

A. 226 V

B. 225 V

C. 230 V

D. 224 V

$$E = E_r + I r_a$$

$$E = 224 + 5(0.2)$$

$$E = 225 \text{ V}$$

15. The armature core of DC machine is laminated to reduce the _____ .

- A. Copper windings needed
- B. Eddy current loss
- C. Hysteresis loss
- D. Weight of the armature

15. The armature core of DC machine is **laminated** to reduce the _____ .

A. Copper windings needed

B. Eddy current loss

C. Hysteresis loss

D. Weight of the armature

16. If the number of turns in a inductor is increased, its inductance will.

A. Vary

B. Decrease

C. Increase

D. Remain the same

16. If the **number of turns** in a inductor is **increased**, its inductance will.

A. Vary

B. Decrease

C. Increase

D. Remain the same

17. What determines the voltage of lead acid cell?

- A. The type of electrodes
- B. The strength of the electrolyte
- C. The size of the plates
- D. Non of these

17. What determines the voltage of lead acid cell?

A. The type of electrodes

B. The strength of the electrolyte

C. The size of the plates

D. Non of these

18. How can the polarity of a DC generator be reversed?

- A. Reversing the field current as well as rotation
- B. Increase the field current
- C. Reversing the field current
- D. Any of these

18. How can the **polarity** of a DC generator be **reversed**?

- A. Reversing the field current as well as rotation
- B. Increase the field current
- C. Reversing the field current**
- D. Any of these

19. One of the following is a distinguishing feature of a shunt motor. Which one ?

- A. It has a stable speed through a wide load range
- B. It will not drop in speed if overloaded
- C. It has a high starting torque
- D. A load will not affect if it running at high speed

19. One of the following is a **distinguishing feature of a shunt motor**. Which one ?

- A. **It has a stable speed through a wide load range**
- B. It will not drop in speed if overloaded
- C. It has a high starting torque
- D. A load will not affect if it running at high speed

20. A 10-A fan with a power factor of 80% is connected to a 230-V source. How much is the power in watts.

- A. 2,300 W
- B. 1,760 W
- C. 1,840 W
- D. 1,280 W

20. A **10-A** fan with a power factor of **80%** is connected to a **230-V** source. How much is the power in watts.

A. 2,300 W

B. 1,760 W

C. 1,840 W

D. 1,280 W

$$P = EIpf$$

$$P = 230 (10)(0.8)$$

$$P = 1,840 \text{ W}$$

21. A capacitor opposes any change in _____

- A. Current
- B. Voltage
- C. Resistance
- D. Flux

21. A capacitor opposes any change in _____

A. Current

B. Voltage

C. Resistance

D. Flux

22. Typical output of a lead acid cell.

A. 1.5 V

B. 2.5 V

C. 2.0 V

D. 3.0 V

22. Typical output of a lead acid cell.

A. 1.5 V

B. 2.5 V

C. 2.0 V

D. 3.0 V

23. The field winding of a shunt motor has a resistance of 110 ohms and the voltage applied 220 V. What is the amount of a power expended in the field excitation.?

A. 330 W

B. 220 W

C. 440 W

D. 500 W

23. The field winding of a shunt motor has a resistance of **110 ohms** and the voltage applied **220 V**. What is the amount of a power expended in the field excitation.?

A. 330 W

B. 220 W

C. 440 W

D. 500 W

$$P = E^2 / R$$

$$P = 220^2 / 110$$

$$P = 440 \text{ W}$$

24. If it becomes necessary to operate a motor at a slight overload for a short period of time, you should _____ .

- A. Install higher rating fuses
- B. Check bearing and motor temperatures frequently
- C. Jumper the terminals of the overload relay
- D. Call the chief engineer

24. If it becomes necessary to operate a motor at a **slight overload for a short period** of time, you should _____ .

A. Install higher rating fuses

B. Check bearing and motor temperatures frequently

C. Jumper the terminals of the overload relay

D. Call the chief engineer

25. At absolute zero temperature a semiconductor behave as a.

- A. Good conductor
- B. Variable resistor
- C. Good insulator
- D. Super conductor

25. At **absolute zero temperature** a semiconductor behave as a.

- A. Good conductor
- B. Variable resistor
- C. Good insulator**
- D. Super conductor

26. A substance that cannot be decomposed any further by chemical action.

A. Molecule

B. Compound

C. Atom

D. Element

26. A substance that **cannot be decomposed** any further by chemical action.

A. Molecule

B. Compound

C. Atom

D. Element

27. The process by which one conductor produces or induces a voltage in another conductor even though there is no mechanical coupling between the two conductors.

- A. Cutting of fluxes
- B. Short circuit
- C. Induction
- D. system

27. The process by which one conductor produces or induces a voltage in another conductor even though there is no mechanical coupling between the two conductors.

- A. Cutting of fluxes
- B. Short circuit
- C. Induction
- D. system

28. To dissipate internal heat in a generator it is built with _____.

- A. Laminated cores
- B. Insulation
- C. Special non conductors
- D. Non of these

28. To **dissipate internal heat** in a generator it is built with _____.

- A. Laminated cores**
- B. Insulation
- C. Special non conductors
- D. Non of these

29. A small swamping resistance is fit in series with the operating coil of a moving coil ammeter to compensate for the effects of?

- A. External magnetic fields
- B. Temperature variation
- C. Hysteresis loss
- D. Non of these

29. A **small swamping** resistance is fit in series with the operating coil of a moving coil ammeter to compensate for the effects of?

- A. External magnetic fields**
- B. Temperature variation
- C. Hysteresis loss
- D. Non of these

30. If an electronic device will hum, the most likely caused is a defective _____.

A. Transistor

B. Filter

C. Diode

D. Amplifier

30. If an electronic device will **hum**, the most likely caused is a defective _____.

A. Transistor

B. Filter

C. Diode

D. Amplifier

31. Simplest form of a motor controller.

A. Magnetic contactor

B. Toggle switch

C. Drum switch

D. Relay

31. **Simplest** form of a **motor controller**.

A. Magnetic contactor

B. Toggle switch

C. Drum switch

D. Relay

32. A megohm is connected to the ends of a motor winding what will a low ohm reading indicate?

- A. Continuity
- B. Loose coil
- C. Open coil
- D. Dirty coil

32. A megohm is connected to the ends of a motor winding what will a low ohm reading indicate?

- A. Continuity
- B. Loose coil
- C. Open coil
- D. Dirty coil

33. What is the purpose of the commutator in a DC motor?

- A. To rectify the armature current
- B. To magnify the armature current
- C. To invert the armature current
- D. To control the armature current

33. What is the purpose of the commutator in a DC motor?

- A. To rectify the armature current
- B. To magnify the armature current
- C. To invert the armature current
- D. To control the armature current

34. A rotary phase converter is a device having a rotary transformer and _____ panels that can operate 3-phase loads from a single-phase source.

- A. Regulator
- B. Capacitor
- C. Secondary
- D. Primary

34. A rotary phase converter is a **device having a rotary transformer** and _____ panels that can **operate 3-phase loads** from a **single-phase source**.

- A. Regulator**
- B. Capacitor
- C. Secondary
- D. Primary

35. Resistance offered by the active material of a cell.

- A. Bulk resistance
- B. Internal resistance
- C. Absolute resistance
- D. Specific resistance

35. Resistance offered by the active material of a cell.

- A. Bulk resistance
- B. Internal resistance**
- C. Absolute resistance
- D. Specific resistance

36. For excessive heat in the end play of a fractional horsepower motor the possible remedy is to.

- A. Align pulley correctly
- B. Add end play washers
- C. Replace end play bolts
- D. Adjust belt tension

36. For **excessive heat** in the end play of a fractional horsepower motor the possible remedy is to.

A. Align pulley correctly

B. Add end play washers

C. Replace end play bolts

D. Adjust belt tension

37. Alternators synchronous means _____.

- A. Connecting alternators in parallel
- B. Connecting alternators in series
- C. Adjustment in field excitations
- D. Load sharing between alternators

37. Alternators **synchronous means** _____.

A. Connecting alternators in parallel

B. Connecting alternators in series

C. Adjustment in field excitations

D. Load sharing between alternators

38. If the heat in a motor increases, which of the following is a probable cause?

- A. Repeated jogging or plugging the motor
- B. Long periods of overload
- C. Both A & B
- D. Neither A or B

38. If the **heat in a motor increases**, which of the following is a **probable cause**?

A. Repeated jogging or plugging the motor

B. Long periods of overload

C. Both A & B

D. Neither A or B

39. Which of the following DC generator has a terminal voltage that varies widely with changes in a load current?

- A. Shunt generator
- B. Series generator
- C. Cumulative compound generator
- D. Flat compounded generator

39. Which of the following DC generator has a terminal voltage that **varies widely with changes in a load current?**

A. Shunt generator

B. Series generator

C. Cumulative compound generator

D. Flat compounded generator

40. The rating of a storage battery is expressed in.

A. ampere-hours

B. Watts

C. Kilowatt-hours

D. Volt-amperes

40. The **rating of a storage battery** is expressed in.

A. ampere-hours

B. Watts

C. Kilowatt-hours

D. Volt-amperes

41. If a DC generator was rotated in the wrong direction, it would fail to build up the voltage. Why ?

- A. The armature field would oppose the field current
- B. The circuit breaker would not energize
- C. The brushes would burn out
- D. The generator would motorize

41. If a DC generator was rotated in the wrong direction, it would fail to build up the voltage. Why ?

- A. The armature field would oppose the field current
- B. The circuit breaker would not energize
- C. The brushes would burn out
- D. The generator would motorize

42. Which of the following constitutes the major load for an automobile battery ?

- A. Brake light
- B. Self starter
- C. Parking lights
- D. Spark plug

42. Which of the following **constitutes the major load** for an automobile battery ?

A. Brake light

B. Self starter

C. Parking lights

D. Spark plug

43. If the allowable current in a copper bus bar is 1000 amperes per square inch of cross section, the width of a standard $\frac{1}{4}$ bus bar designed to carry 1,500 A would be ?

A. 4"

B. 6"

C. 8"

D. 2"

43. If the allowable current in a copper bus bar is 1000 amperes per square inch of cross section, the width of a standard $\frac{1}{4}$ bus bar designed to carry 1,500 A would be ?

A. 4"

B. 6"

C. 8"

D. 2"

$$A = 1500 \text{ A} \times \text{In}^2 / 1000 \text{ A}$$

$$A = 1.5 \text{ inches}$$

$$A = LW$$

$$W = A / L$$

$$W = 1.5 / \frac{1}{4}$$

$$W = 6 \text{ inches}$$

44. Ampere per volt is the same as which of the following units?

- A. Joule
- B. Siemen
- C. Maxwell
- D. Ohm

44. **Ampere per volt** is the same as which of the following units?

- A. Joule
- B. Siemen**
- C. Maxwell
- D. Ohm

45. The power factor of an over-excited synchronous motor is.

- A. Lagging
- B. Leading
- C. Unity
- D. Zero

45. The **power factor** of an **over-excited** synchronous motor is.

A. Lagging

B. Leading

C. Unity

D. Zero

46. When the switch of a controller opens upon voltage failure and then closes again after the voltage is restored. Which one ?

- A. Low voltage protection
- B. Instantaneous release
- C. Over-current protection
- D. Low voltage release

46. When the switch of a controller opens upon **voltage failure and then closes again** after the voltage is restored. Which one ?

- A. Low voltage protection
- B. Instantaneous release
- C. Over-current protection
- D. Low voltage release**

47. In star-delta starters, at starting the motor is connected in _____ configuration.

- A. Wye
- B. Delta
- C. Delta-wye
- D. Wye-delta

47. In star-delta starters, at starting the motor is connected in _____ configuration.

A. Wye

B. Delta

C. Delta-wye

D. Wye-delta

48. This tool is used by lineman to remove insulation of large cables.

- A. Wire stripper
- B. Lineman's pliers
- C. Wire gauge
- D. Electrician's knife

48. This **tool** is used by lineman to **remove insulation of large cables.**

- A. Wire stripper
- B. Lineman's pliers
- C. Wire gauge
- D. Electrician's knife**

49. The thermal overload relay of motor starters protect the motor from _____ .

A. Short circuit

B. Momentary overloads

C. A sustained overload condition

D. Phase-reversal

49. The thermal overload relay of motor starters **protect** the motor from _____ .

A. Short circuit

B. Momentary overloads

C. A **sustained overload condition**

D. Phase-reversal

50. Most common copper busbar form for carrying heavy current.

- A. Round
- B. Stranded
- C. Channel
- D. Flat

50. Most **common copper** busbar form for **carrying heavy current**.

- A. Round
- B. Stranded
- C. Channel
- D. Flat**

51. Cable trays shall NOT be used in ?

A. Hoistways

B. Industrial establishments

C. Dry locations

D. All of these

51. Cable trays shall **NOT** be used in ?

A. Hoistways

B. Industrial establishments

C. Dry locations

D. All of these

52. The UF cables shall NOT be used _____ .

- A. As branch circuits
- B. As service entrance
- C. As direct burial to earth
- D. All of these

52. The **UF cables shall NOT** be used _____ .

A. As branch circuits

B. As service entrance

C. As direct burial to earth

D. All of these

53. The usual function of a disconnect switches in high voltage circuit is to.

- A. Isolate from energized buses, equipment which are not in service
- B. Open or close the circuit under load
- C. Open the circuit in the event of an overload
- D. Maintain continuity of service

53. The **usual function** of a disconnect switches in high voltage circuit is to.

- A. **Isolate from energized buses, equipment which are not in service**
- B. Open or close the circuit under load
- C. Open the circuit in the event of an overload
- D. Maintain continuity of service

54. The bonding conductor used in agricultural buildings shall be copper, insulated, covered or bare, NOT smaller than _____ .

A. 8.0 mm²

B. 5.5 mm²

C. 14.0 mm²

D. 3.5 mm²

54. The **bonding conductor** used in agricultural buildings shall be copper, insulated, covered or bare, **NOT smaller** than _____ .

A. 8.0 mm²

B. 5.5 mm²

C. 14.0 mm²

D. 3.5 mm²

55. An overheated cord often indicates.

A. Defective cord

B. Corroded terminals

C. Corroded terminals and defective cord

D. Non of these

55. An **overheated cord** often indicates.

A. Defective cord

B. Corroded terminals

C. Corroded terminals and defective cord

D. Non of these

56. Individual arrester grounding conductors shall be no smaller than _____ copper.

- A. 8.0 mm²
- B. 14.0 mm²
- C. 5.5 mm²
- D. 3.5 mm²

56. Individual arrester grounding conductors shall be no smaller than _____ copper.

A. 8.0 mm²

B. 14.0 mm²

C. 5.5 mm²

D. 3.5 mm²

57. The load for the requires branch circuit installed for the supply of exterior signs of outline lighting shall be computed at a minimum of _____ volt-amperes.

A. 1,000

B. 1,200

C. 1,500

D. 1,600

57. The load for the requires branch circuit installed for the supply of **exterior signs of outline lighting** shall be computed at a **minimum** of _____ volt-amperes.

A. 1,000

B. 1,200

C. 1,500

D. 1,600

58. A generic term for an artificial source of light.

A. Lumen

B. Lux

C. Candle

D. Lamp

58. A **generic term** for an **artificial source** of light.

A. Lumen

B. Lux

C. Candle

D. Lamp

59. The system neutral conductor shall not be connected to ground EXCEPT.

A. When the generator frame is not grounded

B. Through the grounding impedance

C. Through a grounding transformer

D. When a ground fault is very common

59. The **system neutral** conductor shall not be connected to ground **EXCEPT**.

A. When the generator frame is not grounded

B. Through the grounding impedance

C. Through a grounding transformer

D. When a ground fault is very common

60. Cable bus shall be securely supported at intervals NOT exceeding.

A. 3,600 mm

B. 3,000 mm

C. 3,800 mm

D. 4,000 mm

60. **Cable bus** shall be securely supported at **intervals NOT exceeding**.

A. 3,600 mm

B. 3,000 mm

C. 3,800 mm

D. 4,000 mm

61. Snap switches used with open wiring on insulators shall be mounted on insulating material that separates the conductors at least _____ from surface wired over.

- A. 12 mm
- B. 10 mm
- C. 11 mm
- D. 13 mm

61. **Snap switches** used with open wiring on insulators shall be mounted on insulating material that separates the conductors at least _____ from surface wired over.

A. 12 mm

B. 10 mm

C. 11 mm

D. 13 mm

62. The usual nameplate data on DC motors include the following EXCEPT one. Which one is this ?

- A. Manufacturer's name
- B. Rated frequency
- C. Rated voltage
- D. Rated speed

62. The **usual nameplate** data on DC motors include the following **EXCEPT** one. Which one is this ?

A. Manufacturer's name

B. Rated frequency

C. Rated voltage

D. Rated speed

63. Metal covers for boxes shall be lined with firmly attached insulating material not less than _____ in thickness.

A. 0.80 mm

B. 0.50 mm

C. 0.75 mm

D. 0.64 mm

63. **Metal covers** for boxes shall be lined with firmly attached insulating material not less than _____ in thickness.

A. 0.80 mm

B. 0.50 mm

C. 0.75 mm

D. 0.64 mm

64. Vertical runs of wireways shall be securely supported at intervals NOT exceeding _____.

- A. 4,000 mm
- B. 2,400 mm
- C. 3,600 mm
- D. 4,500 mm

64. **Vertical runs of wireways** shall be securely supported at intervals NOT exceeding _____.

A. 4,000 mm

B. 2,400 mm

C. 3,600 mm

D. 4,500 mm

65. Conductors supplying two or more motors shall have an ampacity equal to the sum of the FLA rating of all motors plus _____ of the highest motor FLA in the group.

A. 30 %

B. 15 %

C. 20 %

D. 25 %

65. Conductors supplying two or more motors shall have an ampacity equal to the sum of the **FLA** rating of all motors plus _____ of the highest motor FLA in the group.

A. 30 %

B. 15 %

C. 20 %

D. 25 %

66. What is the purpose of using locknuts?

- A. To make tighter connection
- B. To make it difficult to tamper connections
- C. To be able to make more connection to one stud
- D. To prevent connection from loosening under severe vibration

66. What is the purpose of using locknuts?

A. To make tighter connection

B. To make it difficult to tamper connections

C. To be able to make more connection to one stud

D. To prevent connection from loosening under severe vibration

67. An enclosure of porcelain or other insulating material, fitting with terminals and intended for connecting the flexible_____ pendant wiring.

- A. Rosette
- B. Raceway
- C. Cable bus
- D. Non of these

67. An **enclosure of porcelain** or other insulating material, fitting with terminals and intended for connecting the flexible _____ **pendant wiring**.

A. Rosette

B. Raceway

C. Cable bus

D. Non of these

68. Energized parts of a generator operated at more than _____ volts to ground shall not be exposed to accidental contact where accessible to unqualified persons.

A. 50

B. 30

C. 48

D. 60

68. Energized parts of a generator operated at more than _____ volts to ground shall not be **exposed to accidental contact** where accessible to unqualified persons.

A. 50

B. 30

C. 48

D. 60

69. Type MI cable shall NOT be used.

- A. In dry, wet or continuously moist location
- B. Where exposed to destructive corrosive condition
- C. For services, and feeders
- D. All of these

69. Type **MI** cable shall **NOT** be used.

A. In dry, wet or continuously moist location

B. Where exposed to destructive corrosive condition

C. For services, and feeders

D. All of these

70. Pendant conductors where not cabled and longer than a certain length shall be twisted. What length is this?

- A. 1,000 mm
- B. 900 mm
- C. 600 mm
- D. 800 mm

70. Pendant conductors where not cabled and longer than a certain length shall be twisted. What length is this?

A. 1,000 mm

B. 900 mm

C. 600 mm

D. 800 mm

71. Each receptacle for DC plugging boxes shall be rated at NOT less than _____.

A. 20 A

B. 30 A

C. 15 A

D. 40 A

71. Each receptacle for DC plugging boxes shall be rated at **NOT** less than _____.

A. 20 A

B. 30 A

C. 15 A

D. 40 A

72. Insulated ground conductors of 14 mm² or smaller shall be identified by a continuous white outer finish along its entire length or another color which is.

- A. Green
- B. Natural gray
- C. Stripped green
- D. Stripped white

72. Insulated ground conductors of 14 mm² or smaller shall be **identified by a continuous white outer finish** along its entire length or another color which is.

A. Green

B. Natural gray

C. Stripped green

D. Stripped white

73. Electrical non-metallic tubing shall NOT be used where the voltage is over.

A. 500 V

B. 230 V

C. 300 V

D. 600 V

73. **Electrical non-metallic tubing** shall **NOT** be used where the voltage is over.

A. 500 V

B. 230 V

C. 300 V

D. 600 V

74. Which of the following statements is NOT correct?

- A. Overcurrent devices shall be located where they will not be exposed to physical damage
- B. Overcurrent devices shall be readily accessible
- C. In a multi-family dwelling, each occupant shall have ready access to all overcurrent devices protecting his occupancy
- D. Overcurrent devices may be located inside clothes closets

74. Which of the following statements is **NOT correct**?

- A. Overcurrent devices shall be located where they will not be exposed to physical damage
- B. Overcurrent devices shall be readily accessible
- C. In a multi-family dwelling, each occupant shall have ready access to all overcurrent devices protecting his occupancy
- D. **Overcurrent devices may be located inside clothes closets**

75. The ampacity of the phase conductors from the generator terminals to the first overcurrent device shall NOT be less than _____ percent of the nameplate current rating of the generator.

- A. 125 %
- B. 110 %
- C. 115 %
- D. 120 %

75. The ampacity of the phase conductors from the generator terminals to the first overcurrent device shall **NOT** be less than _____ percent of the **nameplate current** rating of the generator.

A. 125 %

B. 110 %

C. 115 %

D. 120 %

76. Busway shall be marked with which of the following?

- A. Voltage rating
- B. Manufacturer's name
- C. Current rating
- D. All of these

76. **Busway** shall be **marked** with which of the following?

- A. Voltage rating
- B. Manufacturer's name
- C. Current rating
- D. All of these**

77. Where “U” pulls are made on the pull box, the distance between each raceway entry inside the box and the opposite wall of the box shall NOT be less than _____ times the trade diameter of the largest raceway in a row.

A. 8

B. 7

C. 6

D. 5

77. Where “U” pulls are made on the pull box, the distance between each raceway entry inside the box and the opposite wall of the box shall **NOT** be less than _____ times the trade diameter of the largest raceway in a row.

A. 8

B. 7

C. 6

D. 5

78. Faceplates of insulating material shall be non-combustible and not less than _____ in thickness.

- A. 2.5 mm
- B. 1.5 mm
- C. 2.0 mm
- D. 3.0 mm

78. **Faceplates** of insulating material shall be non-combustible and not less than _____ in thickness.

A. 2.5 mm

B. 1.5 mm

C. 2.0 mm

D. 3.0 mm

79. Welding process wherein coalescence is produced by heating with an electric arc with or without the application of pressure and with or without the use of filler metal.

- A. Resistance welding
- B. Spot welding
- C. Arc welding
- D. All of these

79. Welding process wherein coalescence is produced by heating with an **electric arc** with or without the application of pressure and with or without the use of filler metal.

A. Resistance welding

B. Spot welding

C. Arc welding

D. All of these

80. Emergency lighting of ____ lux shall be provided in exit paths from all areas of attended stations?

A. 10

B. 20

C. 30

D. 15

80. **Emergency lighting** of ____ lux shall be provided in **exit paths** from all areas of attended stations?

A. 10

B. 20

C. 30

D. 15

81. Reference ambient temperature for explosion proof electrical equipment shall be _____.

A. 30 °C

B. 40 °C

C. 50 °C

D. 60 °C

81. Reference ambient temperature for explosion proof electrical equipment shall be _____.

A. 30 °C

B. 40 °C

C. 50 °C

D. 60 °C

82. Lamp protection shall be provided by elevation of at least ____ meters from the normal working surface.

A. 2

B. 1

C. 2.5

D. 3

82. **Lamp protection** shall be provided by **elevation** of at least ____ meters from the normal working surface.

A. 2

B. 1

C. 2.5

D. 3

83. Cables and cords supplied through plugging boxes shall be of.

A. Aluminum

B. Copper

C. Aluminum or copper

D. Copper-clad aluminum

83. Cables and cords supplied through plugging boxes shall be of.

A. Aluminum

B. Copper

C. Aluminum or copper

D. Copper-clad aluminum

84. What is the maximum number of conductors permitted in a wireway at any cross-section, signal circuit or starter-control wires are not included?

- A. 30 conductors
- B. 50 conductors
- C. 40 conductors
- D. 25 conductors

84. What is the **maximum number** of conductors permitted in a **wireway** at any cross-section, signal circuit or starter-control wires are not included?

A. 30 conductors

B. 50 conductors

C. 40 conductors

D. 25 conductors

85. In battery rooms with alkaline batteries, the shelves shall be lined with steel sheet NOT less than _____ thick.

A. 70 mm

B. 60 mm

C. 65 mm

D. 75 mm

85. In battery rooms with **alkaline batteries**, the shelves shall be lined with steel sheet **NOT** less than _____ thick.

A. 70 mm

B. 60 mm

C. 65 mm

D. 75 mm

86. In any watercraft, the motor circuit shall have an ampacity of NOT less than _____ of the motors full load current rating.

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

86. In any **watercraft**, the motor circuit shall have an **ampacity of NOT less** than _____ of the motors full load current rating.

A. 125 %

B. 100 %

C. 115 %

D. 130 %

87. The largest size of electrical metallic tubing is.

A. 75 mm

B. 125 mm

C. 150 mm

D. 100 mm

87. The largest size of electrical metallic tubing is.

A. 75 mm

B. 125 mm

C. 150 mm

D. 100 mm

88. The overload relay used to protect each motor-compressor set shall be selected to trip at NOT more than _____ of the motor-compressor rated load current.

A. 125 %

B. 130 %

C. 150 %

D. 140 %

88. The overload relay used to protect each motor-compressor set shall be selected to trip at **NOT** more than _____ of the **motor-compressor** rated load current.

A. 125 %

B. 130 %

C. 150 %

D. 140 %

89. The use of underground feeder cables may NOT be used in the following condition EXCEPT one. Which one is this.

- A. Embedded in concrete
- B. Hazardous location
- C. Direct burial
- D. Theaters

89. The use of **underground feeder** cables may **NOT be used** in the following condition **EXCEPT** one. Which one is this.

- A. Embedded in concrete
- B. Hazardous location
- C. Direct burial**
- D. Theaters

90. Each motor shall be provided with how many disconnects?

A. Two

B. Any number

C. Only one

D. Not required by the PEC

90. Each motor shall be provided with how many disconnects?

A. Two

B. Any number

C. Only one

D. Not required by the PEC

91. Which of the following colors identifies the grounded conductor of a branch circuit.

A. Green

B. Black

C. White

D. Blue

91. Which of the following colors identifies the grounded conductor of a branch circuit.

A. Green

B. Black

C. White

D. Blue

92. Receptacle installed for the attachment of portable cords shall be rated at NOT less than _____ 250 V.

A. 20 A

B. 30 A

C. 10 A

D. 15 A

92. Receptacle installed for the attachment of portable cords shall be rated at NOT less than _____ 250 V.

A. 20 A

B. 30 A

C. 10 A

D. 15 A

93. A conductor or group of conductors, in switchgear assemblies which serves as a common connection for two or more circuits.

A. Bus

B. Lug

C. Cut-out

D. Terminal block

93. A conductor or **group of conductors**, in switchgear assemblies which **serves as a common connection** for two or more **circuits**.

A. Bus

B. Lug

C. Cut-out

D. Terminal block

94. The ampacity of capacitor circuit conductors shall NOT be less than _____ of the rated current of the capacitor.

A. 125 %

B. 115 %

C. 135 %

D. 150 %

94. The **ampacity** of capacitor circuit conductors shall **NOT be less** than _____ of the rated current of the capacitor.

A. 125 %

B. 115 %

C. 135 %

D. 150 %

95. An assembly of a flexible cord with an attachment plug on one end and a cord connector on the other.

- A. Extension cord
- B. Fixture cord
- C. Appliance cord
- D. Non of these

95. An **assembly of a flexible cord with an attachment plug on one end and a cord connector on the other.**

A. Extension cord

B. Fixture cord

C. Appliance cord

D. Non of these

96. The alternate or back-up source of power in a hospital shall have a capacity to sustain its connected loads for a minimum of _____.

- A. 1.5 hours
- B. 2.0 hours
- C. 1.0 hour
- D. 2.5 hours

96. The alternate or **back-up source of power in a hospital** shall have a capacity to sustain its connected loads for a minimum of _____.

A. 1.5 hours

B. 2.0 hours

C. 1.0 hour

D. 2.5 hours

97. A disruptive discharge around or over the surface of a solid or liquid insulator.

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

97. A **disruptive discharge** around or over the surface of a solid or liquid insulator.

- A. Sparkover
- B. Corona
- C. Flashover**
- D. Skin effect

98. A hoisting and lowering mechanism equipped with a car or platform which moves in guides in a substantially vertical direction and which serves two or more floors of a building or structure.

- A. Dumbwaiter
- B. Escalator
- C. Elevator
- D. All of these

98. A hoisting and lowering mechanism equipped with a car or platform which moves in guides in a substantially **vertical direction** and which serves two or more floors of a building or structure.

A. Dumbwaiter

B. Escalator

C. Elevator

D. All of these

99. Any box not over _____cm³ in size, intended for mounting in closed building construction shall be affixed with anchors or clamps to provide a rigid and secure installation.

A. 1,540

B. 1,760

C. 1,800

D. 1,640

99. Any box not over _____cm³ in size, intended for mounting in closed building construction shall be **affixed with anchors or clamps to provide a rigid and secure installation.**

A. 1,540

B. 1,760

C. 1,800

D. 1,640

100. Motors with a marked service factor of less than 1.15 shall have an overload protection equal to _____ percent of the motor's FLA.

A. 100

B. 125

C. 1320

D. 115

100. Motors with a marked service factor of less than 1.15 shall have an **overload protection equal to _____** percent of the motor's FLA.

A. 100

B. 125

C. 1320

D. 115