TNPSC CTSE 2025

ELECTRICIAN-438

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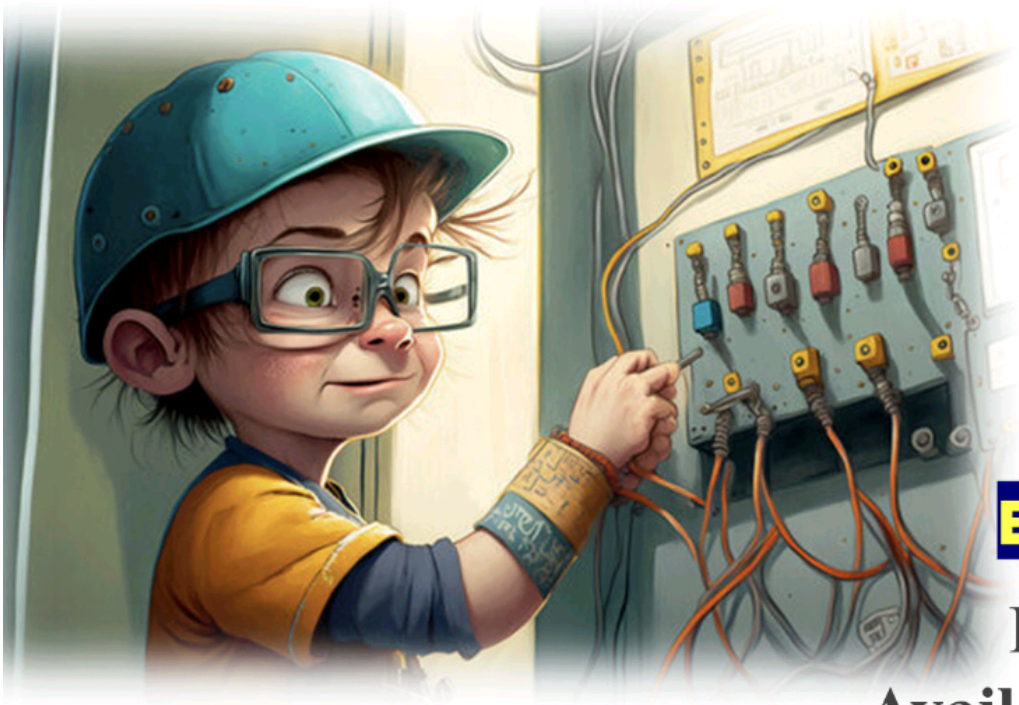

UNIT WISE
2000 MCQ QUESTIONS
WITH ANSWER EXPLANATION

ENGLISH MEDIUM

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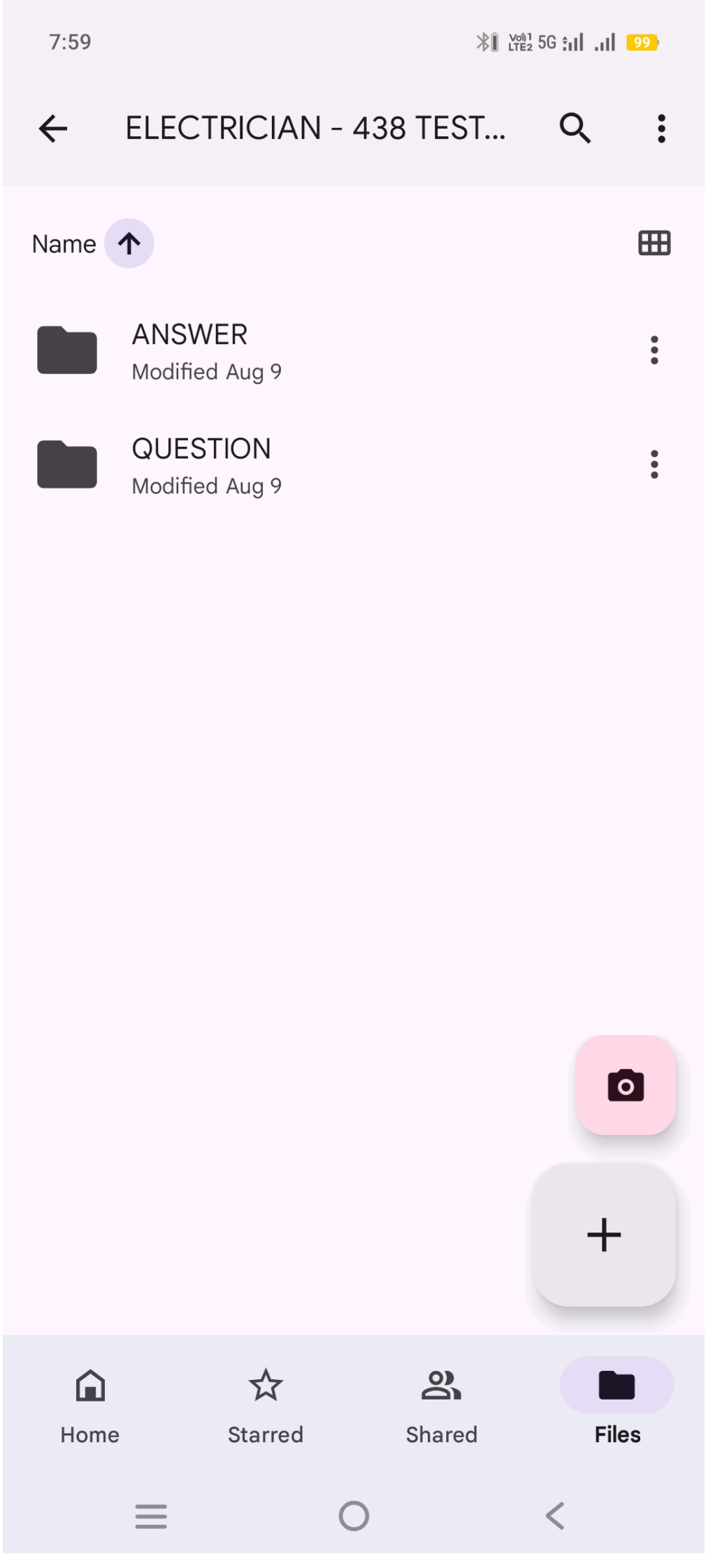
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UNIT 01: SAFETY RULES – FUNDAMENTAL OF ELECTRICITY

QUESTION

Q1. Which class of fire extinguisher is suitable for electrical fires?

A) Class A

B) Class B

C) Class C

D) Class D

Q2. What is the primary function of Personal Protective Equipment (PPE) in electrical work?

A) Enhance productivity

B) Provide comfort

C) Ensure safety

D) Improve aesthetics

Q3. According to Ohm's Law, what is the relationship between voltage (V), current (I), and resistance (R)?

A) $V = I \times R$

B) $V = I + R$

C) $V = I / R$

D) $V = R / I$

Q4. Which type of underground cable is most suitable for high-voltage transmission?

A) PVC insulated cables

B) Paper insulated lead covered cables

C) XLPE insulated cables

D) Rubber insulated cables

Q5. In soldering, what is the purpose of flux?

A) To cool the joint

B) To remove oxidation

C) To strengthen the joint

D) To insulate the joint

Q6. Kirchhoff's Current Law (KCL) states that:

A) The sum of voltages around a closed loop is zero

B) The sum of currents entering a junction equals the sum leaving

C) The total resistance in a series circuit is the sum of individual resistances

D) The current is directly proportional to voltage

Q7. Which capacitor type is polarized and must be connected correctly in a circuit?

A) Ceramic capacitor

B) Electrolytic capacitor

C) Mica capacitor

D) Film capacitor

Q8. What is the color code for the earth wire in electrical installations?

A) Red

B) Black

C) Green/Yellow

D) Blue

Q9. Which of the following is a hazard associated with electricity?

A) Noise pollution

B) Electrocution

C) Air pollution

D) Water contamination

Q10. In a simple electrical circuit, what component limits the flow of current?

A) Switch

B) Resistor

C) Capacitor

D) Inductor

Q11. Which type of fire extinguisher is suitable for electrical fires?

A) Water

B) Foam

C) Carbon Dioxide (CO_2)

D) Wet Chemical

Q12. What does PPE stand for in safety terminology?

A) Personal Protective Equipment

B) Public Protection Entity

C) Private Property Equipment

D) Professional Personal Equipment

Q13. Which law states that the total current entering a junction equals the total current leaving the junction?

A) Ohm's Law

B) Kirchhoff's Current Law

C) Faraday's Law

D) Lenz's Law

Q14. Which type of capacitor is polarized and must be connected correctly in a circuit?

A) Ceramic Capacitor

B) Electrolytic Capacitor

C) Mica Capacitor

D) Film Capacitor

Q15. What is the color code for the earth wire in electrical installations?

A) Red

B) Black

C) Green/Yellow

D) Blue

Q16. Which instrument is used to measure insulation resistance?

A) Voltmeter

B) Ammeter

C) Megger

D) Wattmeter

Q17. What is the primary function of a fuse in an electrical circuit?

A) To regulate voltage

B) To amplify current

C) To protect against overcurrent

D) To store electrical energy

Q18. Which type of fire extinguisher should not be used on electrical fires?

A) CO_2

B) Dry Powder

C) Foam

D) Water

Q19. What does the acronym PASS stand for in fire safety?

A) Pull, Aim, Squeeze, Sweep

B) Push, Alert, Squeeze, Stop

C) Pull, Alert, Squeeze, Stop

D) Push, Aim, Squeeze, Stop

Q20. What is the purpose of grounding in electrical systems?

A) To enhance conductivity

B) To increase voltage

C) To provide a safe path for electricity

D) To reduce resistance

Q21. Which device is used to measure electrical frequency?

A) Voltmeter

B) Ammeter

C) Frequency Meter

D) Wattmeter

Q22. Which of the following is a good conductor of electricity?

A) Wood

B) Plastic

C) Human body

D) Rubber

Q23. Which of the following is a good insulator?

A) Iron

B) Silver

C) Earth

D) Wood

Q24. The heating element in an electric appliance is a coil of wire made of:

A) Copper

B) Aluminium

C) Nichrome

D) Tungsten

Q25. The electric fuse works on the principle of:

A) Heating effect of electric current

B) Magnetic effect of electric current

C) Light effect of electric current

D) Both light and magnetic effect of electric current

Q26. Who discovered that there is a magnetic field around a wire carrying current?

A) Volta

B) Oersted

C) Ohm

D) Fleming

Q27. The unit used to measure potential difference is:

A) Volt

B) Ampere

C) Watt

D) Ohm

Q28. An electric bell works on the principle of:

A) Electromagnets

B) Heating effect of electricity

C) Mechanical energy

D) Atomic energy

Q29. A device that prevents damage to electric appliances in a circuit is:

A) Circuit Breaker

B) Electric Fuse

C) Switch

D) Battery

Q30. A drawing of an electrical circuit with standard symbols is called a:

A) Circuit diagram

B) Schematic

C) Symbols

D) Blueprint

Q31. Electric toasters and electric irons get hot when switched on because of the ___ effect of current.

A) Freezing

B) Boiling

C) Heating

D) Cooling

Q32. A fuse is a _ device.

A) Security

B) Safety

C) Productivity

D) Efficiency

Q33. In an electric bulb, the filament is made of __.

A) Plastic

B) Metal

C) Tungsten

D) Copper

Q34. What type of fire extinguisher is used for electrical fires?

A) Water

B) Foam

C) CO_2 (Carbon Dioxide)

D) Sand

Q35. Which law states that the current through a conductor is directly proportional to the voltage?

A) Faraday's Law

B) Kirchhoff's Law

C) Lenz's Law

D) Ohm's Law

Q36. What is the unit of electrical resistance?

A) Ampere

B) Volt

C) Watt

D) Ohm

Q37. Which joint is used for joining two wires end to end in house wiring?

A) Scarf joint

B) Britannia joint

C) Married joint

D) Western union joint

Q38. A capacitor stores which form of energy?

A) Mechanical

B) Thermal

C) Electrical

D) Magnetic

Q39. A short circuit is a connection that allows current to flow:

A) With very high resistance

B) With no resistance

C) In a zigzag path

D) Through insulators

Q40. Which equipment protects workers from electric shock?

A) Rubber gloves

B) Metal shoes

C) Bare hands

D) Woolen socks

Q41. The basic function of a fuse is to:

A) Increase voltage

B) Break circuit under overcurrent

C) Regulate temperature

D) Store energy

Q42. Which component is used to store electric charge?

A) Resistor

B) Capacitor

C) Inductor

D) Transformer

Q43. Personal Protective Equipment (PPE) includes all except:

A) Safety goggles

B) Helmet

C) Gloves

D) Wire cutter

Q44. The melting point of fuse wire is:

A) High

B) Medium

C) Low

D) Infinite

Q45. Underground cables are used mainly for:

A) Street lighting

B) Temporary circuits

C) Overhead lines

D) Permanent power supply

Q46. Which component is used to control the speed of an electric motor?

A) Transformer

B) Capacitor

C) Variable frequency drive

D) Inductor

Q47. What is the function of a motor protection relay in an electrical circuit?

A) To convert AC to DC

B) To amplify electrical signals

C) To protect the motor from overload and faults

D) To regulate voltage

Q48. What is the function of a phase sequence relay in electrical installations?

A) To measure voltage

B) To measure current

C) To monitor the correct sequence of phases

D) To measure resistance

Q49. Which component is used to measure electrical frequency?

A) Transformer

B) Oscilloscope

C) Frequency meter

D) Multimeter

Q50.Which type of fire extinguisher is suitable for extinguishing fire caused by cotton or other cloth?

A) Dry chemicals

B) Water

C) Foam

D) Soda acid

Q51. Which of the following is used to measure electric current?

A) Voltmeter

B) Ammeter

C) Wattmeter

D) Ohmmeter

Q52. What is the primary function of a fuse in an electrical circuit?

A) To increase current

B) To decrease voltage

C) To protect against overcurrent

D) To store energy

Q53. Which type of fire extinguisher is suitable for electrical fires?

A) Water

B) Foam

C) CO_2 (Carbon Dioxide)

D) Dry Powder

Q54. What is the unit of electrical resistance?

A) Volt

B) Ampere

C) Ohm

D) Watt

Q55. Which law states that the total current entering a junction equals the total current leaving the junction?

A) Ohm's Law

B) Faraday's Law

C) Kirchhoff's Current Law

D) Lenz's Law

Q56. Which personal protective equipment (PPE) is essential when working with electrical circuits?

A) Cotton gloves

B) Rubber gloves

C) Leather gloves

D) Woolen gloves

Q57. What is the purpose of earthing in electrical installations?

A) To increase voltage

B) To prevent overloading

C) To provide a path for fault current

D) To store electrical energy

Q58. Which component stores electrical energy in an electric field?

A) Resistor

B) Capacitor

C) Inductor

D) Transformer

Q59. What is the function of a circuit breaker?

A) To store energy

B) To amplify signals

C) To automatically interrupt current flow during faults

D) To convert AC to DC

Q60. Which color is typically used for earth wires in electrical installations?

A) Red

B) Black

C) Green or Green-Yellow

D) Blue

Q61. What is the primary purpose of grounding in electrical systems?

A) To increase voltage

B) To prevent overloading

C) To provide a path for fault current

D) To store electrical energy

Q62. Which device is used to protect an electrical circuit from overcurrent?

A) Transformer

B) Capacitor

C) Fuse

D) Inductor

Q63. What is the unit of electrical resistance?

A) Volt

B) Ampere

C) Ohm

D) Watt

Q64. Which law states that the total current entering a junction equals the total current leaving the junction?

A) Ohm's Law

B) Faraday's Law

C) Kirchhoff's Current Law

D) Lenz's Law

Q65. Which personal protective equipment (PPE) is essential when working with electrical circuits?

A) Cotton gloves

B) Rubber gloves

C) Leather gloves

D) Woolen gloves

Q66. What is the purpose of earthing in electrical installations?

A) To increase voltage

B) To prevent overloading

C) To provide a path for fault current

D) To store electrical energy

Q67. Which component stores electrical energy in an electric field?

A) Resistor

B) Capacitor

C) Inductor

D) Transformer

Q68. What is the function of a circuit breaker?

A) To store energy

B) To amplify signals

C) To automatically interrupt current flow during faults

D) To convert AC to DC

Q69. Which color is typically used for earth wires in electrical installations?

A) Red

B) Black

C) Green or Green-Yellow

D) Blue

Q70. What is the primary function of a Ground Fault Circuit Interrupter (GFCI)?

A) To enhance power supply efficiency

B) To detect and interrupt ground faults to prevent shocks

C) To convert AC to DC current

D) To increase the load capacity of a circuit

Q71. What is the main purpose of using Personal Protective Equipment (PPE) in electrical work?

A) To increase speed

B) To reduce power consumption

C) To prevent electric shocks and injuries

D) To improve visibility

Q72. Which type of fire extinguisher should NOT be used on electrical fires?

A) Foam

B) CO_2

C) Dry Powder

D) Clean Agent

Q73. In underground cables, which layer provides mechanical protection?

A) Conductor

B) Insulation

C) Armouring

D) Sheath

Q74. What is the SI unit of electric resistance?

A) Watt

B) Ampere

C) Ohm

D) Volt

Q75. Which law is applied to calculate total current in parallel circuits?

A) Newton's Law

B) Ohm's Law

C) Kirchhoff's Current Law

D) Coulomb's Law

Q76. Which joint is commonly used for joining two flexible wires?

A) Scarf Joint

B) Britannia Joint

C) Married Joint

D) Rat Tail Joint

Q77. Which component stores electrical energy in an electric field?

A) Resistor

B) Inductor

C) Capacitor

D) Transformer

Q78. What does an MCB (Miniature Circuit Breaker) protect against?

A) Low voltage

B) High temperature

C) Overcurrent and short circuits

D) Power factor drop

Q79. What is the main hazard of using damaged insulation on live wires?

A) Reduced current

B) Fire hazard and shock risk

C) Less voltage drops

D) Improved performance

Q80. What happens to total resistance when resistors are connected in parallel?

A) Increases

B) Decreases

C) Remains the same

D) Becomes zero

Q81. What is the function of a fuse in an electrical circuit?

A) To increase voltage

B) To limit resistance

C) To protect from overcurrent

D) To reduce noise

Q82. Which type of extinguisher is safe for use on live electrical equipment?

A) Water

B) CO_2

C) Foam

D) Sand

Q83. Which wire color is commonly used for the Earth connection?

A) Black

B) Red

C) Green/Yellow

D) Blue

Q84. Which soldering method is most suitable for electronics?

A) Arc soldering

B) Gas soldering

C) Soft soldering

D) Forge soldering

Q85. What is the voltage of a standard household circuit in India?

A) 110V

B) 220V

C) 12V

D) 440V

Q86. What is the unit of electric current?

A) Ohm

B) Volt

C) Ampere

D) Watt

Q87. In Ohm's law, what does V = IR represent?

A) Voltage equals current divided by resistance

B) Voltage equals resistance divided by current

C) Voltage equals current times resistance

D) Voltage equals resistance times power

Q88. Which device is used to measure electric current?

A) Voltmeter

B) Ammeter

C) Wattmeter

D) Multimeter

Q89. Which type of fire extinguisher is used for electrical and electronic equipment?

A) Type A

B) Type B

C) Type C

D) Type D

Q90. What does Kirchhoff's Voltage Law state?

A) Voltage in parallel circuits is zero

B) Total voltage in a closed loop is zero

C) Voltage divides equally in series

D) Voltage increases with resistance

Q91. Which type of capacitor is polarized?

A) Ceramic

B) Electrolytic

C) Mica

D) Paper

Q92. What is the role of a relay in an electric circuit?

A) Directly controls large current

B) Measures voltage

C) Acts as a protective device

D) Switches a circuit using a low-power signal

Q93. Which PPE is most essential while working near live wires?

A) Safety glasses

B) Leather gloves

C) Insulated gloves

D) Welding mask

Q94. Which joint is commonly used for joining two solid wires permanently?

A) Rat tail joint

B) Western Union joint

C) Twist joint

D) Married joint

Q95. What is the purpose of flux in soldering?

A) Increase resistance

B) Remove oxidation

C) Reduce solder temperature

D) Increase current

Q96. Which cable is preferred for underground installations?

A) PVC twin core

B) Armoured cable

C) Teflon cable

D) Aluminium stranded wire

Q97. Which law states the current through a conductor is directly proportional to the voltage across it?

A) Newton's law

B) Ohm's law

C) Joule's law

D) Coulomb's law

Q98. Which element of a capacitor stores electric charge?

A) Core

B) Conductor

C) Dielectric

D) Insulation

Q99. What is the primary purpose of earthing in electrical installations?

A) To increase voltage

B) To prevent overloading

C) To protect against electric shocks

D) To enhance current flow

Q100. Which device is used to measure electrical resistance?

A) Ammeter

B) Voltmeter

C) Ohmmeter

D) Wattmeter

Q101. What is the function of a surge arrester in an electrical system?

A) To store electrical energy

B) To protect against voltage surges

C) To regulate current flow

D) To convert AC to DC

Q102. Which component is commonly used to control the speed of an electric motor?

A) Transformer

B) Capacitor

C) Variable frequency drive

D) Inductor

Q103. What is the standard color code for the neutral wire in electrical wiring?

A) Red

B) Black

C) Blue

D) Green

Q104. Which type of fire extinguisher is suitable for electrical fires?

A) Water

B) Foam

C) CO_2

D) Wet chemical

Q105. What does PPE stand for in workplace safety?

A) Professional Protection Equipment

B) Personal Protective Equipment

C) Primary Protection Ensemble

D) Personal Prevention Equipment

Q106. Which instrument measures the frequency of an electrical signal?

A) Oscilloscope

B) Frequency meter

C) Multimeter

D) Spectrum analyzer

Q107. What is the primary hazard of using water on an electrical fire?

A) It cools the equipment too quickly

B) It can cause electrocution

C) It produces toxic fumes

D) It damages the fire extinguisher

Q108. Which device automatically disconnects power during a fault condition?

A) Fuse

B) Circuit breaker

C) Contactor

D) Relay

Q109. What is the unit of electrical power?

A) Volt

B) Ampere

C) Ohm

D) Watt

Q110. Which material is commonly used as a conductor in electrical wiring?

A) Rubber

B) Copper

C) Plastic

D) Glass

Q111. What is the function of an insulator in electrical systems?

A) To conduct electricity

B) To store electrical energy

C) To prevent unwanted current flow

D) To amplify signals

Q112. Which safety device is designed to protect against earth faults?

A) MCB

B) RCCB

C) ELCB

D) Both B and C

Q113. What does the color green typically indicate in electrical wiring?

A) Live wire

B) Neutral wire

C) Earth wire

D) Phase wire

Q114. Which device converts mechanical energy into electrical energy?

A) Motor

B) Generator

C) Transformer

D) Rectifier

Q115. What is the purpose of a transformer in an electrical circuit?

A) To convert AC to DC

B) To change voltage levels

C) To store energy

D) To measure current

Q116. What is the primary purpose of a Residual Current Device (RCD) in electrical systems?

A) To increase voltage

B) To detect and disconnect leakage currents

C) To store electrical energy

D) To convert AC to DC

Q117. Which color is typically used for warning signs in electrical safety?

A) Green

B) Blue

C) Yellow

D) Red

Q118. What does the acronym "PASS" stand for in fire extinguisher operation?

A) Pull, Aim, Squeeze, Sweep

B) Push, Alert, Squeeze, Sweep

C) Pull, Alert, Squeeze, Stop

D) Push, Aim, Squeeze, Stop

Q119. Which type of fire extinguisher is suitable for flammable metal fires?

A) Water

B) Foam

C) CO_2

D) Dry Powder

Q120. What is the function of a fuse in an electrical circuit?

A) To amplify current

B) To protect against overcurrent

C) To store energy

D) To convert AC to DC

Q121. Which personal protective equipment (PPE) is essential when working with electrical installations?

A) Cotton gloves

B) Insulated gloves

C) Leather gloves

D) Woolen gloves

Q122. What does a green safety sign typically indicate?

A) Prohibition

B) Warning

C) Mandatory action

D) Safe condition

Q123. Which device is used to measure electrical resistance?

A) Ammeter

B) Voltmeter

C) Ohmmeter

D) Wattmeter

Q124. What is the standard frequency of AC supply in India?

A) 50 Hz

B) 60 Hz

C) 100 Hz

D) 120 Hz

Q125. Which component is used to store electrical energy in an electric field?

A) Resistor

B) Inductor

C) Capacitor

D) Transformer

Q126. What is the primary hazard of using water on electrical fires?

A) It cools the fire too quickly

B) It can cause electrocution

C) It produces toxic fumes

D) It damages the equipment

Q127. Which device is used to measure electric current?

A) Voltmeter

B) Ammeter

C) Ohmmeter

D) Multimeter

Q128. What is the function of a circuit breaker?

A) To increase voltage

B) To store electrical energy

C) To interrupt current flow during a fault

D) To convert AC to DC

Q129. Which color is typically used for prohibition signs in safety?

A) Red

B) Blue

C) Yellow

D) Green

Q130. What is the SI unit of electrical resistance?

A) Volt

B) Ampere

C) Ohm

D) Watt

Q131. Which device is used to protect electrical appliances from voltage spikes?

A) Transformer

B) Surge protector

C) Capacitor

D) Inductor

Q132. What does a blue safety sign typically indicate?

A) Warning

B) Prohibition

C) Mandatory action

D) Safe condition

Q133. Which type of fire extinguisher is suitable for oil fires?

A) Water

B) Foam

C) CO_2

D) Dry Powder

Q134. Which of the following tools is used to check the presence of voltage in a wire?

A) Soldering iron

B) Test lamp

C) Wire stripper

D) Hammer

Q135. The safe method for disconnecting a plug from a socket is:

A) Pulling the wire

B) Tugging the cord hard

C) Pulling by the plug

D) Switching off power at main

Q136. What type of wire joint is used for joining two wires in a straight line?

A) Western Union joint

B) Tee joint

C) Britannia joint

D) Twist joint

Q137. Which soldering defect occurs due to insufficient heat?

A) Dry joint

B) Cold joint

C) Short circuit

D) Bridging

Q138. What is the major cause of electric shock?

A) High resistance

B) Current leakage

C) Short circuit

D) High voltage with low current

Q139. Which property of a capacitor allows it to store energy?

A) Dielectric strength

B) Capacitance

C) Inductance

D) Resistance

Q140. What does a capacitor do in a ceiling fan?

A) Increases voltage

B) Stores heat

C) Improves starting torque

D) Reduces speed

Q141. How is a live wire identified in standard wiring?

A) Red or brown color

B) Green color

C) Blue color

D) Black color

Q142. Which equipment is used to safely discharge a charged capacitor?

A) Resistor

B) Multimeter

C) Discharge rod

D) Ammeter

Q143. Insulation resistance is measured using:

A) Ammeter

B) Voltmeter

C) Megger

D) Multimeter

Q144. The electrical symbol "Ω" represents:

A) Inductance

B) Capacitance

C) Resistance

D) Voltage

Q145. What causes arcing during switching?

A) High voltage

B) High current

C) Loose contacts

D) Poor insulation

Q146. Which is not a personal protective equipment (PPE)?

A) Helmet

B) Safety boots

C) Cotton handkerchief

D) Insulated gloves

Q147. What is the color of Earth wire in India?

A) Red

B) Blue

C) Green

D) Black

Q148. Which law states that the sum of voltage drops in a closed loop is zero?

A) Ohm's Law

B) Faraday's Law

C) Lenz's Law

D) Kirchhoff's Voltage Law

Q149. For proper soldering, the best type of solder wire is:

A) Lead only

B) Tin only

C) Lead-Tin alloy with flux core

D) Copper

Q150. Which class of fire extinguisher is used for electrical fires?

A) Class A

B) Class B

C) Class C

D) Class D

UNIT 01: SAFETY RULES – FUNDAMENTAL OF ELECTRICITY

ANSWER AND EXPLANATION

Q1. Which class of fire extinguisher is suitable for electrical fires?

A) Class A

B) Class B

C) Class C

D) Class D

Answer: C) Class C

Explanation: Class C fire extinguishers are designed for fires involving electrical equipment. Using water-based extinguishers on electrical fires can be hazardous due to the risk of electrical shock.

Q2. What is the primary function of Personal Protective Equipment (PPE) in electrical work?

A) Enhance productivity

B) Provide comfort

C) Ensure safety

D) Improve aesthetics

Answer: C) Ensure safety

Explanation: PPE is essential in protecting workers from electrical hazards such as shocks, burns, and arc flashes. It includes items like insulated gloves, safety glasses, and protective clothing.

Q3. According to Ohm's Law, what is the relationship between voltage (V), current (I), and resistance (R)?

A) $V = I \times R$

B) $V = I + R$

C) $V = I / R$

D) V = R / I

Answer: A) V = I × R

Explanation: Ohm's Law states that the voltage across a conductor is directly proportional to the current flowing through it, with the resistance being the constant of proportionality.

Q4. Which type of underground cable is most suitable for high-voltage transmission?

A) PVC insulated cables

B) Paper insulated lead covered cables

C) XLPE insulated cables

D) Rubber insulated cables

Answer: C) XLPE insulated cables

Explanation: Cross-linked polyethylene (XLPE) insulated cables are preferred for high-voltage applications due to their excellent thermal and electrical properties, as well as their resistance to moisture and chemicals.

Q5. In soldering, what is the purpose of flux?

A) To cool the joint

B) To remove oxidation

C) To strengthen the joint

D) To insulate the joint

Answer: B) To remove oxidation

Explanation: Flux is used in soldering to clean the metal surfaces by removing oxides, ensuring a strong and conductive joint.

Q6. Kirchhoff's Current Law (KCL) states that:

A) The sum of voltages around a closed loop is zero

B) The sum of currents entering a junction equals the sum leaving

C) The total resistance in a series circuit is the sum of individual resistances

D) The current is directly proportional to voltage

Answer: B) The sum of currents entering a junction equals the sum leaving

Explanation: KCL is based on the principle of conservation of charge, indicating that the total current entering a junction must equal the total current leaving it.

Q7. Which capacitor type is polarized and must be connected correctly in a circuit?

A) Ceramic capacitor

B) Electrolytic capacitor

C) Mica capacitor

D) Film capacitor

Answer: B) Electrolytic capacitor

Explanation: Electrolytic capacitors are polarized, meaning they have positive and negative terminals and must be connected accordingly to prevent damage or failure.

Q8. What is the color code for the earth wire in electrical installations?

A) Red

B) Black

C) Green/Yellow

D) Blue

Answer: C) Green/Yellow

Explanation: The standard color code for earth (ground) wires is green with yellow stripes, ensuring easy identification for safety purposes.

Q9. Which of the following is a hazard associated with electricity?

A) Noise pollution

B) Electrocution

C) Air pollution

D) Water contamination

Answer: B) Electrocution

Explanation: Electrocution is a serious hazard of electricity, resulting from exposure to high voltage or current, leading to injury or death.

Q10. In a simple electrical circuit, what component limits the flow of current?

A) Switch

B) Resistor

C) Capacitor

D) Inductor

Answer: B) Resistor

Explanation: A resistor is used to limit or regulate the flow of electrical current in a circuit, protecting components from damage due to excessive current.

Q11. Which type of fire extinguisher is suitable for electrical fires?

A) Water

B) Foam

C) Carbon Dioxide (CO_2)

D) Wet Chemical

Answer: C) Carbon Dioxide (CO_2)

Explanation: CO_2 extinguishers are ideal for electrical fires as they do not leave residue and do not conduct electricity, reducing the risk of electric shock.

Q12. What does PPE stand for in safety terminology?

A) Personal Protective Equipment

B) Public Protection Entity

C) Private Property Equipment

D) Professional Personal Equipment

Answer: A) Personal Protective Equipment

Explanation: PPE refers to equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses.

Q13. Which law states that the total current entering a junction equals the total current leaving the junction?

A) Ohm's Law

B) Kirchhoff's Current Law

C) Faraday's Law

D) Lenz's Law

Answer: B) Kirchhoff's Current Law

Explanation: Kirchhoff's Current Law (KCL) asserts that the sum of currents entering a junction equals the sum of currents leaving, ensuring charge conservation.

Q14. Which type of capacitor is polarized and must be connected correctly in a circuit?

A) Ceramic Capacitor

B) Electrolytic Capacitor

C) Mica Capacitor

D) Film Capacitor

Answer: B) Electrolytic Capacitor

Explanation: Electrolytic capacitors are polarized, meaning they have positive and negative terminals and must be connected accordingly to prevent damage.

Q15. What is the color code for the earth wire in electrical installations?

A) Red

B) Black

C) Green/Yellow

D) Blue

Answer: C) Green/Yellow

Explanation: The standard color code for earth wires is green with yellow stripes, ensuring easy identification for safety purposes.

Q16. Which instrument is used to measure insulation resistance?

A) Voltmeter

B) Ammeter

C) Megger

D) Wattmeter

Answer: C) Megger

Explanation: A megger is a specialized instrument used to measure high resistance values, particularly insulation resistance in electrical installations.

Q17. What is the primary function of a fuse in an electrical circuit?

A) To regulate voltage

B) To amplify current

C) To protect against overcurrent

D) To store electrical energy

Answer: C) To protect against overcurrent

Explanation: A fuse acts as a safety device that interrupts the flow of excessive current, preventing damage to the circuit and potential hazards.

Q18. Which type of fire extinguisher should not be used on electrical fires?

A) CO_2

B) Dry Powder

C) Foam

D) Water

Answer: D) Water

Explanation: Water conducts electricity and using it on electrical fires can lead to electric shocks; hence, it's unsuitable for such fires.

Q19. What does the acronym PASS stand for in fire safety?

A) Pull, Aim, Squeeze, Sweep

B) Push, Alert, Squeeze, Stop

C) Pull, Alert, Squeeze, Stop

D) Push, Aim, Squeeze, Stop

Answer: A) Pull, Aim, Squeeze, Sweep

Explanation: PASS is a mnemonic for operating a fire extinguisher: Pull the pin, aim at the base, Squeeze the handle, and Sweep side to side.

Q20. What is the purpose of grounding in electrical systems?

A) To enhance conductivity

B) To increase voltage

C) To provide a safe path for electricity

D) To reduce resistance

Answer: C) To provide a safe path for electricity

Explanation: Grounding ensures that in case of a fault, excess electricity has a safe path to the earth, preventing electric shocks.

Q21. Which device is used to measure electrical frequency?

A) Voltmeter

B) Ammeter

C) Frequency Meter

D) Wattmeter

Answer: C) Frequency Meter

Explanation: A frequency meter measures the frequency of an electrical signal, typically in hertz (Hz), indicating how many cycles occur per second.

Q22. Which of the following is a good conductor of electricity?

A) Wood

B) Plastic

C) Human body

D) Rubber

Answer: C) Human body

Explanation: The human body contains electrolytes and water, making it a good conductor of electricity. This is why electric shocks can be dangerous to humans.

Q23. Which of the following is a good insulator?

A) Iron

B) Silver

C) Earth

D) Wood

Answer: D) Wood

Explanation: Wood is a poor conductor of electricity and is commonly used as an insulating material to prevent electric shocks.

Q24. The heating element in an electric appliance is a coil of wire made of:

A) Copper

B) Aluminium

C) Nichrome

D) Tungsten

Answer: C) Nichrome

Explanation: Nichrome, an alloy of nickel and chromium, has high resistance and can withstand high temperatures, making it ideal for heating elements.

Q25. The electric fuse works on the principle of:

A) Heating effect of electric current

B) Magnetic effect of electric current

C) Light effect of electric current

D) Both light and magnetic effect of electric current

Answer: A) Heating effect of electric current

Explanation: A fuse contains a thin wire that melts when excessive current flows through it due to the heating effect, thereby breaking the circuit and preventing damage.

Q26. Who discovered that there is a magnetic field around a wire carrying current?

A) Volta

B) Oersted

C) Ohm

D) Fleming

Answer: B) Oersted

Explanation: Hans Christian Oersted discovered that an electric current creates a magnetic field around it, laying the foundation for electromagnetism.

Q27. The unit used to measure potential difference is:

A) Volt

B) Ampere

C) Watt

D) Ohm

Answer: A) Volt

Explanation: Potential difference, also known as voltage, is measured in volts and represents the work done to move a charge between two points.

Q28. An electric bell works on the principle of:

A) Electromagnets

B) Heating effect of electricity

C) Mechanical energy

D) Atomic energy

Answer: A) Electromagnets

Explanation: Electric bells use electromagnets to attract a striker that hits the bell, producing sound. When current flows, the electromagnet is activated.

Q29. A device that prevents damage to electric appliances in a circuit is:

A) Circuit Breaker

B) Electric Fuse

C) Switch

D) Battery

Answer: B) Electric Fuse

Explanation: An electric fuse protects appliances by breaking the circuit when excessive current flows, preventing potential damage.

Q30. A drawing of an electrical circuit with standard symbols is called a:

A) Circuit diagram

B) Schematic

C) Symbols

D) Blueprint

Answer: A) Circuit diagram

Explanation: A circuit diagram uses standardized symbols to represent electrical components and their connections in a circuit.

Q31. Electric toasters and electric irons get hot when switched on because of the ___ effect of current.

A) Freezing

B) Boiling

C) Heating

D) Cooling

Answer: C) Heating

Explanation: The heating effect of electric current causes appliances like toasters and irons to produce heat when current flows through their resistive elements.

Q32. A fuse is a _ device.

A) Security

B) Safety

C) Productivity

D) Efficiency

Answer: B) Safety

Explanation: Fuses are safety devices designed to protect electrical circuits from overcurrent by breaking the circuit when necessary.

Q33. In an electric bulb, the filament is made of __.

A) Plastic

B) Metal

C) Tungsten

D) Copper

Answer: C) Tungsten

Explanation: Tungsten is used for filaments due to its high melting point and ability to emit light when heated.

Q34. What type of fire extinguisher is used for electrical fires?

A) Water

B) Foam

C) CO_2 (Carbon Dioxide)

D) Sand

Answer: C) CO_2 (Carbon Dioxide)

Explanation: CO_2 extinguishers are non-conductive and do not leave residue, making them safe for electrical fires.

Q35. Which law states that the current through a conductor is directly proportional to the voltage?

A) Faraday's Law

B) Kirchhoff's Law

C) Lenz's Law

D) Ohm's Law

Answer: D) Ohm's Law

Explanation: Ohm's Law is expressed as V = IR, showing the relationship between voltage, current, and resistance.

Q36. What is the unit of electrical resistance?

A) Ampere

B) Volt

C) Watt

D) Ohm

Answer: D) Ohm

Explanation: Resistance is measured in ohms (Ω) and determines how much a material resists electric current.

Q37. Which joint is used for joining two wires end to end in house wiring?

A) Scarf joint

B) Britannia joint

C) Married joint

D) Western union joint

Answer: D) Western union joint

Explanation: Western union joints provide strong mechanical and electrical continuity in end-to-end wire connections.

Q38. A capacitor stores which form of energy?

A) Mechanical

B) Thermal

C) Electrical

D) Magnetic

Answer: C) Electrical

Explanation: Capacitors store energy in the form of an electric field between their plates.

Q39. A short circuit is a connection that allows current to flow:

A) With very high resistance

B) With no resistance

C) In a zigzag path

D) Through insulators

Answer: B) With no resistance

Explanation: A short circuit causes excessive current due to near-zero resistance, potentially damaging components.

Q40. Which equipment protects workers from electric shock?

A) Rubber gloves

B) Metal shoes

C) Bare hands

D) Woolen socks

Answer: A) Rubber gloves

Explanation: Rubber is an excellent insulator and prevents current from passing through the body.

Q41. The basic function of a fuse is to:

A) Increase voltage

B) Break circuit under overcurrent

C) Regulate temperature

D) Store energy

Answer: B) Break circuit under overcurrent

Explanation: A fuse melts and disconnects the circuit when current exceeds the safe limit.

Q42. Which component is used to store electric charge?

A) Resistor

B) Capacitor

C) Inductor

D) Transformer

Answer: B) Capacitor

Explanation: Capacitors store and release electrical energy when needed in circuits.

Q43. Personal Protective Equipment (PPE) includes all except:

A) Safety goggles

B) Helmet

C) Gloves

D) Wire cutter

Answer: D) Wire cutter

Explanation: A wire cutter is a tool, not PPE. PPE refers to safety gear protecting the user.

Q44. The melting point of fuse wire is:

A) High

B) Medium

C) Low

D) Infinite

Answer: C) Low

Explanation: Fuse wires are made from materials with low melting points to melt quickly in overloads.

Q45. Underground cables are used mainly for:

A) Street lighting

B) Temporary circuits

C) Overhead lines

D) Permanent power supply

Answer: D) Permanent power supply

Explanation: Underground cables are safer and used in permanent installations to avoid exposure.

Q46. Which component is used to control the speed of an electric motor?

A) Transformer

B) Capacitor

C) Variable frequency drive

D) Inductor

Answer: C) Variable frequency drive

Explanation: A Variable Frequency Drive (VFD) controls the speed of an electric motor by varying the frequency and voltage of its power supply.

Q47. What is the function of a motor protection relay in an electrical circuit?

A) To convert AC to DC

B) To amplify electrical signals

C) To protect the motor from overload and faults

D) To regulate voltage

Answer: C) To protect the motor from overload and faults

Explanation: Motor protection relays safeguard motors against overloads, phase failures, and other faults by interrupting the power supply when necessary.

Q48. What is the function of a phase sequence relay in electrical installations?

A) To measure voltage

B) To measure current

C) To monitor the correct sequence of phases

D) To measure resistance

Answer: C) To monitor the correct sequence of phases

Explanation: A phase sequence relay ensures that the phases are in the correct order, which is crucial for the proper operation of three-phase equipment.

Q49. Which component is used to measure electrical frequency?

A) Transformer

B) Oscilloscope

C) Frequency meter

D) Multimeter

Answer: C) Frequency meter

Explanation: A frequency meter measures the frequency of an electrical signal, typically in hertz (Hz).

Q50.Which type of fire extinguisher is suitable for extinguishing fire caused by cotton or other cloth?

A) Dry chemicals

B) Water

C) Foam

D) Soda acid

Answer: B) Water

Explanation: Water extinguishers are effective against fires involving organic materials such as cloth, paper, and wood.

Q51. Which of the following is used to measure electric current?

A) Voltmeter

B) Ammeter

C) Wattmeter

D) Ohmmeter

Answer: B) Ammeter

Explanation: An ammeter is an instrument used to measure the flow of electric current in a circuit.

Q52. What is the primary function of a fuse in an electrical circuit?

A) To increase current

B) To decrease voltage

C) To protect against overcurrent

D) To store energy

Answer: C) To protect against overcurrent

Explanation: A fuse protects electrical circuits by melting and breaking the circuit when excessive current flows through it.

Q53. Which type of fire extinguisher is suitable for electrical fires?

A) Water

B) Foam

C) CO_2 (Carbon Dioxide)

D) Dry Powder

Answer: C) CO_2 (Carbon Dioxide)

Explanation: CO_2 extinguishers are ideal for electrical fires as they do not leave residue and are non-conductive.

Q54. What is the unit of electrical resistance?

A) Volt

B) Ampere

C) Ohm

D) Watt

Answer: C) Ohm

Explanation: The ohm (Ω) is the SI unit of electrical resistance, representing the opposition to current flow.

Q55. Which law states that the total current entering a junction equals the total current leaving the junction?

A) Ohm's Law

B) Faraday's Law

C) Kirchhoff's Current Law

D) Lenz's Law

Answer: C) Kirchhoff's Current Law

Explanation: Kirchhoff's Current Law (KCL) asserts that the sum of currents entering a node equals the sum exiting it.

Q56. Which personal protective equipment (PPE) is essential when working with electrical circuits?

A) Cotton gloves

B) Rubber gloves

C) Leather gloves

D) Woolen gloves

Answer: B) Rubber gloves

Explanation: Rubber gloves provide insulation and protect against electric shocks during electrical work.

Q57. What is the purpose of earthing in electrical installations?

A) To increase voltage

B) To prevent overloading

C) To provide a path for fault current

D) To store electrical energy

Answer: C) To provide a path for fault current

Explanation: Earthing ensures safety by directing fault currents safely into the ground, preventing electric shocks.

Q58. Which component stores electrical energy in an electric field?

A) Resistor

B) Capacitor

C) Inductor

D) Transformer

Answer: B) Capacitor

Explanation: A capacitor stores energy in an electric field between its plates, useful in various electronic applications.

Q59. What is the function of a circuit breaker?

A) To store energy

B) To amplify signals

C) To automatically interrupt current flow during faults

D) To convert AC to DC

Answer: C) To automatically interrupt current flow during faults

Explanation: Circuit breakers protect circuits by breaking the connection when abnormal conditions like overloads occur.

Q60. Which color is typically used for earth wires in electrical installations?

A) Red

B) Black

C) Green or Green-Yellow

D) Blue

Answer: C) Green or Green-Yellow

Explanation: Green or green-yellow insulation identifies earth wires, ensuring safety and standardization.

Q61. What is the primary purpose of grounding in electrical systems?

A) To increase voltage

B) To prevent overloading

C) To provide a path for fault current

D) To store electrical energy

Answer: C) To provide a path for fault current

Explanation: Grounding ensures safety by directing fault currents safely into the ground, preventing electric shocks.

Q62. Which device is used to protect an electrical circuit from overcurrent?

A) Transformer

B) Capacitor

C) Fuse

D) Inductor

Answer: C) Fuse

Explanation: A fuse protects electrical circuits by melting and breaking the circuit when excessive current flows through it.

Q63. What is the unit of electrical resistance?

A) Volt

B) Ampere

C) Ohm

D) Watt

Answer: C) Ohm

Explanation: The ohm (Ω) is the SI unit of electrical resistance, representing the opposition to current flow.

Q64. Which law states that the total current entering a junction equals the total current leaving the junction?

A) Ohm's Law

B) Faraday's Law

C) Kirchhoff's Current Law

D) Lenz's Law

Answer: C) Kirchhoff's Current Law

Explanation: Kirchhoff's Current Law (KCL) asserts that the sum of currents entering a node equals the sum exiting it.

Q65. Which personal protective equipment (PPE) is essential when working with electrical circuits?

A) Cotton gloves

B) Rubber gloves

C) Leather gloves

D) Woolen gloves

Answer: B) Rubber gloves

Explanation: Rubber gloves provide insulation and protect against electric shocks during electrical work.

Q66. What is the purpose of earthing in electrical installations?

A) To increase voltage

B) To prevent overloading

C) To provide a path for fault current

D) To store electrical energy

Answer: C) To provide a path for fault current

Explanation: Earthing ensures safety by directing fault currents safely into the ground, preventing electric shocks.

Q67. Which component stores electrical energy in an electric field?

A) Resistor

B) Capacitor

C) Inductor

D) Transformer

Answer: B) Capacitor

Explanation: A capacitor stores energy in an electric field between its plates, useful in various electronic applications.

Q68. What is the function of a circuit breaker?

A) To store energy

B) To amplify signals

C) To automatically interrupt current flow during faults

D) To convert AC to DC

Answer: C) To automatically interrupt current flow during faults

Explanation: Circuit breakers protect circuits by breaking the connection when abnormal conditions like overloads occur.

Q69. Which color is typically used for earth wires in electrical installations?

A) Red

B) Black

C) Green or Green-Yellow

D) Blue

Answer: C) Green or Green-Yellow

Explanation: Green or green-yellow insulation identifies earth wires, ensuring safety and standardization.

Q70. What is the primary function of a Ground Fault Circuit Interrupter (GFCI)?

A) To enhance power supply efficiency

B) To detect and interrupt ground faults to prevent shocks

C) To convert AC to DC current

D) To increase the load capacity of a circuit

Answer: B) To detect and interrupt ground faults to prevent shocks

Explanation: A GFCI monitors electrical currents and shuts off power when it detects a ground fault, protecting against electrocution.

Q71. What is the main purpose of using Personal Protective Equipment (PPE) in electrical work?

A) To increase speed

B) To reduce power consumption

C) To prevent electric shocks and injuries

D) To improve visibility

Answer: C) To prevent electric shocks and injuries

Explanation: PPE such as gloves, shoes, and helmets protect workers from electrical hazards.

Q72. Which type of fire extinguisher should NOT be used on electrical fires?

A) Foam

B) CO2

C) Dry Powder

D) Clean Agent

Answer: A) Foam

Explanation: Foam is water-based and can conduct electricity, increasing the risk of shock.

Q73. In underground cables, which layer provides mechanical protection?

A) Conductor

B) Insulation

C) Armouring

D) Sheath

Answer: C) Armouring

Explanation: Armouring is a metallic layer that protects the cable from mechanical damage.

Q74. What is the SI unit of electric resistance?

A) Watt

B) Ampere

C) Ohm

D) Volt

Answer: C) Ohm

Explanation: Resistance is measured in Ohms (Ω), named after Georg Simon Ohm.

Q75. Which law is applied to calculate total current in parallel circuits?

A) Newton's Law

B) Ohm's Law

C) Kirchhoff's Current Law

D) Coulomb's Law

Answer: C) Kirchhoff's Current Law

Explanation: KCL states that total current entering a junction equals total current leaving.

Q76. Which joint is commonly used for joining two flexible wires?

A) Scarf Joint

B) Britannia Joint

C) Married Joint

D) Rat Tail Joint

Answer: D) Rat Tail Joint

Explanation: Rat tail joint is suitable for flexible wires due to its twisting nature.

Q77. Which component stores electrical energy in an electric field?

A) Resistor

B) Inductor

C) Capacitor

D) Transformer

Answer: C) Capacitor

Explanation: A capacitor stores energy in an electric field between its plates.

Q78. What does an MCB (Miniature Circuit Breaker) protect against?

A) Low voltage

B) High temperature

C) Overcurrent and short circuits

D) Power factor drop

Answer: C) Overcurrent and short circuits

Explanation: MCBs automatically trip when current exceeds the rated value, ensuring safety.

Q79. What is the main hazard of using damaged insulation on live wires?

A) Reduced current

B) Fire hazard and shock risk

C) Less voltage drops

D) Improved performance

Answer: B) Fire hazard and shock risk

Explanation: Damaged insulation exposes conductors, leading to shocks and fire risk.

Q80. What happens to total resistance when resistors are connected in parallel?

A) Increases

B) Decreases

C) Remains the same

D) Becomes zero

Answer: B) Decreases

Explanation: In parallel, total resistance is less than the smallest individual resistor.

Q81. What is the function of a fuse in an electrical circuit?

A) To increase voltage

B) To limit resistance

C) To protect from overcurrent

D) To reduce noise

Answer: C) To protect from overcurrent

Explanation: A fuse melts and disconnects the circuit when current exceeds safe limits.

Q82. Which type of extinguisher is safe for use on live electrical equipment?

A) Water

B) CO_2

C) Foam

D) Sand

Answer: B) CO_2

Explanation: CO_2 is non-conductive and safe for electrical fires.

Q83. Which wire color is commonly used for the Earth connection?

A) Black

B) Red

C) Green/Yellow

D) Blue

Answer: C) Green/Yellow

Explanation: Standard safety code assigns green/yellow for grounding wires.

Q84. Which soldering method is most suitable for electronics?

A) Arc soldering

B) Gas soldering

C) Soft soldering

D) Forge soldering

Answer: C) Soft soldering

Explanation: Soft soldering uses low heat and is ideal for delicate electronic components.

Q85. What is the voltage of a standard household circuit in India?

A) 110V

B) 220V

C) 12V

D) 440V

Answer: B) 220V

Explanation: Standard voltage for homes in India is 220V AC.

Q86. What is the unit of electric current?

A) Ohm

B) Volt

C) Ampere

D) Watt

Answer: C) Ampere

Explanation: Ampere is the SI unit for measuring current.

Q87. In Ohm's law, what does V = IR represent?

A) Voltage equals current divided by resistance

B) Voltage equals resistance divided by current

C) Voltage equals current times resistance

D) Voltage equals resistance times power

Answer: C) Voltage equals current times resistance

Explanation: V = IR is the fundamental relation among voltage, current, and resistance.

Q88. Which device is used to measure electric current?

A) Voltmeter

B) Ammeter

C) Wattmeter

D) Multimeter

Answer: B) Ammeter

Explanation: Ammeter is connected in series to measure the current in amperes.

Q89. Which type of fire extinguisher is used for electrical and electronic equipment?

A) Type A

B) Type B

C) Type C

D) Type D

Answer: C) Type C

Explanation: Type C extinguishers are specifically designed for electrical fires.

Q90. What does Kirchhoff's Voltage Law state?

A) Voltage in parallel circuits is zero

B) Total voltage in a closed loop is zero

C) Voltage divides equally in series

D) Voltage increases with resistance

Answer: B) Total voltage in a closed loop is zero

Explanation: The algebraic sum of all voltages in a loop equals zero.

Q91. Which type of capacitor is polarized?

A) Ceramic

B) Electrolytic

C) Mica

D) Paper

Answer: B) Electrolytic

Explanation: Electrolytic capacitors have polarity and must be connected correctly.

Q92. What is the role of a relay in an electric circuit?

A) Directly controls large current

B) Measures voltage

C) Acts as a protective device

D) Switches a circuit using a low-power signal

Answer: D) Switches a circuit using a low-power signal

Explanation: Relays use a small control signal to switch larger currents.

Q93. Which PPE is most essential while working near live wires?

A) Safety glasses

B) Leather gloves

C) Insulated gloves

D) Welding mask

Answer: C) Insulated gloves

Explanation: Insulated gloves protect from accidental electric contact.

Q94. Which joint is commonly used for joining two solid wires permanently?

A) Rat tail joint

B) Western Union joint

C) Twist joint

D) Married joint

Answer: B) Western Union joint

Explanation: This joint offers high mechanical strength for solid wires.

Q95. What is the purpose of flux in soldering?

A) Increase resistance

B) Remove oxidation

C) Reduce solder temperature

D) Increase current

Answer: B) Remove oxidation

Explanation: Flux cleans metal surfaces, allowing better solder bonding.

Q96. Which cable is preferred for underground installations?

A) PVC twin core

B) Armoured cable

C) Teflon cable

D) Aluminium stranded wire

Answer: B) Armoured cable

Explanation: Armoured cables offer protection against physical damage underground.

Q97. Which law states the current through a conductor is directly proportional to the voltage across it?

A) Newton's law

B) Ohm's law

C) Joule's law

D) Coulomb's law

Answer: B) Ohm's law

Explanation: Ohm's law defines the linear relationship between current and voltage.

Q98. Which element of a capacitor stores electric charge?

A) Core

B) Conductor

C) Dielectric

D) Insulation

Answer: C) Dielectric

Explanation: The dielectric stores energy in the form of an electric field.

Q99. What is the primary purpose of earthing in electrical installations?

A) To increase voltage

B) To prevent overloading

C) To protect against electric shocks

D) To enhance current flow

Answer: C) To protect against electric shocks

Explanation: Earthing provides a safe path for fault currents, minimizing the risk of electric shocks.

Q100. Which device is used to measure electrical resistance?

A) Ammeter

B) Voltmeter

C) Ohmmeter

D) Wattmeter

Answer: C) Ohmmeter

Explanation: An ohmmeter specifically measures the resistance within an electrical circuit.

Q101. What is the function of a surge arrester in an electrical system?

A) To store electrical energy

B) To protect against voltage surges

C) To regulate current flow

D) To convert AC to DC

Answer: B) To protect against voltage surges

Explanation: Surge arresters safeguard equipment from transient voltage spikes.

Q102. Which component is commonly used to control the speed of an electric motor?

A) Transformer

B) Capacitor

C) Variable frequency drive

D) Inductor

Answer: C) Variable frequency drive

Explanation: Variable frequency drives adjust the motor speed by varying the frequency of the power supply.

Q103. What is the standard color code for the neutral wire in electrical wiring?

A) Red

B) Black

C) Blue

D) Green

Answer: C) Blue

Explanation: In many regions, blue is designated for neutral conductors to ensure consistency and safety.

Q104. Which type of fire extinguisher is suitable for electrical fires?

A) Water

B) Foam

C) CO_2

D) Wet chemical

Answer: C) CO_2

Explanation: CO_2 extinguishers are non-conductive and effective for electrical fires.

Q105. What does PPE stand for in workplace safety?

A) Professional Protection Equipment

B) Personal Protective Equipment

C) Primary Protection Ensemble

D) Personal Prevention Equipment

Answer: B) Personal Protective Equipment

Explanation: PPE refers to gear like gloves, helmets, and goggles designed to protect workers from hazards.

Q106. Which instrument measures the frequency of an electrical signal?

A) Oscilloscope

B) Frequency meter

C) Multimeter

D) Spectrum analyzer

Answer: B) Frequency meter

Explanation: A frequency meter is specifically designed to measure the frequency of electrical signals.

Q107. What is the primary hazard of using water on an electrical fire?

A) It cools the equipment too quickly

B) It can cause electrocution

C) It produces toxic fumes

D) It damages the fire extinguisher

Answer: B) It can cause electrocution

Explanation: Water conducts electricity, posing a risk of electric shock when used on electrical fires.

Q108. Which device automatically disconnects power during a fault condition?

A) Fuse

B) Circuit breaker

C) Contactor

D) Relay

Answer: B) Circuit breaker

Explanation: Circuit breakers interrupt current flow in the event of overloads or short circuits.

Q109. What is the unit of electrical power?

A) Volt

B) Ampere

C) Ohm

D) Watt

Answer: D) Watt

Explanation: Watt is the SI unit of power, representing the rate of energy consumption or generation.

Q110. Which material is commonly used as a conductor in electrical wiring?

A) Rubber

B) Copper

C) Plastic

D) Glass

Answer: B) Copper

Explanation: Copper's high conductivity makes it ideal for electrical wiring.

Q111. What is the function of an insulator in electrical systems?

A) To conduct electricity

B) To store electrical energy

C) To prevent unwanted current flow

D) To amplify signals

Answer: C) To prevent unwanted current flow

Explanation: Insulators resist the flow of electric current, protecting users and equipment.

Q112. Which safety device is designed to protect against earth faults?

A) MCB

B) RCCB

C) ELCB

D) Both B and C

Answer: D) Both B and C

Explanation: Residual Current Circuit Breakers (RCCB) and Earth Leakage Circuit Breakers (ELCB) detect and interrupt leakage currents.

Q113. What does the color green typically indicate in electrical wiring?

A) Live wire

B) Neutral wire

C) Earth wire

D) Phase wire

Answer: C) Earth wire

Explanation: Green is commonly used to denote the earth or grounding conductor.

Q114. Which device converts mechanical energy into electrical energy?

A) Motor

B) Generator

C) Transformer

D) Rectifier

Answer: B) Generator

Explanation: Generators produce electricity by converting mechanical motion into electrical energy.

Q115. What is the purpose of a transformer in an electrical circuit?

A) To convert AC to DC

B) To change voltage levels

C) To store energy

D) To measure current

Answer: B) To change voltage levels

Explanation: Transformers step up or step down voltage levels in AC circuits.

Q116. What is the primary purpose of a Residual Current Device (RCD) in electrical systems?

A) To increase voltage

B) To detect and disconnect leakage currents

C) To store electrical energy

D) To convert AC to DC

Answer: B) To detect and disconnect leakage currents

Explanation: An RCD monitors the current balance between live and neutral wires and disconnects the circuit if an imbalance is detected, preventing electric shocks.

Q117. Which color is typically used for warning signs in electrical safety?

A) Green

B) Blue

C) Yellow

D) Red

Answer: C) Yellow

Explanation: Yellow is commonly used for warning signs to indicate potential hazards.

Q118. What does the acronym "PASS" stand for in fire extinguisher operation?

A) Pull, Aim, Squeeze, Sweep

B) Push, Alert, Squeeze, Sweep

C) Pull, Alert, Squeeze, Stop

D) Push, Aim, Squeeze, Stop

Answer: A) Pull, Aim, Squeeze, Sweep

Explanation: "PASS" is a mnemonic for the steps to operate a fire extinguisher effectively.

Q119. Which type of fire extinguisher is suitable for flammable metal fires?

A) Water

B) Foam

C) CO_2

D) Dry Powder

Answer: D) Dry Powder

Explanation: Dry powder extinguishers are effective on Class D fires involving flammable metals.

Q120. What is the function of a fuse in an electrical circuit?

A) To amplify current

B) To protect against overcurrent

C) To store energy

D) To convert AC to DC

Answer: B) To protect against overcurrent

Explanation: A fuse breaks the circuit if the current exceeds a safe level, preventing damage.

Q121. Which personal protective equipment (PPE) is essential when working with electrical installations?

A) Cotton gloves

B) Insulated gloves

C) Leather gloves

D) Woolen gloves

Answer: B) Insulated gloves

Explanation: Insulated gloves protect against electric shocks during electrical work.

Q122. What does a green safety sign typically indicate?

A) Prohibition

B) Warning

C) Mandatory action

D) Safe condition

Answer: D) Safe condition

Explanation: Green signs are used to indicate safety information and safe conditions.

Q123. Which device is used to measure electrical resistance?

A) Ammeter

B) Voltmeter

C) Ohmmeter

D) Wattmeter

Answer: C) Ohmmeter

Explanation: An ohmmeter measures the resistance in an electrical circuit.

Q124. What is the standard frequency of AC supply in India?

A) 50 Hz

B) 60 Hz

C) 100 Hz

D) 120 Hz

Answer: A) 50 Hz

Explanation: India uses a standard AC frequency of 50 hertz.

Q125. Which component is used to store electrical energy in an electric field?

A) Resistor

B) Inductor

C) Capacitor

D) Transformer

Answer: C) Capacitor

Explanation: Capacitors store energy in the form of an electric field between their plates.

Q126. What is the primary hazard of using water on electrical fires?

A) It cools the fire too quickly

B) It can cause electrocution

C) It produces toxic fumes

D) It damages the equipment

Answer: B) It can cause electrocution

Explanation: Water conducts electricity and can lead to electric shocks when used on electrical fires.

Q127. Which device is used to measure electric current?

A) Voltmeter

B) Ammeter

C) Ohmmeter

D) Multimeter

Answer: B) Ammeter

Explanation: An ammeter measures the current flowing through a circuit.

Q128. What is the function of a circuit breaker?

A) To increase voltage

B) To store electrical energy

C) To interrupt current flow during a fault

D) To convert AC to DC

Answer: C) To interrupt current flow during a fault

Explanation: Circuit breakers automatically disconnect the circuit in case of overloads or short circuits.

Q129. Which color is typically used for prohibition signs in safety?

A) Red

B) Blue

C) Yellow

D) Green

Answer: A) Red

Explanation: Red is commonly used for prohibition signs to indicate actions that are not allowed.

Q130. What is the SI unit of electrical resistance?

A) Volt

B) Ampere

C) Ohm

D) Watt

Answer: C) Ohm

Explanation: The ohm is the standard unit of electrical resistance.

Q131. Which device is used to protect electrical appliances from voltage spikes?

A) Transformer

B) Surge protector

C) Capacitor

D) Inductor

Answer: B) Surge protector

Explanation: Surge protectors shield devices from sudden voltage increases.

Q132. What does a blue safety sign typically indicate?

A) Warning

B) Prohibition

C) Mandatory action

D) Safe condition

Answer: C) Mandatory action

Explanation: Blue signs are used to indicate mandatory instructions that must be followed.

Q133. Which type of fire extinguisher is suitable for oil fires?

A) Water

B) Foam

C) CO_2

D) Dry Powder

Answer: B) Foam

Explanation: Foam extinguishers are effective on Class B fires involving flammable liquids like oil.

Q134. Which of the following tools is used to check the presence of voltage in a wire?

A) Soldering iron

B) Test lamp

C) Wire stripper

D) Hammer

Answer: B) Test lamp

Explanation: A test lamp is a simple tool used to detect voltage presence in electrical circuits.

Q135. The safe method for disconnecting a plug from a socket is:

A) Pulling the wire

B) Tugging the cord hard

C) Pulling by the plug

D) Switching off power at main

Answer: C) Pulling by the plug

Explanation: Always pull by the plug, not the wire, to avoid damaging the cord and causing short circuits.

Q136. What type of wire joint is used for joining two wires in a straight line?

A) Western Union joint

B) Tee joint

C) Britannia joint

D) Twist joint

Answer: A) Western Union joint

Explanation: It provides strong mechanical and electrical connection in line joints.

Q137. Which soldering defect occurs due to insufficient heat?

A) Dry joint

B) Cold joint

C) Short circuit

D) Bridging

Answer: B) Cold joint

Explanation: Cold joints happen when solder does not flow properly, often due to low temperature.

Q138. What is the major cause of electric shock?

A) High resistance

B) Current leakage

C) Short circuit

D) High voltage with low current

Answer: B) Current leakage

Explanation: Leakage current through the human body causes electric shock.

Q139. Which property of a capacitor allows it to store energy?

A) Dielectric strength

B) Capacitance

C) Inductance

D) Resistance

Answer: B) Capacitance

Explanation: Capacitance defines the ability to store electric charge.

Q140. What does a capacitor do in a ceiling fan?

A) Increases voltage

B) Stores heat

C) Improves starting torque

D) Reduces speed

Answer: C) Improves starting torque

Explanation: Capacitors provide phase shift needed to start single-phase motors like those in fans.

Q141. How is a live wire identified in standard wiring?

A) Red or brown color

B) Green color

C) Blue color

D) Black color

Answer: A) Red or brown color

Explanation: In most standards, live wires are red or brown for easy identification.

Q142. Which equipment is used to safely discharge a charged capacitor?

A) Resistor

B) Multimeter

C) Discharge rod

D) Ammeter

Answer: C) Discharge rod

Explanation: Discharge rods are used for safely discharging high-voltage capacitors.

Q143. Insulation resistance is measured using:

A) Ammeter

B) Voltmeter

C) Megger

D) Multimeter

Answer: C) Megger

Explanation: A megger is a specialized instrument used to measure high resistance in insulation.

Q144. The electrical symbol "Ω" represents:

A) Inductance

B) Capacitance

C) Resistance

D) Voltage

Answer: C) Resistance

Explanation: The Greek letter Omega (Ω) is the unit for electrical resistance (Ohm).

Q145. What causes arcing during switching?

A) High voltage

B) High current

C) Loose contacts

D) Poor insulation

Answer: C) Loose contacts

Explanation: Loose or poor contacts increase resistance, causing sparks or arcing during switching.

Q146. Which is not a personal protective equipment (PPE)?

A) Helmet

B) Safety boots

C) Cotton handkerchief

D) Insulated gloves

Answer: C) Cotton handkerchief

Explanation: Cotton handkerchiefs are not considered PPE; the others are standard safety gear.

Q147. What is the color of Earth wire in India?

A) Red

B) Blue

C) Green

D) Black

Answer: C) Green

Explanation: Green is universally used to indicate earth or ground connection for safety.

Q148. Which law states that the sum of voltage drops in a closed loop is zero?

A) Ohm's Law

B) Faraday's Law

C) Lenz's Law

D) Kirchhoff's Voltage Law

Answer: D) Kirchhoff's Voltage Law

Explanation: KVL states that the total voltage around any closed-circuit loop must be zero.

Q149. For proper soldering, the best type of solder wire is:

A) Lead only

B) Tin only

C) Lead-Tin alloy with flux core

D) Copper

Answer: C) Lead-Tin alloy with flux core

Explanation: Flux helps remove oxidation and ensures smooth solder joints.

Q150. Which class of fire extinguisher is used for electrical fires?

A) Class A

B) Class B

C) Class C

D) Class D

Answer: C) Class C

Explanation: Class C extinguishers are designed for use on electrical equipment fires.