Chapter - 12

Electricity

1. Electric current is measured using a device called a:

   a) Voltmeter

   b) Ammeter

   c) Galvanometer

   d) Ohmmeter

   Answer: b) Ammeter

2. The SI unit of electric current is:

   a) Volt

   b) Ampere

   c) Watt

   d) Ohm

   Answer: b) Ampere

3. The substances that allow electric current to pass through them easily are called:

   a) Conductors

   b) Insulators

   c) Semiconductors

   d) Resistors

   Answer: a) Conductors

4. The substances that do not allow electric current to pass through them easily are called:

a) Conductors

b) Insulators

c) Semiconductors

d) Resistors

Answer: b) Insulators

5. The potential difference across the ends of a conductor when a current of 1 ampere flows through it and it dissipates 1 watt of power is equal to:

a) 1 volt

b) 1 ampere

c) 1 ohm

d) 1 watt

Answer: a) 1 volt

6. The relationship between current, voltage, and resistance is given by:

a) Ohm's law

b) Kirchhoff's law

c) Coulomb's law

d) Faraday's law

Answer: a) Ohm's law

7. In a series circuit, the total resistance is equal to:

a) The sum of individual resistances

b) The difference between individual resistances

c) The average of individual resistances

d) The product of individual resistances

Answer: a) The sum of individual resistances

8. In a parallel circuit, the total resistance is:

a) Always less than the individual resistances

b) Always greater than the individual resistances

c) Equal to the sum of individual resistances

d) Equal to the product of individual resistances

Answer: b) Always less than the individual resistances

9. When two or more resistors are connected in parallel, the total resistance is:

a) The sum of the individual resistances

b) The reciprocal of the sum of the reciprocals of individual resistances

c) The product of the individual resistances

d) The difference between individual resistances

Answer: b) The reciprocal of the sum of the reciprocals of individual resistances

10. The safety device used to prevent electrical appliances from damage due to excessive current is called a:

a) Fuse

b) Switch

c) Resistor

d) Transformer

Answer: a) Fuse

11. The rate of flow of electric charge is called:

a) Voltage

b) Current

c) Resistance

d) Power

Answer: b) Current

12. The device used to control the flow of current in an electric circuit is called a:

a) Resistor

b) Capacitor

c) Switch

d) Transformer

Answer: c) Switch

13. The resistance of a conductor depends on its:

a) Length and temperature

b) Length and thickness

c) Temperature and thickness

d) Temperature and material

Answer: b) Length and thickness

14. The property of a material that opposes the flow of electric current through it is called:

a) Voltage

b) Current

c) Resistance

d) Power

Answer: c) Resistance

15. The unit of electrical resistance is called:

a) Ampere

b) Ohm

c) Watt

d) Volt

Answer: b) Ohm

16. A device used to measure the potential difference between two points in an electric circuit is called a:

a) Voltmeter

b) Ammeter

c) Galvanometer

d) Ohmmeter

Answer: a) Voltmeter

17. The sum of the potential differences across the individual resistors in a series circuit is equal to:

a) The sum of the individual currents

b) The difference between individual resistances

c) The average of individual resistances

d) The total potential difference

Answer: d) The total potential difference

18. The total current flowing through a parallel circuit is equal to:

a) The sum of individual currents

b) The difference between individual currents

c) The average of individual currents

d) The product of individual currents

Answer: a) The sum of individual currents

19. When two or more resistors are connected in series, the total resistance is:

a) The sum of the individual resistances

b) The reciprocal of the sum of the reciprocals of individual resistances

c) The product of the individual resistances

d) The difference between individual resistances

Answer: a) The sum of the individual resistances

20. The formula to calculate electrical power is given by:

a) P = VI

b) P = V/R

c) P = I^2R

d) P = V^2/R

Answer: d) P = V^2/R

21. The ratio of potential difference to current is defined as:

a) Resistance

b) Conductance

c) Capacitance

d) Inductance

Answer: a) Resistance

22. The reciprocal of resistance is called:

a) Conductance

b) Capacitance

c) Inductance

d) Impedance

Answer: a) Conductance

23. The electric power consumed by a device is calculated by the formula:

a) P = VI

b) P = V/R

c) P = I^2R

d) P = V^2/R

Answer: a) P = VI

24. The relationship between power, voltage, and current is given by:

a) Ohm's law

b) Kirchhoff's law

c) Joule's law

d) Faraday's law

Answer: c) Joule's law

25. A device used to protect electrical circuits from excessive current is a:

a) Resistor

b) Capacitor

c) Fuse

d) Transistor

Answer: c) Fuse

26. The resistance of an ideal ammeter is:

a) Very high

b) Very low

c) Zero

d) Infinity

Answer: b) Very low

27. The resistance of an ideal voltmeter is:

a) Very high

b) Very low

c) Zero

d) Infinity

Answer: a) Very high

28. The potential difference across the terminals of a cell when no current is drawn from it is called:

a) Internal resistance

b) Terminal voltage

c) Electromotive force (EMF)

d) Load resistance

Answer: c) Electromotive force (EMF)

29. The arrangement of cells or batteries in a circuit such that the positive terminal of one cell is connected to the negative terminal of the next cell is called:

a) Series connection

b) Parallel connection

c) Combination connection

d) Closed connection

Answer: a) Series connection

30. The arrangement of cells or batteries in a circuit such that the positive terminals and negative terminals are connected separately is called:

a) Series connection

b) Parallel connection

c) Combination connection

d) Closed connection

Answer: b) Parallel connection

31. The process of producing a potential difference across the terminals of a conductor by moving it in a magnetic field is known as:

a) Electromagnetic induction

b) Electromotive force

c) Electric resistance

d) Electric induction

Answer: a) Electromagnetic induction

32. The device used to convert mechanical energy into electrical energy is called a:

a) Generator

b) Motor

c) Transformer

d) Resistor

Answer: a) Generator

33. The process of transferring electrical energy from one circuit to another without a direct electrical connection is achieved by using a:

a) Generator

b) Motor

c) Transformer

d) Resistor

Answer: c) Transformer

34. The step-up transformer is used to:

a) Increase voltage and decrease current

b) Decrease voltage and increase current

c) Increase voltage and increase current

d) Decrease voltage and decrease current

Answer: a) Increase voltage and decrease current

35. The step-down transformer is used to:

a) Increase voltage and decrease current

b) Decrease voltage and increase current

c) Increase voltage and increase current

d) Decrease voltage and decrease current

Answer: b) Decrease voltage and increase current

36. The power consumed by an electrical device is equal to:

a) Voltage multiplied by current

b) Voltage divided by current

c) Current multiplied by resistance

d) Current divided by resistance

Answer: a) Voltage multiplied by current

37. The phenomenon of an electric current passing through a conductor due to the presence of an external magnetic field is known as:

a) Electromagnetic induction

b) Electromotive force

c) Electric resistance

d) Magnetic induction

Answer: a) Electromagnetic induction

38. The SI unit of electrical energy is:

a) Volt

b) Ampere

c) Watt

d) Ohm

Answer: c) Watt

39. The unit of electrical power is:

a) Volt

b) Ampere

c) Watt

d) Ohm

Answer: c) Watt

40. The property of a circuit that opposes the change in current is called:

a) Resistance

b) Capacitance

c) Inductance

d) Conductance

Answer: c) Inductance

41. The electric current produced by a chemical reaction is called:

a) Direct current

b) Alternating current

c) Galvanic current

d) Magnetic current

Answer: c) Galvanic current

42. Which of the following is not a conductor of electricity?

a) Copper

b) Aluminum

c) Plastic

d) Silver

Answer: c) Plastic

43. The resistance of a conductor depends on its:

a) Length and thickness

b) Length and temperature

c) Temperature and thickness

d) Temperature and material

Answer: a) Length and thickness

44. The material having the highest electrical conductivity is:

a) Silver

b) Copper

c) Aluminum

d) Iron

Answer: a) Silver

45. The device used to protect electrical circuits from overloading is a:

a) Resistor

b) Capacitor

c) Fuse

d) Diode

Answer: c) Fuse

46. Which of the following is an example of a non-ohmic conductor?

a) Copper wire

b) Carbon resistor

c) Incandescent bulb

d) Silver wire

Answer: c) Incandescent bulb

47. The potential difference across the terminals of an electric cell or battery when no current is drawn from it is called:

a) Internal resistance

b) Terminal voltage

c) Electromotive force (EMF)

d) Load resistance

Answer: c) Electromotive force (EMF)

48. The instrument used to measure electric current is called a/an:

a) Voltmeter

b) Ammeter

c) Galvanometer

d) Oscilloscope

Answer: b) Ammeter

49. Which of the following is a passive electronic component?

a) Transistor

b) Diode

c) Resistor

d) Integrated circuit

Answer: c) Resistor

50. The device used to convert electrical energy into mechanical energy is a:

a) Generator

b) Motor

c) Transformer

d) Capacitor

Answer: b) Motor