2. ELECTRICAL FUNDAMETALS

1. Which of the following is a renewable source of electrical energy?

a) Coal

b) Natural Gas

c) Solar

d) Petroleum

Answer: c) Solar

2. What is the SI unit of electrical current?

a) Ampere (A)

b) Volt (V)

c) Ohm (Ω)

d) Watt (W)

Answer: a) Ampere (A)

3. Voltage is defined as:

a) The flow of electrical charge

b) The opposition to current flow

c) The potential energy difference between two points

d) The rate at which work is done

Answer: c) The potential energy difference between two points

4. What is the SI unit of electromotive force (EMF)?

a) Volt (V)

b) Ampere (A)

c) Ohm (Ω)

d) Watt (W)

Answer: a) Volt (V)

5. Potential difference is also known as:

a) Voltage

b) Curren

c) Resistance

d) Power

Answer: a) Voltage

6. What is the SI unit of resistance?

a) Ampere (A)

b) Volt (V)

c) Ohm (Ω)

d) Watt (W)

Answer: c) Ohm (Ω)

7. AC stands for:

a) Alternating Circuit

b) Alternating Current

c) Amplified Circuit

d) Amplified Current

Answer: b) Alternating Current

8. DC stands for:

a) Direct Circuit

b) Direct Current

c) Diverted Circuit

d) Diverted Current

Answer: b) Direct Current

9. Electrical energy is the:

a) Energy generated by electrical devices

b) Energy carried by electric fields

c) Energy produced by electromagnetic waves

d) Energy stored in electrical batteries

Answer: b) Energy carried by electric fields

10. Which meter is used to measure electrical current?

a) Ammeter

b) Voltmeter

c) Ohmmeter

d) Wattmeter

Answer: a) Ammeter

11. Which meter is used to measure voltage?

a) Ammeter

b) Voltmeter

c) Ohmmeter

d) Wattmeter

Answer: b) Voltmeter

12. Which meter is used to measure resistance?

a) Ammeter

b) Voltmeter

c) Ohmmeter

d) Wattmeter

Answer: c) Ohmmeter

13. Which meter is used to measure power?

a) Ammeter

b) Voltmeter

c) Ohmmeter

d) Wattmeter

Answer: d) Wattmeter

14. What is the SI unit of power?

a) Ampere (A)

b) Volt (V)

c) Ohm (Ω)

d) Watt (W)

Answer: d) Watt (W)

15. The symbol "I" in electrical circuits represents:

a) Voltage

b) Current

c) Resistance

d) Power

Answer: b) Current

16. The symbol "V" in electrical circuits represents:

a) Voltage

b) Current

c) Resistance

d) Power

Answer: a) Voltage

17. The symbol "R" in electrical circuits represents:

a) Voltage

b) Current

c) Resistance

d) Power

Answer: c) Resistance

18. The symbol "P" in electrical circuits represents:

a) Voltage

b) Current

c) Resistance

d) Power

Answer: d) Power

19. Which of the following materials has the highest resistance?

a) Copper

b) Silver

c) Aluminum

d) Nichrome

Answer: d) Nichrome

20. The power dissipated in a circuit can be calculated using the formula

a) P = VI

b) P = V^2/R

c) P = I^2R

d) All of the above

Answer: d) All of the above

21. Which of the following is an insulating material?

a) Copper

b) Aluminum

c) Glass

d) Silver

Answer: c) Glass

22. Which of the following materials is commonly used as a conductor in electrical wires?

a) Rubber

b) Glass

c) Plastic

d) Copper

Answer: d) Copper

23. In an electrical circuit, the total resistance in a series circuit is:

a) Equal to the sum of individual resistances

b) Equal to the average of individual resistances

c) Always zero

d) Always infinite

Answer: a) Equal to the sum of individual resistances

24. In an electrical circuit, the total resistance in a parallel circuit is:

a) Equal to the sum of individual resistances

b) Equal to the average of individual resistances

c) Always zero

d) Always infinite

Answer: d) Always infinite

25. What is the relationship between current, voltage, and resistance in an electrical circuit?

a) V = IR

b) I = VR

c) R = IV

d) I = R/V

Answer: a) V = IR

26. Which of the following is an example of a passive electronic component?

a) Transistor

b) Capacitor

c) Diode

d) Integrated circuit

Answer: b) Capacitor

27. The unit "Farad" (F) is used to measure:

a) Voltage

b) Current

c) Resistance

d) Capacitance

Answer: d) Capacitance

28. Which of the following is the correct symbol for a capacitor?

a)

b)

c)

d)

Answer: c)

29. Which of the following is an example of an active electronic component?

a) Resistor

b) Inductor

c) Transformer

d) Transistor

Answer: d) Transistor

30. The unit "Henry" (H) is used to measure:

a) Voltage

b) Current

c) Resistance

d) Inductance

Answer: d) Inductance

31. Which of the following is the correct symbol for an inductor?

a)

b)

c)

d)

Answer: b)

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

a) To convert AC voltage to DC voltage

b) To regulate voltage fluctuations

c) To provide electrical isolation and reduce the risk of electric shock

d) To transfer electrical energy between circuits

Answer: d) To transfer electrical energy between circuits

33. What is the relationship between voltage and current in a transformer?

a) V = IR

b) I = VR

c) V1/V2 = N1/N2

d) I1/I2 = N1/N2

Answer: c) V1/V2 = N1/N2

34. What is the main advantage of AC (Alternating Current) over DC (Direct Current)?

a) AC can be easily generated

b) AC can travel long distances with lower power losses

c) AC is safer for human contact

d) AC devices are less expensive

Answer: b) AC can travel long distances with lower power losses

35. What is the frequency of standard household AC power in most countries?

a) 50 Hz

b) 60 Hz

c) 50 kHz

d) 60 kHz

Answer: a) 50 Hz

36. What is the standard voltage for household AC power in most countries?

a) 110 V

b) 220 V

c) 240 V

d) 480 V

Answer: b) 220 V

37. What is the primary function of a circuit breaker?

a) To regulate voltage

b) To prevent overloading of electrical circuits

c) To convert AC voltage to DC voltage

d) To generate electricity

Answer: b) To prevent overloading of electrical circuits

38. The symbol "E" in electrical circuits represents:

a) Voltage

b) Current

c) Resistance

d) Power

Answer: a) Voltage

39. What is the SI unit of electric charge?

a) Ampere (A)

b) Volt (V)

c) Ohm (Ω)

d) Coulomb (C)

Answer: d) Coulomb (C)

40. Which of the following is a measure of the rate at which electric charge flows in a circuit?

a) Voltage

b) Current

c) Resistance

d) Power

Answer: b) Current

41. What is the direction of conventional current flow in a circuit?

a) From positive to negative

b) From negative to positive

c) It can flow in any direction

d) There is no flow of current

Answer: a) From positive to negative

42. Which of the following materials is commonly used as an insulator in electrical wiring?

a) Copper

b) Aluminum

c) Rubber

d) Silver

Answer: c) Rubber

43. What is the purpose of a diode in an electrical circuit?

a) To regulate voltage fluctuations

b) To provide electrical isolation and reduce the risk of electric shock

c) To convert AC voltage to DC voltage

d) To allow current to flow in only one direction

Answer: d) To allow current to flow in only one direction

44. What is the purpose of a capacitor in an electrical circuit?

a) To store electrical energy

b) To convert AC voltage to DC voltage

c) To regulate voltage fluctuations

d) To provide electrical isolation and reduce the risk of electric shock

Answer: a) To store electrical energy

45. What is the purpose of a resistor in an electrical circuit?

a) To store electrical energy

b) To convert AC voltage to DC voltage

c) To regulate voltage fluctuations

d) To oppose the flow of electric current

Answer: d) To oppose the flow of electric current

46. What is the purpose of an inductor in an electrical circuit?

a) To store electrical energy

b) To convert AC voltage to DC voltage

c) To regulate voltage fluctuations

d) To oppose changes in the flow of electric current

Answer: d) To oppose changes in the flow of electric current