EXERCISE

OBJECTIVE QUESTIONS

1. The switch is in the OFF state. It means that
(A) the circuit is open .
(B) the circuit is closed.
(C) there is no key in the circuit.
(D) there is no battery in the circuit

2. Which is the best conductor?
(A) Carbon (B) Copper
(C) Iron (D) Aluminium

3. Materials which allow larger current to flow through them are called :
(A) Insulators (B) Semi-conductors
(C) Alloys (D) Conductors

4. Bakelite Is a/an :
(A) semi conductor (B) conductor
(C) insulator (D) None of the above

5. Examples of primary cells are :
(A) Voltaic (B) Daniel
(C) Dry cell (D) All of them

6. Electro-chemical cell used in torches is :
(A) Voltaic cell (B) Daniel cell
(C) Fuel cell (D) Leclanche dry cell

7. Which of the following is not the advantage of dry cell?
(A) It is compact and convenient to use
(B) It can be recharged
(C) It is handy to carry
(D) None of them

8. Which of the following is an example of secondary cell :
(A) Voltaic cell
(B) Daniel cell
(C) Lead accumulator
(D) Dry cell

9. While an electrician repairs an electric switch he wears rubber gloves to
(A) just for fun
(B) save electricity
(C) prevent him for shock
(D) All of these

10. The combination of cell in proper order is called-
(A) mega cell (B) battery
(C) giga cell (D) None of these

11. A device which is used to stop supply of current in the circuit is called -
(A) battery (B) circuit
(C) wire (D) switch

12. A substance that does not allow the current to flow through it is called -
(A) conductor (B) insulator
(C) semiconductor (D) superconductor

13. Iron is
(A) Conductor (B) Insulator
(C) semiconductor (D) None of these

14. Electrical wires are covered with
(A) insulating material
(B) conducting material
(C) semi - insulator material
(D) All of these

15. How many terminals are there in a battery?
(A) 3 (B) 2
(C) 1 (D) 4

16. A filament of low melting point is used in
(A) electric bulb (B) wire
(C) fuse (D) electric iron

SUBJECTIVE QUESTIONS

1. Explain the following terms :
(a) electrical circuit
(b) circuit symbols
(c) primary and secondary cells
(d) volt
(e) watt.

2. What are the conditions for electricity to flow in an electrical circuit?

3. Distinguish between the conductors and insulators.

4. What is the open and closed circuit?

5. What is LED? State its use in our daily life.

ANSWER KEY

1.	A	**2.**	B	**3.**	D	**4.**	C
5.	D	**6.**	B	**7.**	B	**8.**	C
9.	C	**10.**	B	**11.**	D	**12.**	B
13.	A	**14.**	A	**15.**	B	**16.**	C

EXERCISE

1. If I is the current through a wire and e is the charge of electron, then number of electrons in t seconds will be

(a) $\frac{Ie}{t}$ (b) Ite

(c) $\frac{e}{It}$ (d) $\frac{It}{e}$

2. The unit for electric conductivity is

(a) ohm per cm (b) ohm ×cm
(c) ohm per second (d) mho

3. The direction of flow of current is (conventionally) :

(a) The direction of flow of electrons
(b) The direction opposite to the flow of electrons
(c) Sometimes in the direction of the flow of electrons and sometime opposite to it
(d) None of these

4. A free electron :

(a) moves from a higher potential region to a lower potential region
(b) moves from a lower potential region to a higher potential region
(c) does not move at all
(d) none of the above

5. If there is no flow of charge between two charged bodies when they are connected to each other :

(a) they have the same quantity of charge
(b) they have the same capacity
(c) they have the same potential
(d) none of the above

6. If a charged body attracts another body, then charge on the other body

(a) must be negative
(b) must be positive
(c) must be zero
(d) may be negative or positive or zero

7. Conventionally, the direction of the current is taken as the direction of flow

(a) to negative charge
(b) the direction of flow of atoms
(c) of molecules
(d) of positive charge

8. Electric potential is :

(a) a scalar quantity
(b) a vector quantity
(c) neither a scalar quantity nor a vector quantity
(d) in some cases, scalar and in some cases, vector

9. Which of the following terms does not represent electrical power in a circuit?

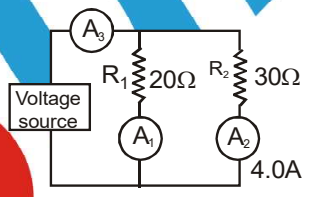
(a) I^2R (b) IR^2

(c)VI (d) $\frac{V^2}{R}$

10. A electric bulb is rated 220 V and 100 W. When it is operated on 110 V, the power consumed will be :

(a) 100 W (b) 75 W
(c) 50 W (d) 25 W

11. What is the potential difference across the source ?



(a) 440 V (b) 220 V
(c) 120V (d) 60V

12. If 10 cells each of 1.4 volts are connected in parallel, the equivalent potential difference will be

(a) 1.4 volts (b) 0.14 volts
(c) 14 volts (d) 10/.4 volts

13. Joule/coulomb is equivalent to :

(a) Watt (b) Ampere
(c) Volt (d) Ohm

14. A voltmeter is used for measuring :

(a) Electric current (b) Resistance

(c) Potential difference
(d) Electric Power

15. Three charges –q, Q and –q are placed at equal distance on a straight line. If the total potential energy of the system of three charges is zero, then then the ratio Q : q is

(a) 1 : 2 (b) 2 : 1
(c) 1 : 1 (d) 1 : 4

16. Particle A has a charge +q and particle B has a charge +4q, each having the same mass m. When allowed to fall from rest through

the same potential difference, the ratio of their speeds vA/vB will be-

(a) 2 : 1 (b) 1 : 2
(c) 1 : 4 (d) 4 : 1

17. An electric charge on a body produces

(a) a magnetic field only

(b) an electric field only

(c) both electric and magnetic field

(d) neither electric nor magnetic field

18. A suitable unit for expressing the strength of electric field is

(a) V/C (b) C/m
(c) N/C (d) C/N

19. 20 coulomb charge is flowing in 0.5 second from a point in an electric circuit then value of electric current in amperes will be

(a) 10 (b) 40
(c) 0.005 (d) 0.05

20. When a fuse is rated 8 A, it means

(a) it will not work if current is less than 8 A

(b) it has a resistance of 8 ohm

(c) it will work only if current is 8 A

(d) it will burn if current exceeds 8 A

21. Cost of electricity for home use is Rs. 1.50 per unit. This unit is

(a) 1 ampere (b) 1 volt
(c) 1 joule (d) 1 kilowatt hour

22. If one micro-amp. current is flowing in a wire, the number of electrons which pass from one end of the wire to the other end in one second is

(a) 6.25×10^{12} (b) 6.25×10^{15}
(c) 6.25×10^{18} (d) 6.25×10^{19}

23. The no. of electrons flowing per second through any cross section of wire, if it carries a current of one ampere, will be

(a) 2.5×10^{18} (b) 6.25×10^{18}
(c) 12.5×10^{18} (d) 5×10^{18}

24. The total momenturm of electrons in a straight wire of length l = 1000 m carrying a current I = 70 A , will be (in N. s)

(a) 0.40×10^{-6} (b) 0.20×10^{-6}
(c) 0.80×10^{-6} (d) 0.16×10^{-6}

25. When there is an electric current through a conducting wire along its length then an electric field must exist

(a) inside the wire but normal to it

(b) inside the wire but parallel to it

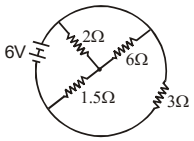
(c) outside the wire but normal to it

(d) outside the wire but parallel to it

26. Three wires of resistance 18Ω, 15Ω & 10Ω are connected in parallel. The current in the 18Ω wire is 0.75A. What is the current in the 15Ω wire ?

(a) 0.6 A (b) 0.9 A
(c) 1.2 A (d) 1.8 A

27. What is the total current supplied by the battery to the circuit shown in the adjoining figure ?



(a) 1 A (b) 2 A
(c) 4 A (d) 6 A

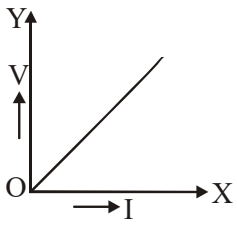
28. What is the current through a 5.0 ohm resistor if the voltage across it is 10 V

(a) Zero (b) 0.50 A
(c) 2.0 A (d) 5.0 A

29. 2 ampere current is flowing through a conductor from a 10 volt emf source then resistance of conductor is

(a) 20Ω (b) 5Ω
(c) 12Ω (d) 8Ω

30. The slope of voltage (V) versus current (I) is called



(a) resistance (b) conductance

(c) resistivity (d) conductivity

31. Kilowatt-hour = $\frac{\text{volt} \times \text{ampere}}{1000}$:

(a) Time in seconds (b) Time in hours

(c) Time in minutes (d) Time in days

32. If the length of the wire is doubled and its cross-section is also doubled, the resistance will :

(a) increase four times

(b) decrease four times

(c) increase eight times

(d) remains unchanged

33. The resultant resistance of a circuit connecting resistors is parallel is :

(a) Equal to the sum of the individual resistors

(b) Smaller than the smallest resistance

(c) Greater than the largest resistance

(d) Can't say

34. When two resistance R_1 and R_2 are connected in parallel their equivalent resistance is :

(a) $R_1 + R_2$ (b) $\frac{R_1 + R_2}{R_1 R_2}$

(c) $\frac{R_1 R_2}{R_1 + R_2}$ (d) $\sqrt{\frac{R_1 R_2}{R_1 + R_2}}$

35. The length of a wire is doubled and the radius is doubled. By what factor does the resistance change

(a) 4 times as large (b) twice as large

(c) unchanged (d) half as large

36. You are given n identical wires, each of resistance R. When these are connected in parallel, the equivalent resistance is X. When these will be connected in series, then the equivalent resistance will be

(a) X/n^2 (b) n^2X

(c) X/n (d) nX

37. Three resistor of $4.0\Omega, 6.0\Omega$ and 10.0Ω are connected in series. What is their equivalent resistance

(a) 20Ω (b) 7.3Ω

(c) 6.0Ω (d) 4.0Ω

38. A wire of resistance R is cut into ten equal parts which are then joined in parallel. The new resistance is

(a) 0.01 R (b) 0.1 R

(c) 10 R (d) 100 R

39. If a wire stretched to make its length three times, its resistance will become

(a) three times (b) one-third

(c) nine times (d) one-ninth

40. A wire of resistance 12 ohms is bent in the form of a circular ring. The effective resistance between the two points on any diameter of the circle is

(a) 24 ohm (b) 12 ohm

(c) 6ohm (d) 3 ohm

41. Two wires of resistance R_1 and R_2 are joined in parallel. The equivalent resistance of the combination is

(a) $R_1R_2/R_1 + R_2$ (b) $R_1 + R_2$

(c) $R_1 \times R_2$ (d) R_1 / R_2

42. The primary cell which is used in daily life is

(a) Leclanche cell (b) Dry cell

(c) Daniel cell (d) Simple voltaic cell

43. Which one of the following primary cells has emf. 1.08 volts and which remains fairly constant

(a) Daniel cell (b) Simple voltaic cell

(c) Leclanche cell (d) Dry cell

44. Primary cell are connected in parallel to

(a) Increase voltage

(b) decrease capacity

(c) decrease internal resistance

(d) make electric current constant

45. In a circuit, a voltmeter is always connected in :

(a) Parallel (b) Series

(c) Parallel or Series (d) Can't say

46. If the voltage applied to an immersion heater is doubled, the rate of rise of the temperature of water will approximately by

(a) same (b) double

(c) half (d) four times

47. The existence of a negative charge on a body implies that it has :

(a) Lost some of its electron

(b) Lost some of its protons

(c) Acquired some electrons from outside

(d) Acquired some protons from outside

48. What is the current through a 5.0 ohm resistor if the voltage across it is 10 V :

(a) zero (b) 0.50 A

(c) 2.0 A (d) 5.0 A

49. What is immaterial for an electric fuse wire :

(a) Its specific resistance

(b) Its radius

(c) Its length

(d) Current flowing throught it

50. A 1500 watt heater is connected to a 120 volt source for 2.0 h. How much heat energy is produced :

(a) 1.1×10^7 J (b) 1.8×10^5 J

(c) 9.0×10^4 J (d) 3.0×10^3 J

ANSWER KEY

1.	D	2.	D	3.	B	4.	B
5.	C	6.	D	7.	D	8.	A
9.	B	10.	D	11.	C	12.	A
13.	C	14.	C	15.	A	16.	B
17.	B	18.	C	19.	B	20.	D
21.	D	22.	A	23.	B	24.	A
25.	B	26.	B	27.	C	28.	C
29.	B	30.	A	31.	B	32.	D
33.	B	34.	C	35.	D	36.	B
37.	A	38.	A	39.	C	40.	D
41.	A	42.	B	43.	A	44.	C
45.	A	46.	D	47.	C	48.	C
49.	C	50.	A				