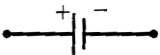


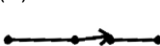


Electricity**1. Exercise****Multiple Choice Questions**



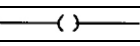
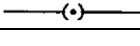
1. Electrons are
(a) negatively charged particles
(b) positively charged particles
(c) neutral particles
(d) None of these
2. A cell is represented by symbol
(a).  (b) 
(c).  (d) 
3. An ammeter is
(a) a combination of two or more cells.
(b) a source of current.
(c) used to control the flow of current.
(d) an instrument used for measuring the magnitude of current.
4. Human body is
(a) a good conductor of electricity
(b) a non-conductor of electricity
(c) a very poor conductor of electricity
(d) None of these
5. To close or open the electric circuit we use
(a) connecting wire
(b) ammeter
(c) plug key
(d) cell
6. When we switched OFF an electric circuit, the circuit becomes
(a) open (b) closed
(c) cannot say (d) partially open
7. In a closed electric circuit, current flows
(a) in the direction of flow of electrons
(b) in the direction opposite to the flow of electrons.
(c) negative terminal to positive terminal of cells
(d) None of these
8. Inside a cell current flows from
(a) positive terminal to negative terminal
(b) negative terminal to positive terminal
(c) positive terminal to positive terminal
(d) either (a) or (b)
9. Electric cell converts
(a) electric energy into chemical energy
(b) heat energy into electric energy
(c) chemical energy into electric energy
(d) electric energy into light energy
10. There is a force of attraction between
(a) like charges only
(b) opposite charges only
(c) both (a) and (b)
(d) None of these
11. Connecting wire is made of electric
(a) conductor (b) insulator
(c) both (a) and (b) (d) None of these
12. If a body is positively charged, then it has
(a) less number of electrons
(b) excess of protons
(c) excess of neutrons
(d) None of these
13. Which of the following is the best insulator?
(a) carbon (b) paper
(c) graphite (d) ebonite
14. The S.I. unit of charge is
(a) ampere (b) coulomb/sec
(c) coulomb (d) volt
15. Electric cell is used in
(a) mobile phones (b) transistor
(c) cameras (d) all of these
16. Metal that can be used to make a connecting wire is
(a) copper (b) silver
(c) aluminium (d) all of these
17. An electric cell is used as a source of electricity in:
(a) wrist watches (b) alarm clocks
(c) transistor radios (d) All of these
18. Which part of the electric cell generally acts as positive terminal of the cell?
(a) Metal disc
(b) Metal cap
(c) Either metal disc or metal cap
(d) All the above are correct

19. Which part of the electric bulb gives off light, when the bulb is switched on?
 (a) Positive terminal (b) Negative terminal
 (c) Filament (d) None of these
20. In an electric circuit a switch is provided. The main function of switch is to
 (a) make the bulb glow easily
 (b) avoid the electric shocks
 (c) allow the easy flow of charges in the circuit
 (d) make or break the circuit
21. To make an electric circuit a closed circuit should be provided with a bulb having a
 (a) broken filament
 (b) no filament
 (c) its filament intact
 (d) None of these
22. Choose the best conductor of electricity
 (a) Silver (b) Copper
 (c) Iron (d) Lead
23. Select the one that is an excellent insulator?
 (a) Paper (b) Lead pencil
 (c) Rubber (d) Mercury
24. Name the cells in human body which look like electric wires.
 (a) Arteries (b) Veins
 (c) Neurons (d) All of these
25. Select the object which can be placed between the open ends to light up the bulb in an electric circuit.
 (a) Needle of sewing machine
 (b) A copper coin
 (c) An iron nail
 (d) Any one of the above three
26. Electric wires are made of
 (a) a conducting material
 (b) aluminium
 (c) copper
 (d) All the above
27. Electric wires are covered with
 (a) a conducting material
 (b) insulators
 (c) Both the above
 (d) None of these
28. If we add another bulb to an electric circuit that is provided with a glowing bulbs, then
 (a) the new bulb will glow but the first one will not glow
 (b) none of the two bulb will glow
 (c) both the bulbs will glow but less brightly
 (d) both the bulbs will glow but more brightly
29. It is a part of the bulb that is made up of a thin metallic wire. It is
 (a) positive terminal (b) negative terminal
 (c) filament (d) None of these
30. It is a source of electricity generally used in wrist watches and transistors. It is
 (a) an electric cell (b) an electric circuit
 (c) Both the above (d) None of these
31. It is a simple device used in electric circuits to make or break the electric circuit. It is
 (a) a filament of bulb (b) electric cell
 (c) electric switch (d) insulators
32. Filament
 (a) is a part of the electric bulb
 (b) consists of a thin wire
 (c) fixed in the middle of the bulb
 (d) the thin wire that gives off light when bulb is switched on
33. Why does a fused bulb not glow when put in an electric circuit?
 (a) The electric circuit remains incomplete
 (b) There occurs a break in the path of current
 (c) Both the above
 (d) None of the above
34. How many terminals does a cell has?
 (a) 1 (b) 2 (c) 3 (d) 4
35. How many terminals does a bulb has?
 (a) 1 (b) 2 (c) 3 (d) 4
36. How many filaments are there in a bulb?
 (a) 1 (b) 2 (c) 3 (d) 4
37. How many terminals are there in a switch?
 (a) 1 (b) 2 (c) 3 (d) 4
- ### Match the Column
- DIRECTION:** Match Column-I with Column-II and select the correct answer using the code given below the columns.
- 38.
- | Column-I | Column-II |
|------------------------|---------------|
| (a) Current | (p) coulomb |
| (b) Negatively charged | (q) Insulator |

particle	
(c) PVC	(r) Electron
(d) Charge	(s) ampere

- (a) $A \rightarrow (p); B \rightarrow (s); C \rightarrow (q); D \rightarrow (s)$
 (b) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (s); D \rightarrow (r)$
 (c) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$
 (d) $A \rightarrow (q); B \rightarrow (p); C \rightarrow (r); D \rightarrow (s)$

39.

Column-I	Column-II
(a) 	(p) A cell
(b) 	(q) A battery
(c) 	(r) Switch is open
(d) 	(s) Closed switch

- (a) $A \rightarrow (p); B \rightarrow (r); C \rightarrow (q); D \rightarrow (s)$
 (b) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (s); D \rightarrow (r)$
 (c) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$
 (d) $A \rightarrow (q); B \rightarrow (p); C \rightarrow (r); D \rightarrow (s)$

Passage Based Questions

DIRECTIONS (Qs.40-48): Read the passage given below and answer the questions that follow.

Passage

An electric cell is a source of electricity. Such cells are used in alarm clocks, wrist watches, transistor radios, cameras, etc.

40. The electric cell has
 (a) a number of terminals
 (b) only one terminal
 (c) two terminals
 (d) None of the above is correct.
41. An electric cell is used
 (a) as a source of electrical energy
 (b) as a source of muscular energy
 (c) Both the above
 (d) None of the above
42. A cell is generally provided with a metal cap that generally acts as
 (a) its positive terminal
 (b) its negative terminal
 (c) sometimes positive and sometimes negative terminal
 (d) None of the above

Assertion/Reason Based Questions

DIRECTIONS: The questions in this segment consists of two statements, one labelled as "Assertion A" and the other labelled as "Reason R". You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the reason is a correct explanation of the assertion. Select your answers to these items using codes given below.

- (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

43. **Assertion (A):** Connecting wire is used to connect all components of electric circuit.
Reason (R): Connecting wire is made of electric conductor.
44. **Assertion (A):** Bulbs filament is made up of conductors.
Reason (R): Tungsten is a good conductor of electricity.
45. **Assertion (A):** An electric cell has two terminals.
Reason (R): One of the terminals is called the positive terminal and the other is called the negative terminal.
46. **Assertion (A):** An electric bulb has two terminals.
Reason (R): The two terminals of an electric bulb are fixed in such a way that they do not touch each other.
47. **Assertion (A):** An electric bulb glows, only when an electric current passes through it.
Reason (R): In an electric circuit the direction of current is taken from negative to positive terminal of the electric cell.
48. **Assertion (A):** In a closed electric circuit the current passes from one terminal of the electric cell to the other terminal.
Reason (R): Generally the metal disc of a cell acts as positive terminal.

Statement Based Questions

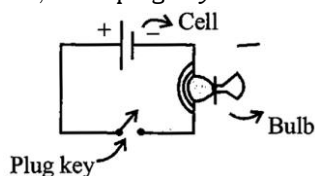
DIRECTIONS: Read the following two statements carefully and choose the correct options.

- (a) Statement (1) is correct while statement (2) is incorrect.
 (b) Statement (2) is correct while statement (1) is incorrect.
 (c) Both statements are correct
 (d) Both statements are incorrect.

49. **Statement-1:** Filament is a part of electric bulb.
Statement-2: Filament consist of a thick metallic wire.

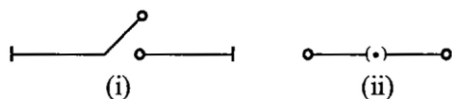
Figure Based Questions

50. The filament of a bulb will glow in the given electric circuit, if the plug key is



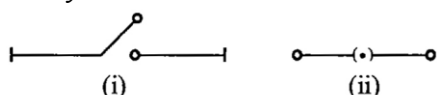
- (a) open
 (b) closed
 (c) both (a) and (b)
 (d) None of these

51. The symbol of an open switch is shown in



- (a) figure (i)
 (b) figure (ii)
 (c) both figure (i) and figure (ii)
 (d) None of the above is correct

52. The symbol for a closed switch is shown in



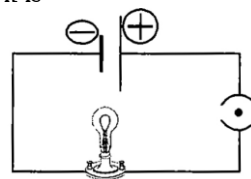
- (a) figure (i)
 (b) figure (ii)
 (c) both figure (i) and figure (ii)
 (d) None of these

53. Which of the following represent a cell?



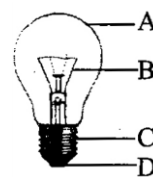
- (a) (i)
 (b) (ii)
 (c) neither (i) nor (ii)
 (d) we cannot represent a cell

54. Look at the following diagram and tell whether the switch in it is



- (a) open
 (b) closed
 (c) absent
 (d) None of these

55. Which part of the bulb is made up of an insulator material?



- (a) A
 (b) B
 (c) C
 (d) D

2. Exercise

Multiple Choice Questions

- Which material is the best conductor of electricity?
 (a) metal
 (b) glass
 (c) wood
 (d) plastic
- Two charges are placed at a certain distance. A metallic sheet is placed between them. What will happen to the force between the two charges?
 (a) Increase
 (b) Decrease
 (c) Remains unchanged
 (d) Either (a) or (b)
- If a body is charged by rubbing, its weight
 (a) remains precisely constant
 (b) increases slightly
 (c) decreases slightly
 (d) may increase slightly or may decrease slightly
- First electro chemical cell was designed by
 (a) Leclanche
 (b) Faraday
 (c) Volta
 (d) None of these
- When a wire is connected through a source of electricity, particles moving through the wire are
 (a) protons
 (b) atoms
 (c) electrons
 (d) ions
- A battery is connected to an electric lamp. If one more identical lamp is connected in series with the first, what will happen to the current?

- (a) It will increase
(b) It will remain the same
(c) It will decrease
(d) It will become zero
- 7.** Non-metals like and are conductor of electricity.
(a) wood and paper
(b) graphite and gas carbon
(c) glass and rubber
(d) None of these
- 8.** A complete electric circuit is called a/an..... electric circuit.
(a) open (b) closed
(c) terminal (d) None of these
- 9.** Metals conduct charges better than wood because metals have more
(a) protons
(b) free electrons
(c) negative ions
(d) space between particles
- 10.** The electric current passes from one terminal to the other terminal of the electric cell, when
(a) electric circuit is open
(b) electric circuit is closed
(c) electric circuit is provided with a switch
(d) All the above are correct
- 11.** What for is a tester used by the electrician?
(a) to test the presence of electric current
(b) to find the amount of electric current passing through an electric circuit
(c) to measure the rate of flow of current through an electric circuit
(d) None of the above
- 12.** In an electric circuit, the two terminals of the electric cell are
(a) connected directly to each other
(b) connected to the filament of the bulb
(c) connected to the two terminals of the bulb
(d) All the above are correct
- 13.** Which of the following is correct?
(a) The air gap surrounding an electric circuit never acts as insulator.
(b) Our body is not a good conductor of electricity
(c) In a cell there are always two terminals
(d) All the above are correct
- 14.** A person working as line man with electricity department is advised not to handle electric wires with bare hands and always wear rubber gloves while working with electric wires. This advice is given because
(a) he will get electrocuted if he handles live electric wires with bare hands
(b) the rubber gloves being insulators will protect him from electric shocks
(c) the rubber gloves control the electric flow
(d) Both (a) and (b)
- 15.** Select the correct statement:
(a) Electrical sockets are made up of conductors, while plug tops are made up of insulators
(b) Electrical sockets are made up of insulators, while plug tops are made up of conductors
(c) Wire coverings are made up of conductors, while fuse wires are made up of insulators
(d) Fuse wires are made up of conductors, while bulb filament is made up of insulators
- 16.** A cell is generally provided with a cap. The main function performed by this cap is
(a) it seals the contents of the cell
(b) it keeps various parts of cell in their place
(c) it acts as negative terminal of the cell
(d) None of the above
- 17.** Electric circuit is
(a) any arrangement in which we have the two terminals of a cell connected to each other's by a conducting wire
(b) any arrangement in which we have the two terminals of a cell connected to each other by a non-conducting wire.
(c) any arrangement in which we have the two terminals of a cell connected to the two terminals of a bulb.
(d) any arrangement in which two terminals of a bulb are connected to each other, through a switch, with the help of connecting wires.
- 18.** Electric switch is
(a) a simple device that is used to break the electric circuit
(b) a simple device that is used to complete the electric circuit
(c) a simple device that is used to break or to complete the electric circuit
(d) None of the above is correct
- 19.** Why are you advised to take precautions (e.g. wear rubber gloves etc.) while handling electrical appliances?
(a) Your body is a good conductor of electricity
(b) Your body is a bad conductor of electricity

- (c) You appear an electrical engineer when you wear gloves
(d) None of the above

Match the Column

DIRECTION: Match Column-I with Column-II and select the correct answer using the code given below the columns.

20.

Column-I	Column-II
(a) Positive terminal of an electric cell	(p) Metal cap
(b) Negative terminal of an electric cell	(q) Metal disc
(c) Used to make filament of an electric bulb	(r) Metal wire
(d) Used to make outer case of electric bulb	(s) Glass

- (a) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$
 (b) $A \rightarrow (q); B \rightarrow (p); C \rightarrow (r); D \rightarrow (s)$
 (c) $A \rightarrow (q); B \rightarrow (p); C \rightarrow (s); D \rightarrow (r)$
 (d) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (s); D \rightarrow (r)$

21.

Column-I	Column-II
(a) Two terminals	(p) Both electric cell and bulb
(b) Filament	(q) Bulb
(c) Source of electricity	(r) Electric cell
(d) Device used to make or break an electric circuit	(s) Electric switch

- (a) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$
 (b) $A \rightarrow (q); B \rightarrow (p); C \rightarrow (r); D \rightarrow (s)$
 (c) $A \rightarrow (q); B \rightarrow (p); C \rightarrow (s); D \rightarrow (r)$
 (d) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (s); D \rightarrow (r)$

Passage Based Questions

DIRECTIONS (Qs.22-31): Read the passage (s) given below and answer the questions that follow.

Passage - 1

Those materials which do not allow electric current to pass through them are called insulators e.g., air, cork, rubber, thermocole, paper, etc. Insulators are used for covering electrical wires, plug tops, switches and other parts of electrical appliances.

22. Air is an insulator of electricity because air have no-
 (a) electrons (b) free electrons
 (c) protons (d) None of these
23. House wiring electric wires are generally covered with rubber. It is because, rubber is
 (a) a good conductor (b) a partial conductor
 (c) easily available (d) an insulator
24. We can turn OFF the switch without getting an electric shock because
 (a) it is covered with an insulating material
 (b) it is covered with conducting material
 (c) our hand is bad conductor of electricity
 (d) None of these
25. Covers of electric plugs are made up of
 (a) conductors (b) metals
 (c) insulators (d) all of these

Passage -2

An electric bulb has a filament that is connected to the terminals. The two terminals of filament are fixed with two thick wires provides support to it. These terminals are fixed in such a manner that they do not touch each other.

26. Where is the filament fixed in the electric bulb?
 (a) Near the positive terminal
 (b) Near the negative terminal
 (c) In the middle
 (d) None of the above is correct
27. Filament is
 (a) a thin wire that gives off light when bulb is switched on
 (b) fixed to two thick wires which provides support to it
 (c) Both the above are correct
 (d) None of these is correct
28. Which of the following statement(s) is/are correct?
 (a) The two terminals of a bulb are fixed in such a way that they do not touch each other.
 (b) The two terminals of a bulb are fixed in such a way that they touch each other.
 (c) The two terminals of a bulb are connected to the same terminal of the electric cell.
 (d) None of the above is correct

Passage - 3

An arrangement in which two terminals of an electric cell are connected to two terminals of the bulb is known as electric circuit. Current flows

from positive to negative terminal in closed circuit. Filament of bulb is made up of tungsten.

29. What is the direction of flow in an electric circuit?
(a) From positive terminal to negative terminal of electric cell.
(b) From negative terminal to positive terminal of electric cell
(c) Both the above are correct
(d) None of the above is correct
30. Which of the following statements is/are correct?
(a) The bulb in the circuit may not glow if the bulb is fused
(b) The bulb in the circuit may not glow if its filament is broken
(c) Both the above
(d) None of the above
31. The filament of bulb is made of
(a) a metal
(b) tungsten
(c) Both the above are correct
(d) None of these is correct

DIRECTIONS: The questions in this segment consists of two statements, one labelled as "Assertion A" and the other labelled as "Reason R". You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the reason is a correct explanation of the assertion. Select your answers to these items using codes given below.

- (a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

32. **Assertion (A):** Silver is not used to make electric wires.
Reason (R): Silver is a bad conductor.
33. **Assertion (A):** Copper is used to make electric wires.
Reason (R): Copper is a poor conductor of electricity.
34. **Assertion (A):** A domestic electric appliance working on a three pin, will continue working even if the top pin is removed.
Reason (R): The third pin is used only for safety purpose.

35. **Assertion (A):** Insulators do not allow the current to flow through themselves.

Reason (R): They have no free charge carriers.

36. **Assertion (A):** Air is an insulator.
Reason (R): Those materials that do not allow electric current to pass through them are called insulators.

DIRECTIONS: Read the following three statements carefully and choose the correct option.

- (a) Statement (1) and (3) are incorrect while statement (2) is correct.
(b) Statement (1) and (2) are incorrect while (3) is correct.
(c) All the statements are correct.
(d) All the statements are incorrect.

37. **Statement - 1:** If a human high tension wire he will get electric shock.

Statement-2: Transmission wires carry a very low voltage current.

Statement-3: A bird sitting on a bare high power transmission wire feels a very feeble current.

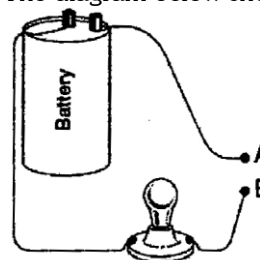
38. **Statement-1:** There is very less current flows when an electric circuit is open.

Statement-2: When the switch of an electric circuit is in off mode, the circuit is said to be open.

Statement-3: One can get a shock in open circuit.

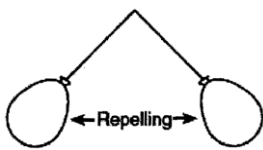
Figure Based Questions

39. The diagram below shows an incomplete circuit.



Which item would allow the bulb to light up if it were used to connect point A to point B?

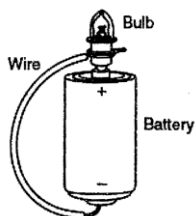
- (a) a glass rod (b) a metal coin
(c) a plastic comb (d) a paper cup
40. A student attached two balloons to equal lengths of string and tied them to the same point. The student observed that the balloons repelled each other, as shown in the diagram below.



In terms of electrical charges, explain why the balloons repelled each other?

- (a) because both the balloons are positively charged
- (b) because both the balloons are negatively charged
- (c) because one is positively and another is negatively charged
- (d) either (a) or (b)

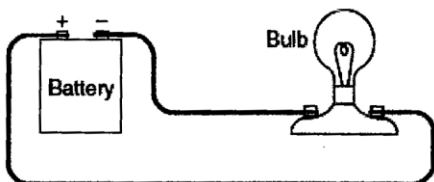
41. The diagram below shows a bulb and a wire attached to a battery.



Why would this bulb be lit?

- (a) The battery is out of energy
- (b) The bulb is out of energy
- (c) The circuit is opened
- (d) The circuit is closed

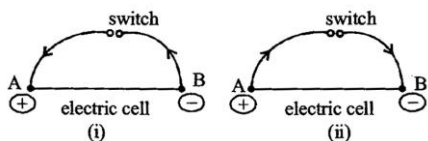
42. The diagram below shows an electric circuit.



Chemical energy from the battery is changed into electrical energy. This electrical energy is then changed to which type of energy?

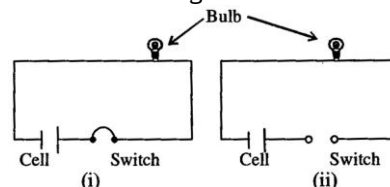
- (a) electrical energy into chemical energy
- (b) electrical energy into heat energy
- (c) electric energy into light energy
- (d) electric energy into sound energy

43. In an electric circuit shown below the direction of current is taken from



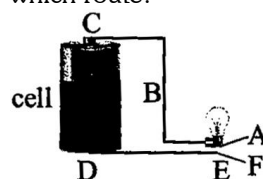
- (a) as shown in (i)
- (b) as shown in (ii)
- (c) can't say
- (d) None of the above is correct

44. Look at the following two diagrams and answer in which case bulb will glow?



- (a) both (i) and (ii)
- (b) only (i)
- (c) only (ii)
- (d) None of the above is correct

45. In the following circuit the flow of current is in which route?



- (a) CBED
- (b) DEBC
- (c) Either of the above two
- (d) None of these

Hints & Solutions

Exercise-1

1. (a) Electrons are negatively charged particles ($e = 1.6 \times 10^{-19} \text{ C}$)
2. (a)
3. (d) An ammeter is an instrument which is used for measuring the magnitude of current in a closed circuit. It is always connected in series to the circuit.
4. (a) Human body is a good conductor of electricity.
5. (c)
6. (a) When we switched OFF an electric circuit, the circuit becomes open and there is no current flows in the circuit.
7. (b) In a closed circuit current flows in the direction opposite to the flow of electrons.
8. (b) In a closed electric circuit inside a cell current always flows from negative to positive terminal.
9. (c) The chemicals in the cell react to produce current.

10. (b) Opposite charges attract each other and like charges repel each other.
11. (a) Connecting wire is used to connect all the components of electric circuit so that electric current can flow through them.
Thus, it is bound to be made up of electric conductor.
12. (a) Positively charged means deficiency of electrons.
13. (d)
14. (c) The S.I. unit of charge is coulomb.
15. (d) Electric cell is a source of electricity. It is used in transistors, cameras, mobile phones, etc.
16. (d) Connecting wire is made up of conductor of electricity. Generally metals are good conductor of electricity.
17. (d)
18. (b)
19. (c)
20. (d)
21. (c)
22. (a) Silver is the best conductor of electricity.
23. (c) Rubber is considered as excellent insulator.
24. (c) Neurons is other name of nerve cell.
25. (d) All these are conductors and if placed between the open ends, the bulb will light up.
26. (d) Both copper and aluminium are conductors of electricity.
27. (b)
28. (c)
29. (c)
30. (a)
31. (c)

32. (d)

33. (c)

34. (b)

35. (b)

Match the Column

36. (a)

37. (b)

38. (b) $A \rightarrow s; B \rightarrow r; C \rightarrow q; D \rightarrow p$

39. (c) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$

Passage Based Questions

40. (c) There are two terminals of a cell.

41. (a) A cell is used as a source of electrical energy.

42. (a)

Assertion/Reason Based Questions

43. (a) Both (A) and (R) are true and R is the correct explanation of (A).

44. (b) Both (A) and (R) are true (R) is not the correct explanation of (A).

45. (b) Both Assertion A and Reason R are correct but Reason R is not the correct explanation of Assertion A.

46. (b)

47. (c) Assertion A is true, Reason R is false.

48. (c)

Statement Based Questions

49. (a)

50. (b) When the plug key will be closed, electric circuit will be complete and the filament of the bulb will glow.

51. (c)

52. (b)

53. (a) Figure (i) represents a battery.

54. (b) It is representation of a closed switch.

55. (c)

EXERCISE-2

Multiple Choice Questions

1. (a) metals are usually good conductor of electricity

2. (b) Force between the charges will decrease as the metallic sheet acts as an obstacle.

3. (d) Depends upon electrons are released or received

4. (c)

5. (c) When a conductor is connected through a cell electric current (or flow of electrons) starts flowing through it.

6. (c)

7. (b)

8. (b) An electric circuit is said to be complete when electric current flowing through all the components of the circuit without interruption.

9. (b) Free electrons are required to conduct charges. Only electron not protons or neutrons can be transferred from one body to another body.

10. (b)

11. (a)

12. (c)

13. (c)

14. (d)

15. (c)

16. (d) It acts as a positive terminal of the cell.

17. (c)

18. (c)

19. (a)

20. (a) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$

21. (a) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$

Passage Based Questions

Passage -1

22. (b) Free electrons are required to conduct electricity.

23. (d)

24. (a)

25. (c) Covers of electric plugs are made up of insulators because insulators do not allow electric current to pass through.

Passage -2

26. (c)

27. (c)

28. (a)

Passage - 3

29. (a)

30. (c)

31. (b) Tungsten is a metal.

32. (c) Silver is a good conductor of electricity but it is not used to make electric wires because it is expensive.

33. (c) Copper is used to make electric wires because electricity can pass through it very easily.

34. (a)

35. (a) Both (A) and (R) are true and (R) is the correct explanation of (A).

36. (a)

37. (b)

38. (a)

39. (b) As metal coin is a good conductor of electricity.

- 40.** (d) Like charges repel one another.
- 41.** (d) In an electric circuit current flows only when the circuit is closed.
- 42.** (c) Electric bulb converts electrical energy into light energy.
- 43.** (b)
- 44.** (b) m (ii) the switch is not on.
- 45.** (a) C is the positive terminal of the cell and D is the negative terminal of the cell.