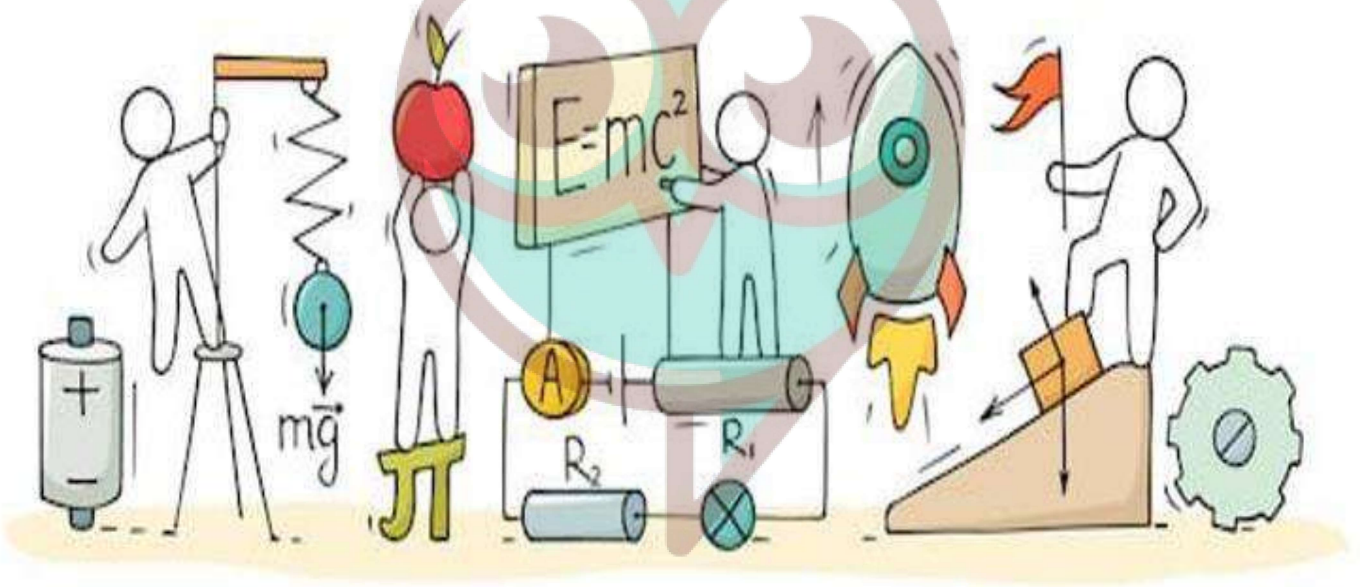
Science

Chapter 12: Electricity and Circuits



Important Questions

Multiple Choice Questions:

Question 1. Cell is a device which

(a) converts chemical energy into electrical energy

(b) electrical energy into light energy

(c) electrical energy into magnetic energy

(d) None of these

Question 2. A bulb has

(a) two terminals and one filament

(b) two terminals and two filaments

(c) multiple terminals and single filament

(d) single terminal and single filament

Question 3. Filament of a bulb is made up of

(a) aluminium

(b) chromium

(c) platinum

(d) tungsten

Question 4. Bulb glows only in

(a) closed circuit

(b) open circuit

(c) in both circuits

(d) open circuit if bulb is not fused

Question 5. A battery is

(a) a single cell

(b) a combination of cells in which cells are joined (+) to (-)

(c) a combination of cells in which cells are joined (+) to (+)

(d) None of these

Question 6. A substance which allows electricity to pass through it is called

(a) a conductor

(b) an insulator

(c) semiconductor

(d) superconductor

Question 7. Which is an example of an insulator

(a) bakelite

(b) aluminium

(c) tap water

(d) All of these

Question 8. An example of a conductor is

(a) tap water

(b) salt solution

(c) metal wire

(d) all of these

Question 9. How many terminals are there in a dry cell?

(a) One

(b) Two

(c) Three

(d) Four

Question 10. To prevent electric shocks, the metallic electrical wires are covered with

(a) paper

(b) cotton

(c) aluminium

(d) plastic

Very Short Question:

1. What is the direction of flow of current in a dry cell?
2. Name the +ve terminal of dry cell.
3. Name the -ve terminal of a dry cell.
4. What is dry cell?
5. What is solar cell?
6. What is open circuit?
7. Write one use of insulators.
8. What is the name of thin wire in the electric bulb?

Short Questions:

1. Mention two advantages of a dry cell.

2. Draw a diagram showing the two terminals of a bulb.

3. Draw the circuit diagram for operating a bulb with the help of a dry cell.

4. Define conductors and insulators. Give one example of each.

5. Identify conductors and insulators from the following: Eraser, paper, matchstick, copper wire, pencil lead, polythene

6. Name the scientist who invented electric cell and the scientist who invented electric bulb.

7. Give one activity to prove that air is an insulator.

8. In any electric circuit, when the switch is on and the current flows through it why do the wire, switches, bulb or devices become hot?

Long Questions:

1. (i) What is electric circuit?

   (ii) How many types of electric circuit are there? Define them.

   (iii) Draw a diagram to show the closed circuit for switch, bulb and dry cell.

2 What is the difference between conductor and an insulator? Explain with examples.

Answer Key-

Multiple Choice Answers:

1. (a) converts chemical energy into electrical energy
2. (a) two terminals and one filament
3. (d) tungsten
4. (a) closed circuit
5. (b) a combination of cells in which cells are joined (+) to (-)
6. (a) a conductor
7. (a) bakelite
8. (d) all of these
9. (b) Two
10. (d) plastic

Very Short Answers:

1. Answer: The current flows in closed circuit from +ve to -ve terminal of cell.
2. Answer: Carbon rod with a metal cap on it.
3. Answer: Zinc metal plate.
4. Answer: It is a device which converts chemical energy into electrical energy.

5. Answer: A device which converts solar energy into electrical energy.
6. Answer: An electric circuit in which electrical contact at any point is broken is called open circuit.
7. Answer: Insulators are used in making switchboard, handles of testers, screw drivers.
8. Answer: Filament.

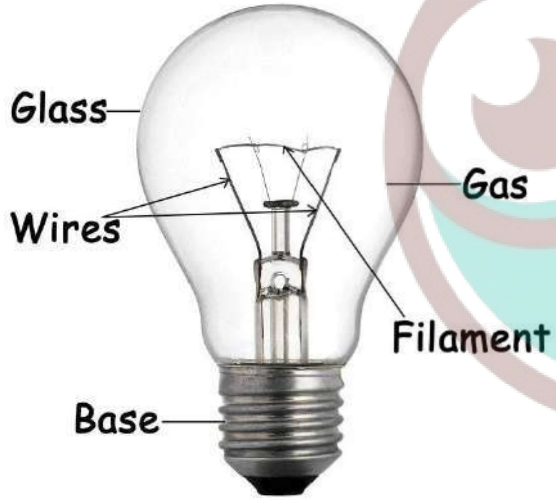
Short Answer:

1. Answer:

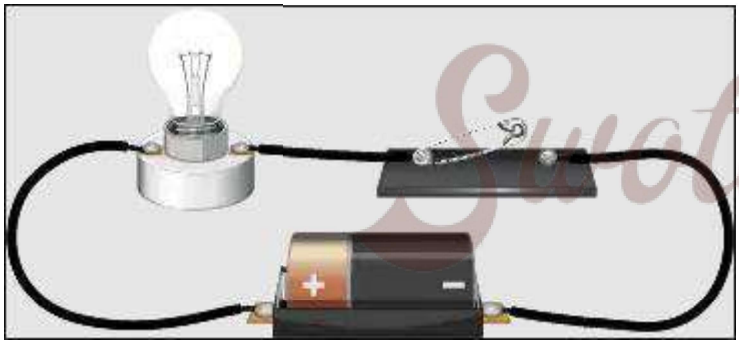
   1. It converts chemical energy into electrical energy.

   2. It is light and small in size.

2. Answer:



3. Answer:



4. Answer: A conductor is that which easily allows the passage of current through it. Example: Aluminium or any metal.

   An insulator is that which does not allow the passage of current through it. Example: Rubber.

5. Answer: Conductors: Copper wire, pencil lead.

   Insulator. Eraser, paper, matchstick, polythene.

6. Answer: Electric cell: Alessandro Volta.

Electric bulb: Thomas Alva Edison.

7. Answer: Take an electric circuit, keep the terminals unconnected in the air. The bulb do not glow, as air is an insulator and does not allow the current to flow through it.
8. Answer: This is because electric energy changes into heat energy.

Long Answer:

1. Answer:

   (i) The diagram that shows the path of electric current is called electric circuit.

   (ii) There are two types of electric circuit:

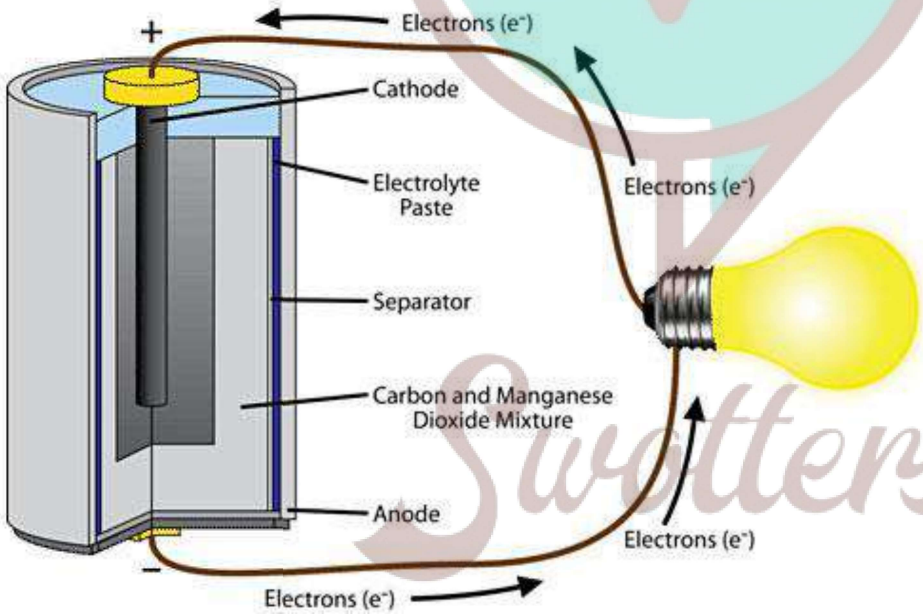
   (a) Open electric circuit

   (b) Closed electric circuit

   (a) **Open electric circuit:** The circuit in which electrical contact at any point is broken is called open electric circuit.

   (b) **Closed electric circuit:** The circuit in which electric current flows from one terminal of a cell or battery to the other is called a closed circuit.

   (iii)



2. Answer: Materials that allow electric current to pass through them are called conductors. For example: iron, copper etc. Metals are good conductors. Materials that do not allow electric current to pass through them are called insulators. For example- rubber, plastic etc.