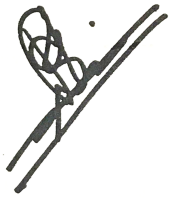
PHYSICS (GRADE-7)
CH-36
ELECTRIC CURRENT



Mrs. Ruksana & Mrs. Farhana

1. Define electric current.

Ans. Electric current is the flow of negative charges. Electrons have negative charges. So, current can be defined as the flow of electrons. Electric current is measured in units called ampere (A), and it is denoted by I. The device used to measure current is called ammeter.

2. Distinguish between ampere and coulomb.

Ans. Ampere: It is the unit of electric current which is defined as "1 ampere is the amount of current when 1 coulomb of charge flows in a circuit at a rate of 1 second".

Coulomb: 1 coulomb is the charge passing any point in a circuit when a steady current of 1 ampere flows for 1 second.

1 C = 1 A x 1 s

3. Write an equation relating current and charges.

Ans.

$$Q = I \times t$$

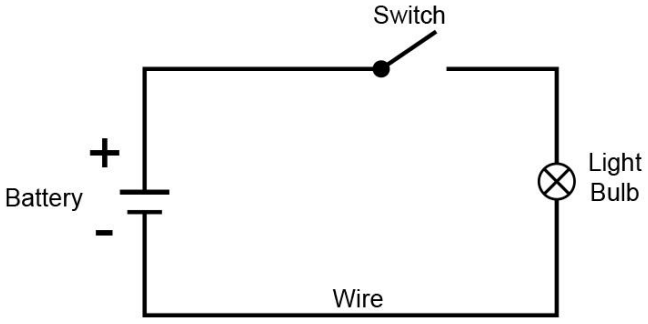
Unit of electric current (I) ⟶ ampere (A)
Unit of charge (Q) ⟶ coulomb (C)
Unit of time taken (t) ⟶ second (s)

4. Define circuit.

Ans. Circuit is a path through which electrons flow. It has three important parts:

i) Source (cell, batteries, generators)
ii) Device (bulb, lamp, mobile)
iii) Connecting wires

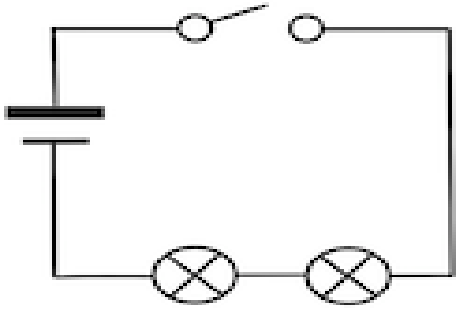
It is a loop of wire with its ends connected to an energy source such as cell or battery. One end of the wire is connected to the positive terminal of the cell and the other end is connected to the negative terminal. The wires are connected in such a way that there is a complete path for the flow of a current.



5. Explain series circuit.

Ans. Series circuit is the simplest type of circuit. Series circuits have their components (lamps, cell, switches, etc.) connected in one group of wires. The current is the same at all points in a series circuit.

Here is a series circuit with batteries and 2 lamps.



Series Circuit

6. What are the disadvantages of a series circuit?

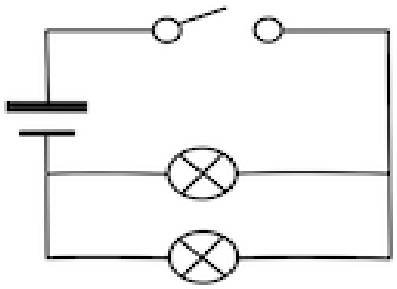
Ans.

i) If one component in a series circuit fails, the other one also fails because the path has been broken.

ii) If there are more components in series, the resistance of the circuit will also be more.

7. Explain parallel circuit.

Ans. The sum of the current in the branches of a parallel circuit equals the current entering of leaving the parallel section. For example, here is a parallel circuit connected with a cell and 2 lamps.



Parallel Circuit

8. What are the advantages of parallel circuit?

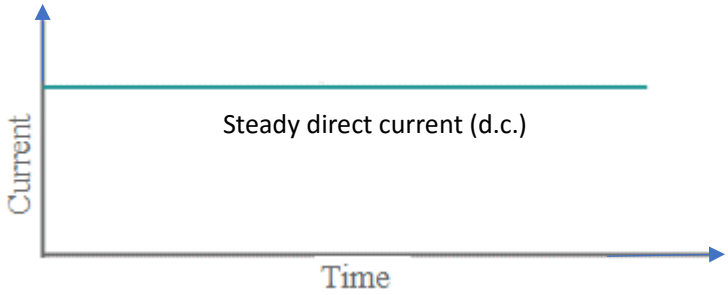
Ans.

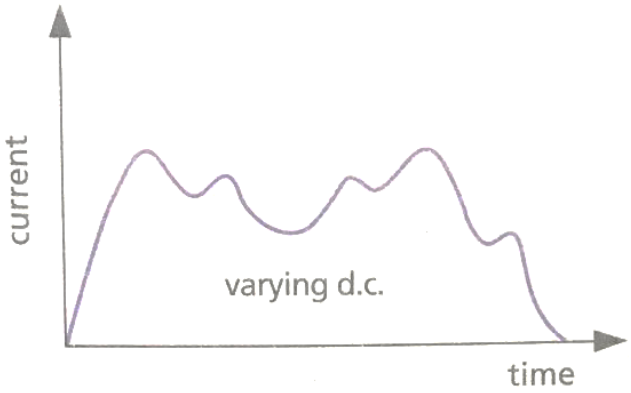
i) The failure of one component does not lead to the failure of other components. This is because parallel circuit consists of more than one loop (path).

ii) More components can be added in parallel circuit without the need of more voltage.

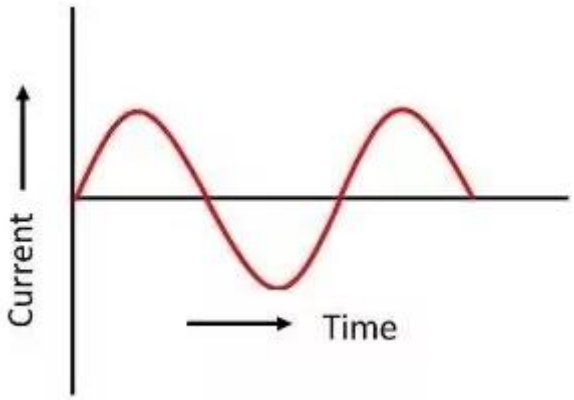
9. Differentiate between direct and alternating current.

Ans. Direct current: In a direct current, the electrons flow in one direction only.





Alternating current: In an alternating current, the direction of flow reverses regularly. The circuit symbol for alternating current is



Batteries produce d.c. and generators can produce either d.c. or a.c.