Current

- **Electric current**

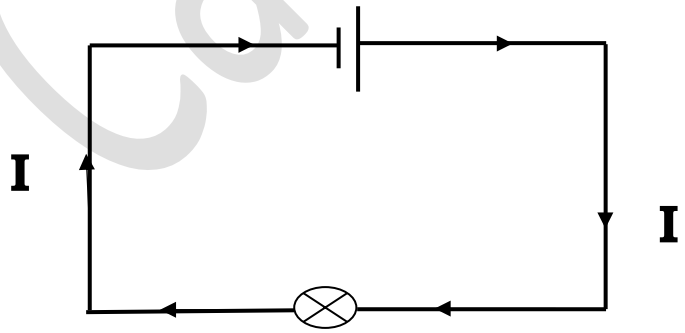
➢ Electric current is defined as the amount of charge flowing through a conductor cross-section in a unit time.

$$\mathbf{I} = \frac{Q}{t} \qquad \text{Unit} = A / Cs^{-1}$$

- **Standard direction of current**

➢ The direction that positive charges flow is the standard direction of current.
➢ Current flows in the opposite direction to the direction of electron flow.

➢ Let's see how this works in a Battery,



In a battery, current will go from (+) to (-). Electrons go out from the (-) to (+).

- **<u>Relation between Current and mean drift velocity</u>**

$$I = VAne$$

  - V = Mean drift velocity
  - A = Area of cross section of conductor
  - n = The number of free electrons per unit volume
  - e = The charge on an electron