Electricity

**Electric potential:** The Electric potential of a point in an electric field is defined as the work to be done to move a unit positive charge from infinity to that point.

**Potential difference:** The potential difference between two separate points is defined as the work done to move a unit positive charge from one point to another.

\[ \n = \frac{W}{Q} \]

**Unit:** Volt

\[ 1 \text{ Volt} = \frac{1 \text{ joule}}{1 \text{ coulomb}} \]

1 V = 1 J C\(^{-1}\)

- The distribution of charge in a body is measured in coulombs. The quantization of charge requires that a charge on a body always remain the integral multiple of charges in an electron.
- Following is the relation between charge on the body \((Q)\), number of electrons \((n)\) and charge on an electron \((e)\)

\[ Q = ne \]

- The SI unit of electric charge is coulomb, denoted by the letter 'C'.
- The magnitude of an electric current is defined as the amount of electrons passing through a cross-sectional area of the wire within a given interval of time.

\[ I = \frac{Q}{t} \]

- The SI unit of current \((I)\) is taken as ampere 'A'.
- Electric current flows from the positive terminal to the negative terminal.

- The bulb will glow or the magnetic needle will show deflection if the liquid in the beaker is a good conductor of electricity.
- Greater the deflection of needle or brighter the light, better is the conductivity of the liquid.

<table>
<thead>
<tr>
<th>Good conductor</th>
<th>Poor conductor</th>
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<tbody>
<tr>
<td>Lemon Juice</td>
<td>Coal tar</td>
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