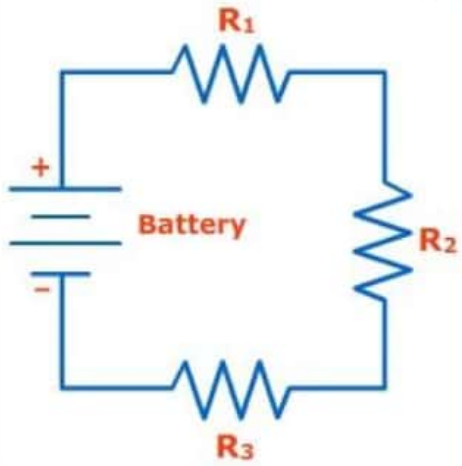
RESISTANCE

1 Resistance



The opposing effect to the flow of current is known as Resistance of the conductor. It is denoted by "R".

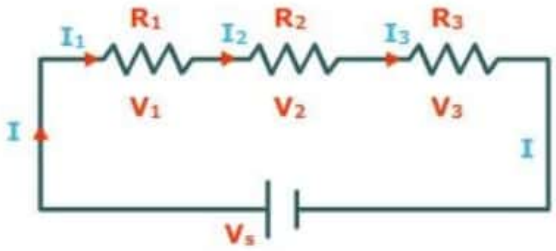
$$R = \frac{\rho l}{A}$$

ρ = Resistivity
l = Length
A = Area

Resistance (R) is measured in **Ohm** (Ω).

2 Combination

i Series



- The current passing through the individual resistance is same and its equal to magnitude of current that comes from the battery.

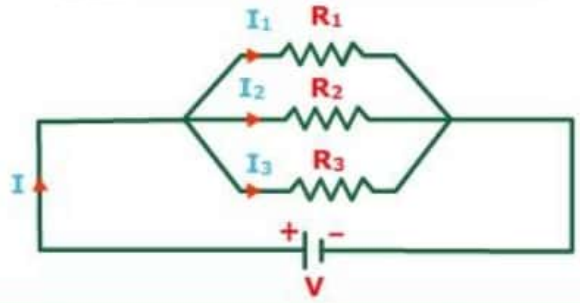
$$I = I_1 = I_2 = I_3$$

- The sum of the voltage across the individual resistance is equal to the voltage of the battery.

$$V = V_1 + V_2 + V_3$$

- $R_{eq} = R_1 + R_2 + R_3$
- The equivalent resistance of the circuit is always greater than the value of resistance in the circuit.

ii Parallel



- The sum of current passing through each resistance is equal to the total current coming from the battery.

$$I = I_1 + I_2 + I_3$$

- The voltage across the individual resistance is same and is equal to the voltage of the battery.

$$V = V_1 = V_2 = V_3$$

- $\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$
- The equivalent resistance of the circuit is always less than the smallest value of resistance in the circuit.