

# KIRCHHOFF'S LAWS

1 Gustav Robert Kirchhoff's gave following two laws in electricity.

## 1) The Junction Law or Point Rule

"The sum of all the currents directed towards a point in a circuit is equal to the sum of all the currents directed away from the point."

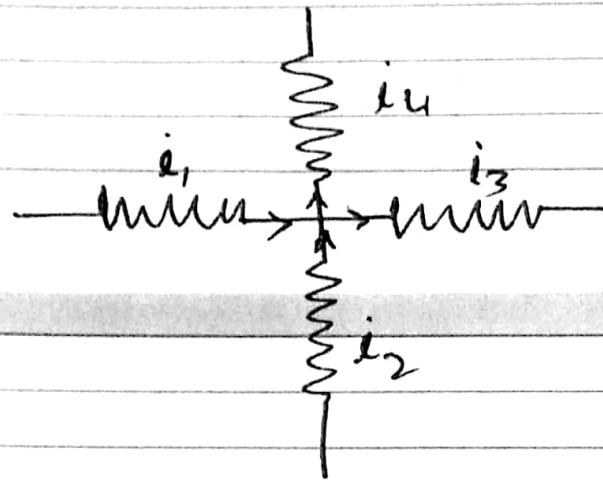


Fig - 1

$$i_1 + i_2 = i_3 + i_4 \quad \text{--- (i)}$$

If we take the current directed towards a point as positive and that directed away from the point as negative, we can restate the junction law as,

"the algebraic sum of all the currents directed towards a point is zero."

In figure 1, the current directed towards the junction point are  $i_1, i_2, -i_3$  and  $-i_4$ .