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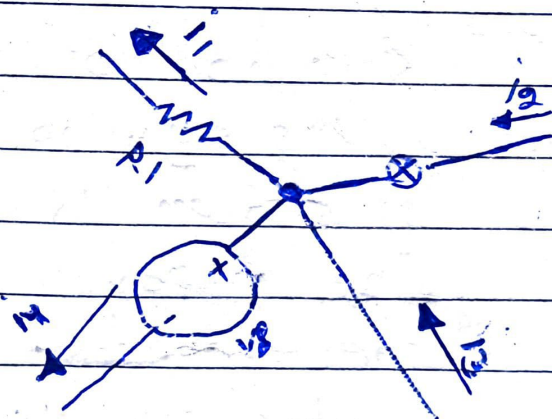
Answer:-

Kirchhoff's current law (KCL)

This law is also called Kirchhoff's first law, Kirchhoff's point rule or Kirchhoff's junction rule (or node rule).

The principle of conservation of electric charge implies that.

At any node (junction) in an electrical circuit, the sum of currents flowing into that node is equal to the sum of currents flowing out of that node. The algebraic sum of currents in a network of conductors meeting at a point is zero.



The current entering any junction is equal to the current leaving that.

$$\text{Junction } i_2 + i_3 = i_1 + i_4$$



## Kirchhoff's voltage law (KVL)

This law is also called Kirchhoff's loop (or mesh) rule, and Kirchhoff's second rule.

The directed sum of the electrical potential differences (voltage) around any closed network is zero.

The algebraic sum of the products of the resistance of the conductors and the currents in them in a closed loop is equal to the total emf available in that loop.

This sum of all the around a loop is equal to zero.

$$V_1 + V_2 + V_3 - V_4 = 0$$

