MIND MAP

Electric Current

The amount of charge flowing through a particular area per unit time in a conductor.

Formulae

$I = \frac{Q}{t}$

$V = \frac{W}{Q}$

$V = IR$ (ohm's law)

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

$R = R_1 + R_2 + R_3 .....$

(Series connection)

$\frac{I}{R} = \frac{I}{R_1} + \frac{I}{R_2} + \frac{I}{R_3}$

(Parallel connection)

$H = I^2RT$

$P = VI = I^2R = \frac{V^2}{R}$

$E = W = VIt$

I – Current
Q – Charge
t – Time
V – Potential difference
p – Resistivity
R – Resistance
A – Area of cross-section
H – Heat produced
E – Energy
W – Work done

Ammeter

- Measures electric current.
- Has low resistance.
- Connected in series.

Voltmeter

- Measures potential difference.
- Has high resistance.
- Connected in parallel.

S.I. Units

Current – Ampere (A)
Resistance – Ohm (Ω)
Potential Difference – Volt (V)
Power – Watt (W)
Electric Energy – Kilo Watt Hour (kWh)
Resistivity – Ohm-meter (Ωm)

Conversions

1 watt = $\frac{1 \text{Joule}}{1 \text{second}}$

1 KW = 1000 W

1 KJ = 1000 J

1 Horse Power = 746 W

1 Ohm = $\frac{1 \text{ volt}}{1 \text{ ampere}}$

1 KWh = 3.6 x 10^6 J

1 Ampere = $\frac{1 \text{ coulomb}}{1 \text{ second}}$