

MIND MAPS OF CURRENT ELECTRICITY



1. BASIC CONCEPTS

- Electric Current (I)
- Potential Difference (V)
- Resistance (R)
- Ohm's Law: $V = IR$

2. RESISTANCE

- Depends on length (l)
- Area of cross-section (A)
- Material (ρ)
- Formula: $R = \rho \frac{l}{A}$

$\rho =$ Resistivity

3. COMBINATION OF RESISTANCES

Series Combination

$R_{eq} = R_1 + R_2 + R_3$

Parallel Combination

$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

4. ELECTRICAL ENERGY & POWER

- Electrical Energy: $E = VIt$
- Power: $P = VI = I^2R = \frac{V^2}{R}$
- Unit: Joule (J), Watt (W)

5. MEASURING INSTRUMENTS

- Ammeter (in series)
- Voltmeter (in parallel)

6. KEY POINTS

- Conventional current flows from positive to negative.
- Ohm's Law holds good only when physical conditions are constant.
- Temperature affects resistance.

7. APPLICATIONS

- Electric heating
- Electric lighting
- Electric motors
- Electronic circuits