Current Electricity

Chapter 3: Current Electricity · Topic 1

Key Concept

Ohm's law states current is directly proportional to voltage at constant temperature: V=IR, where V is voltage, I is current, R is resistance.

In a series circuit, current remains the same throughout, while voltage divides across components, and resistances add directly.

In a parallel circuit, voltage remains the same across each branch, while current divides, and resistances combine using reciprocals.

Electrical power, calculated as P=VI, indicates the rate of energy consumption, important for understanding appliance energy usage.

Quick Revision Notes

- Ohm's law: V=IR (constant temperature).
- V=voltage, I=current, R=resistance.
- Series circuit: same current, voltage divides.
- Resistances add directly in series.
- Parallel circuit: same voltage, current divides.
- Resistances combine via reciprocals in parallel.
- Power: P=VI, rate of energy use.
- This matters for appliance energy usage.

Practice Questions

1. Calculate current using Ohm's law given V=10V, R=5Ω.
2. Discuss the difference between series and parallel circuits.
3. Calculate power given V=12V, I=3A.
4. Draw a simple series circuit diagram.
5. Draw a simple parallel circuit diagram.
6. Explain Ohm's law in your own words.