

Electricity

Quick Study Guide

HOW TO USE THIS GUIDE

HIGHLIGHTED TEXT SHOWS IMPORTANT POINTS

★ MARKS HIGH-FOCUS TOPICS

📝 INDICATES EXAM TIPS

⚠️ SHOWS COMMON ERRORS

💡 GIVES QUICK TIPS

BASIC CONCEPTS

Mnemonic: "CURRENT RAJA"

- | | | | |
|---|----------------------|---|-------------------------|
| C | Current flow | R | Resistance in ohms |
| U | Unit ampere | A | Ampere measure |
| R | Resistance opposes | J | Joules energy |
| R | Rate of flow | A | Always complete circuit |
| E | Electrons move | | |
| N | Negative to positive | | |
| T | Through conductor | | |

Remember As:

PAANI KA FLOW

- Current = Water flow
- Voltage = Water pressure
- Resistance = Pipe thickness
- Circuit = Pipe system

Common Errors:

- Direction confusion
- Unit mistakes
- Circuit incomplete
- Wrong connections

OHM'S LAW

Mnemonic: "VOLT BHAIYA"

- | | | | |
|---|-----------------|---|--------------------|
| V | Voltage applied | B | Basic law |
| O | Over conductor | H | Higher V, Higher I |
| L | Linear relation | A | Ampere increases |
| T | Through circuit | I | Important relation |
| | | Y | Yielding current |
| | | A | Always true |

Formula Magic:

VIA HERO

- $V = IR$
- Like: Pressure = Flow \times Thickness
- $I = V/R$
- Like: Flow = Pressure/Thickness
- $R = V/I$
- Like: Thickness = Pressure/Flow

RESISTANCE SERIES

Mnemonic: "TOTAL DHAMAAL"

- | | | | |
|---|----------------------|---|--------------------|
| T | Total = Sum all | D | Direct addition |
| O | One by one add | H | Higher value total |
| T | Through same current | A | Add simply |
| A | Add values | M | More resistance |
| L | Line arrangement | A | All in line |
| | | A | Add values |
| | | L | Like train bogies |

Quick Tips:

LINE MEIN

- $R_s = R_1 + R_2 + R_3 \dots$
- Same current flows
- Voltage divides
- Like train compartments

PARALLEL CIRCUIT

Mnemonic: "POWER HOUSE"

- | | | | |
|---|--------------------|---|----------------------|
| P | Parallel paths | H | Higher current total |
| O | Options to flow | O | Options many |
| W | Water distributor | U | Use $1/R$ total |
| E | Equal voltage | S | Same voltage |
| R | Resistance divided | E | Easy flow path |

Remember As:

GALI KA SYSTEM

- $1/R_t = 1/R_1 + 1/R_2 + 1/R_3$
- Like colony streets:
- Same water pressure
- Different house supplies
- Multiple paths

HEATING EFFECTS

Mnemonic: "HEATER MAGIC"

- | | | | |
|---|------------------|---|--------------------------|
| H | Heat produced | M | More current = More heat |
| E | Energy transfer | A | Apply formula |
| A | Ampere square | G | Generate heat |
| T | Time factor | I | $I^2 R t$ formula |
| E | Energy in joules | C | Calculate power |
| R | Resistance used | | |

Daily Uses:

GHAR PE

1. Electric iron
2. Water heater
3. Room heater
4. Toaster
5. Electric kettle

POWER CALCULATIONS

Mnemonic: "BIJLI BILL"

- | | | | |
|---|------------------------|---|--------------------|
| B | Basic formula | B | Basic $P = VI$ |
| I | Into resistance | I | Into $P = I^2 R$ |
| J | Joules per second | L | Learn V^2/R also |
| L | Learn units | L | Look for units |
| I | Important calculations | | |

Unit Magic:

POWER KING

- $1 \text{ kW} = 1000 \text{ W}$
- $1 \text{ kWh} = 3600000 \text{ J}$
- Units = kWh
- Bill = Units \times Rate



DOMESTIC WIRING

Mnemonic: "GHAR KA FUSE"

G Green = Earth
H Hot wire (Live)
A Ampere rating
R Red wire danger

F Fuse important
U Use proper wire
S Safety first
E Earth wire must

K Keep safety
A Avoid overload

Safety Tips:

SAFE GAME

1. Proper earthing
2. MCB use
3. Right wire thickness
4. Correct color coding
5. Regular checking

QUICK REVISION CHECKLIST

Before Exam:

- ✓ Basic concepts clear
- ✓ Ohm's law applications
- ✓ Series circuits
- ✓ Parallel circuits
- ✓ Heating effects
- ✓ Power calculations
- ✓ Domestic circuits

Scoring Tips:

1. Draw neat circuits
2. Show all steps
3. Write proper units
4. Give practical examples
5. Safety precautions

HIGH FOCUS AREAS

1. Ohm's Law (5 marks)
2. Power Calculations (5 marks)
3. Circuit Combinations (4 marks)
4. Heating Effects (4 marks)
5. Domestic Wiring (3 marks)

NUMERICAL SOLVING TIPS

Mnemonic: "GHAR KA FUSE"

S See what's given
O Organize data
L List formulas
V Verify units
E Equation use

K Keep track of steps
A Arrange neatly
R Remember units
O Output check

GOOD LUCK!

