

Current is consumed in a bulb

Topic: Current Electricity

Step 1

Wrong belief:

Current gets used up in the bulb, so less current comes out.

Correct understanding:

Many students imagine current like fuel that gets burned inside a bulb. This idea feels natural—but it is physically wrong and leads to serious mistakes in circuit questions.

Step 2

Wrong belief:

Bulb “consumes” current to produce light.

Correct understanding:

A bulb does not consume current. It converts electrical energy into light and heat, not current itself. ???? Current is charge per second, not energy.

Step 3

Wrong belief:

Current entering the bulb is greater than current leaving it.

Correct understanding:

In a steady circuit, ✓ Current entering the bulb = ✓ Current leaving the bulb
Otherwise, charge would pile up inside the bulb—which never happens.

Step 4

Wrong belief:

If current is not consumed, nothing should change in the bulb.

Correct understanding:

What changes is energy, not current. ✓ Charges lose electrical potential energy ✓
Same charges continue moving ✓ Same amount of current flows everywhere in series

Step 5

Wrong belief:

Dim bulbs have less current leaving them.

Correct understanding:

Dimness depends on power, not loss of current. Bulb brightness changes due to resistance and voltage, not because current is “used up.”

Step 6

Wrong belief:

Current decreases as we move along a series circuit.

Correct understanding:

In a series circuit: Current is same at all points. What drops is voltage, not current
???? Voltage drops → ???? Energy released → ???? Current continues

Step 7

Wrong belief:

Bulb consumes current.

Correct understanding:

✓ Bulb consumes energy ✓ Current is conserved ✓ Same current flows before and after the bulb ???? Exams test this difference heavily.

Key Formula

$$I = Q / t \quad P = VI$$

Exam Trap

In many MCQs, options say “Current decreases after passing through bulb” ☐ This is always wrong for steady DC circuits.