Electric Circuits & Circuit Diagram

A. Choose the correct answer:

1. What is an electric circuit?
A) A closed path through which electricity flows
B) A device that stores electrical energy
C) A type of battery
D) A broken pathway of wires

2. Which of the following components is used to control the flow of current in a circuit?
A) Resistor
B) Switch
C) Battery
D) Bulb

3. What is the function of a fuse in an electric circuit?
A) To store energy
B) To increase current flow
C) To protect the circuit from overloading
D) To generate electricity

B. Fill in the Blanks:

1. A _____ is a diagram that represents an electric circuit using symbols.

2. The unit of electric current is _____.

3. A parallel circuit allows current to flow through _____ paths.

C. Case Study:

An engineer, Mr. Ramesh, conducted an experiment on different types of circuits. He set up two circuits:

• Circuit A was a series circuit with a battery, a switch, and three bulbs.

• Circuit B was a parallel circuit with a battery, a switch, and three bulbs.

After testing, he observed:

• When one bulb was removed from Circuit A, all bulbs stopped working.

• When one bulb was removed from Circuit B, the remaining bulbs continued to glow.
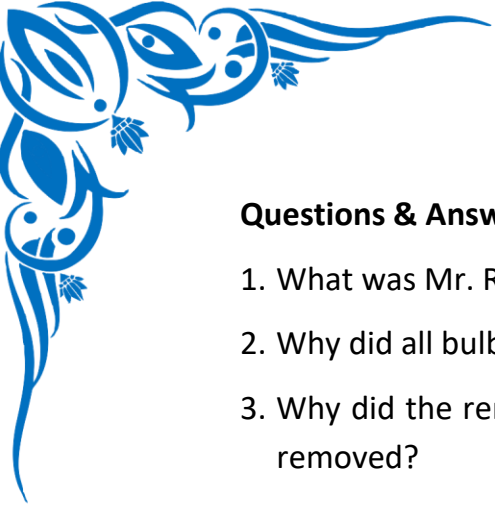
Questions & Answers:

1. What was Mr. Ramesh trying to analyze through his experiment?

2. Why did all bulbs stop working when one was removed from Circuit A?

3. Why did the remaining bulbs in Circuit B continue to glow even after one was removed?

4. Based on this experiment, which circuit would be better for household wiring and why?

D. Short Answer Questions:

1. What are the main components of an electric circuit?

2. How does a switch control an electric circuit?

3. What is the difference between a series and a parallel circuit?

E. Long Answer Questions:

1. Explain the working of an electric circuit with a neat diagram.

2. Describe the advantages and disadvantages of series and parallel circuits.

3. Discuss the significance of circuit diagrams and why standard symbols are used to represent components.