

LESSON: 3 Electricity: Components and their Circuits

A. Choose the correct options:

1. What does an open circuit indicate?

- (a) The switch is ON and current is flowing through the circuit.
- (b) The switch is OFF, and no current is flowing through the circuit.
- (c) Switch is OFF and current is flowing through the circuit.
- (d) None of the above

2. Which of the following is a good conductor of electricity?

- (a) Rubber
- (b) Wooden stick
- (c) Iron coin
- (d) Air

3. Which combination will allow the LED to glow?

- (a) Positive wire of battery to longer LED terminal
- (b) Any direction will work
- (c) Positive wire battery to shorter LED terminal
- (d) Both wires to same LED terminal

4. Why do wires have a plastic or rubber covering?

- (a) To decorate the wire
- (b) To reduce electricity
- (c) To prevent electric shocks
- (d) none of these

5. Which material among the following is good conductor of electricity?

- (a) plastic
- (b) paper
- (c) rubber eraser
- (d) Steel spoon

6. Which of the following is an insulator?

- a) Steel scale
- b) Iron nail
- c) Tooth pick
- d) Aluminum foil

7. What happens to the current when the switch is in the 'OFF' position?

- a) Increases
- b) Stops flowing
- c) Flows faster
- d) Reverses direction

8. A teacher demonstrates a working circuit using an LED. She reverses the connections, and the LED stops glowing. Why?

- (a) LED works only with AC.
- (b) The LED gets damaged easily.
- (c) LED allows current in only one direction.
- (d) LED consumes too much energy.

B. Fill in the blanks:

1. When the switch is in 'off position, the electric circuit is said to be _____.

2. The combination of two or more cells is called _____

3. _____ is a simple device that either completes or breaks a circuit.

4. _____ is an example of conductors of electricity.
5. Materials through which current cannot pass through are called _____
6. Electric current can pass through _____ lamp in one direction.
7. An electric cell has _____ terminals.
8. A bulb glows when current passes through its thin wire called _____.
9. _____ is an example of insulators.
10. If the switch is in the _____ position, the bulb will glow.

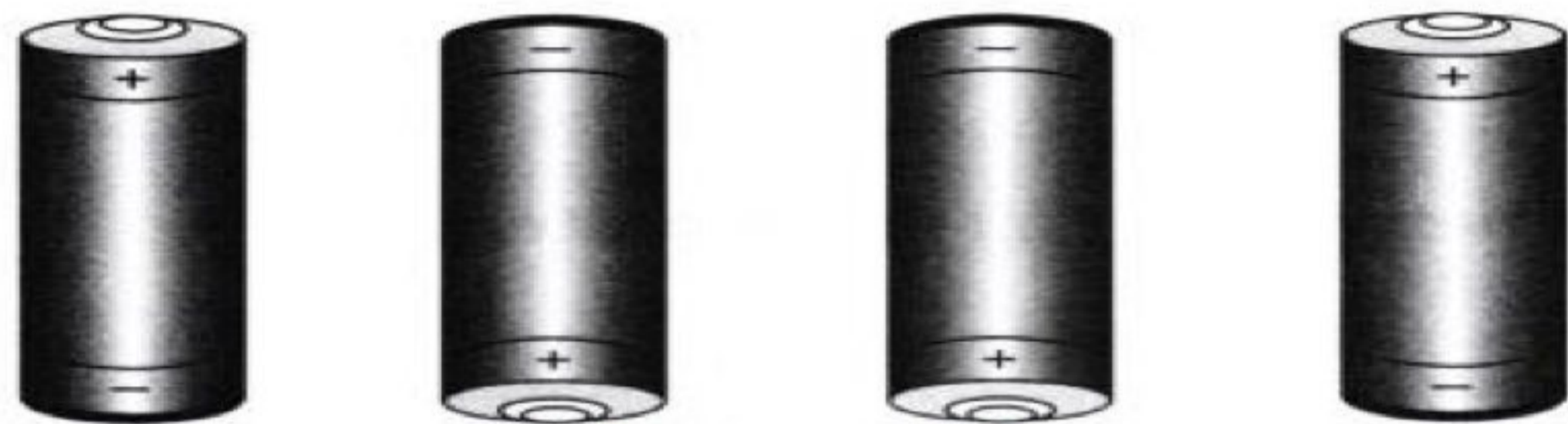
C. The question below consists of an Assertion and a Reason. Use the following key to choose the appropriate answer.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

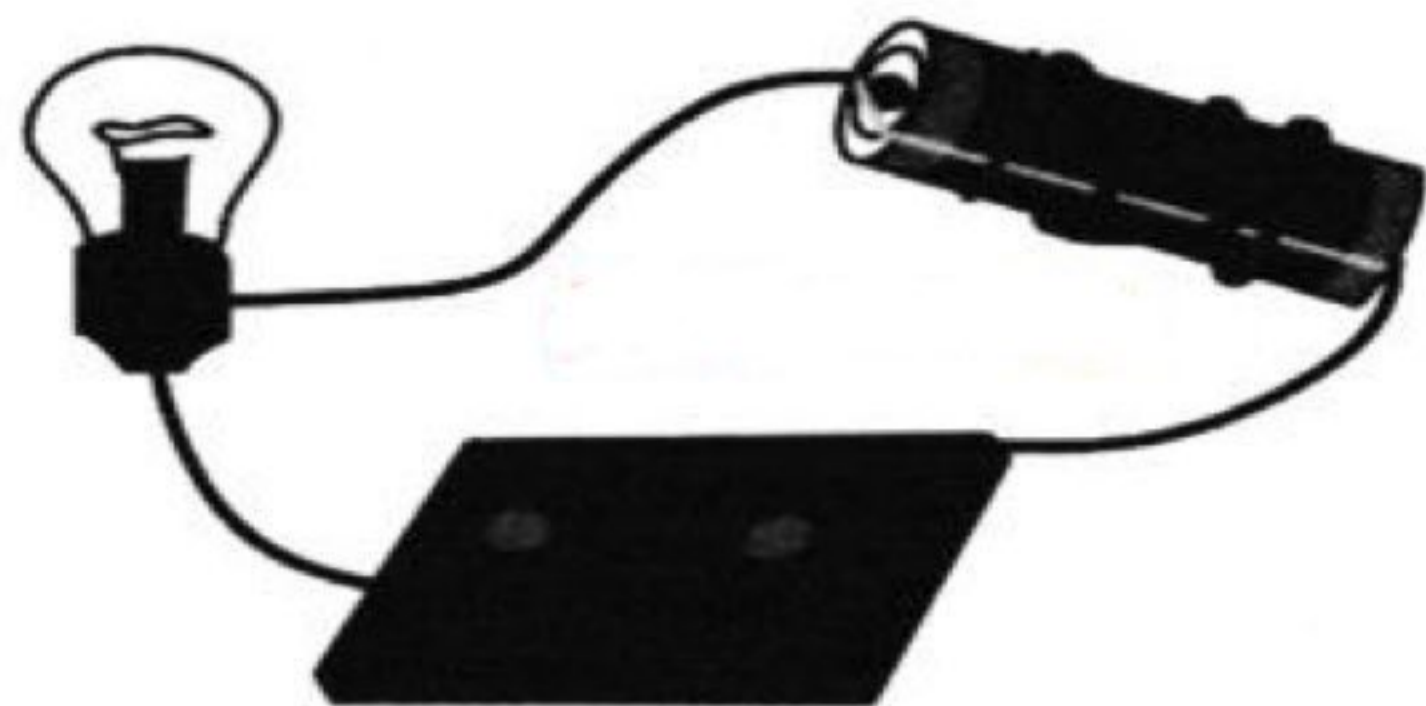
1. **Assertion(A):** Electric wires are covered with plastic to prevent from shock.
Reason (R): Plastic is the good conductor of electricity.
2. **Assertion(A)** A switch allows or stops the flow of electric current.
Reason (R): Copper is an example of good conductor.
3. **Assertion(A):** A bulb glows only when the circuit is closed.
Reason (R): A closed circuit allows electric current to flow through the bulb.

D. Answer the following questions:

1. Which terminal of a cell is the longer line in the circuit symbol?
2. Draw the symbols of the following circuit components. a) Battery b) LED lamp c) Switch in 'ON' position
3. The following figure shows four cells fixed on a board. Draw lines to indicate how you will connect their terminals with wires to make a battery of four cells.



4. Draw the circuit diagram to represent the circuit shown below.



E. Case Study Based Question

1. Read the paragraph and answer the following questions:

During a lab activity, students created a tester circuit using a bulb and cell. They tested different materials like paper, steel spoon, pencil lead, plastic, and water. The bulb glowed with some objects but not with others. The class then discussed conductors, insulators, and the role of materials in allowing current to flow.

1. The bulb glowed when a steel spoon was placed in the circuit. This shows that:

- (a) The spoon is an insulator (b) The spoon allows light to reflect
(c) The spoon conducts electricity (d) The spoon generates electricity

2. Which material would not cause the bulb to glow?

- (a) Copper wire (b) Plastic ruler (c) Steel pin (d) Graphite rod

3. Which of the following object is an example of insulator?

- (a) Rubber gloves (b) Iron rod (c) Copper wire (d) Silver spoon
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