
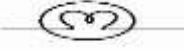


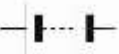

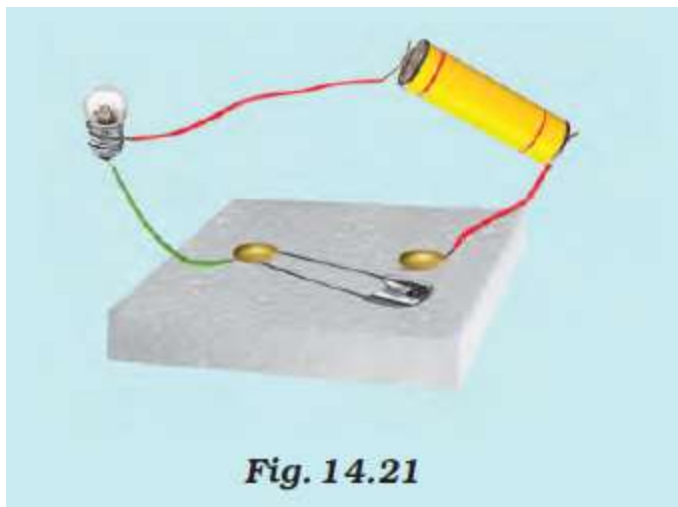


**Question 1.** Draw in your notebook the symbols to represent the following components of electrical circuits: connecting wires, switch in the 'OFF' position, bulb, cell, switch in the 'ON' position, and battery

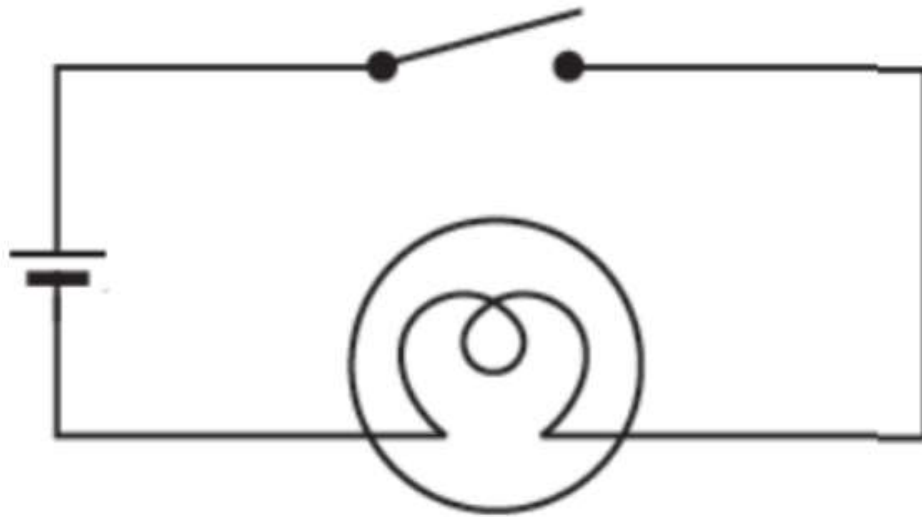
**Solution 1.**

S. No.	Electric component	Symbol
1	Electric cell	
2	Electric bulb	
3	Switch in 'ON' position	
4	Switch in 'OFF' position	
5	battery	
6	wire	

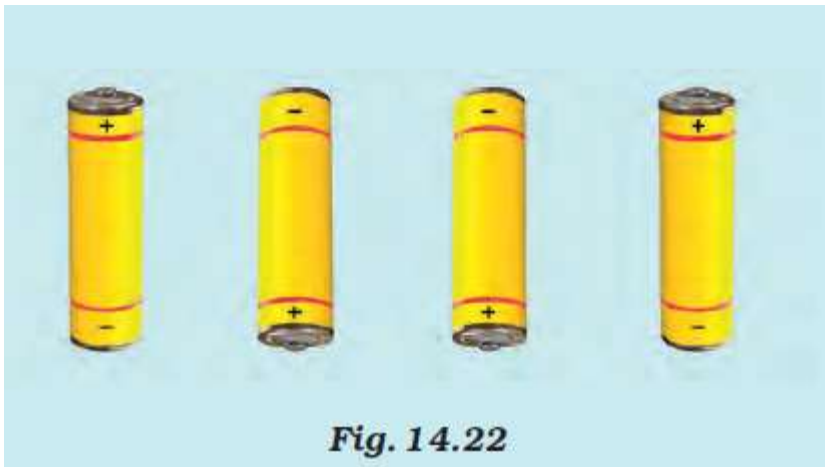
**Question 2.** Draw the circuit diagram to represent the circuit shown in Fig.14.21.



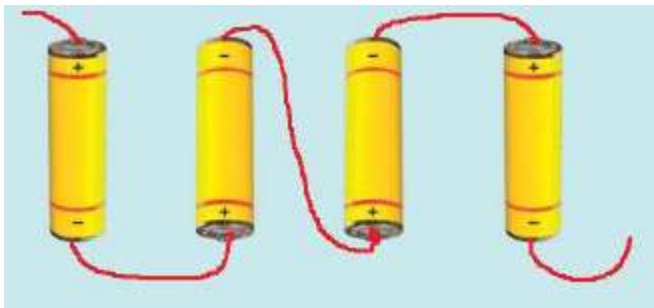
**Solution 2.**



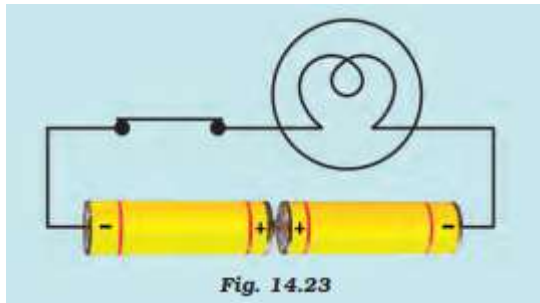
Question 3. Fig.14.22 shows four cells fixed on a board. Draw lines to indicate how you will connect their terminals with wires to make a battery of four cells.



Solution 3.

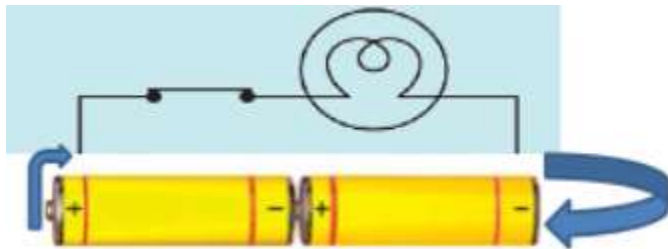


**Question 4.** The bulb in the circuit shown in Fig.14.23 does not glow. Can you identify the problem? Make necessary changes in the circuit to make the bulb glow.



**Solution 4.**

In the circuit above bulb is connected on either side.



**Question 5.** Name any two effects of electric current.

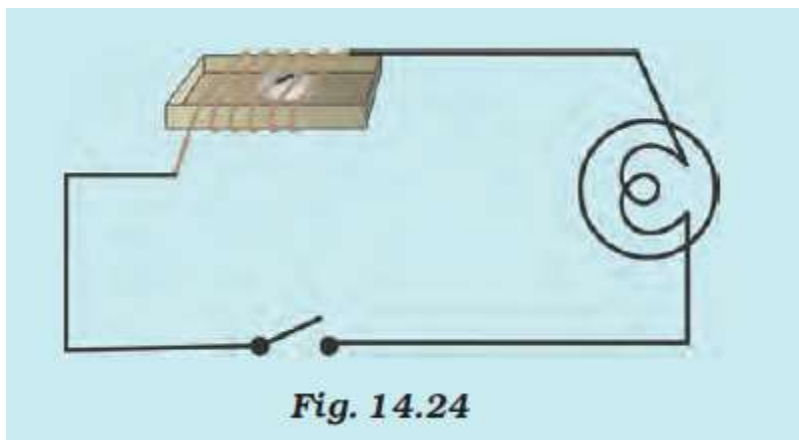
**Solution 5.** Following are the two effects of electric current.

- i) It has Heating effect.
- ii) It has Magnetic effect.

**Question 6.** When the current is switched on through a wire, a compass needle kept nearby gets deflected from its north-south position. Explain.

**Solution 6.** A magnetic field is generated around the wire when the current is switched on through it. Because of this magnetic the needle of compass kept nearby the wire shows deflection.

**Question 7.** Will the compass needle show deflection when the switch in the circuit shown by Fig.14.24 is closed?



**Solution 7.**

No, compass needle will not show any deflection because there will be no magnetic field around the circuit when the switch in the circuit is closed.

**Question 8. Fill in the blanks:**

- (a) Longer line in the symbol for a cell represents its \_\_\_\_ terminal.
- (b) The combination of two or more cells is called a \_\_\_\_\_.
- (c) When current is switched 'on' in a room heater, it \_\_\_\_\_.
- (d) The safety device based on the heating effect of electric current is called a \_\_\_\_\_.

**Solution 8.**

- (a) Longer line in the symbol for a cell represents its **positive** terminal.
- (b) The combination of two or more cells is called a **battery**.
- (c) When current is switched 'on' in a room heater, it **produces heat**.
- (d) The safety device based on the heating effect of electric current is called a **fuse**.

**Question 9. Mark 'T' if the statement is true and 'F' if it is false:**

- (a) To make a battery of two cells, the negative terminal of one cell is connected to the negative terminal of the other cell. (T/F)
- (b) When the electric current through the fuse exceeds a certain limit, the fuse wire melts and breaks. (T/F)
- (c) An electromagnet does not attract a piece of iron. (T/F)
- (d) An electric bell has an electromagnet. (T/F)

**Solution 9.**

- a) To make a battery of two cells, the negative terminal of one cell is connected to the negative terminal of the other cell. False
- b) When the electric current through the fuse exceeds a certain limit, the fuse wire melts and breaks. True
- c) An electromagnet does not attract a piece of iron. False
- d) An electric bell has an electromagnet. True

**Question 10.** Do you think an electromagnet can be used for separating plastic bags from a garbage heap? Explain.

**Solution 10.** No, the plastic bags do not have magnetic property so they will not be attracted by an electromagnet hence an electromagnet cannot be used for separating plastic bags from a garbage heap.

**Question 11.** An electrician is carrying out some repairs in your house. He wants to replace a fuse by a piece of wire. Would you agree? Give reasons for your response.

**Solution 11.** No, a fuse should not be replaced by a piece of wire because it would not be able to protect our home as the melting point of the wire is very low as compare to the metallic fuse.

**Question 12.** Zubeda made an electric circuit using a cell holder shown in Fig. 14.4, a switch and a bulb. When she put the switch in the 'ON' position, the bulb did not glow. Help Zubeda in identifying the possible defects in the circuit.

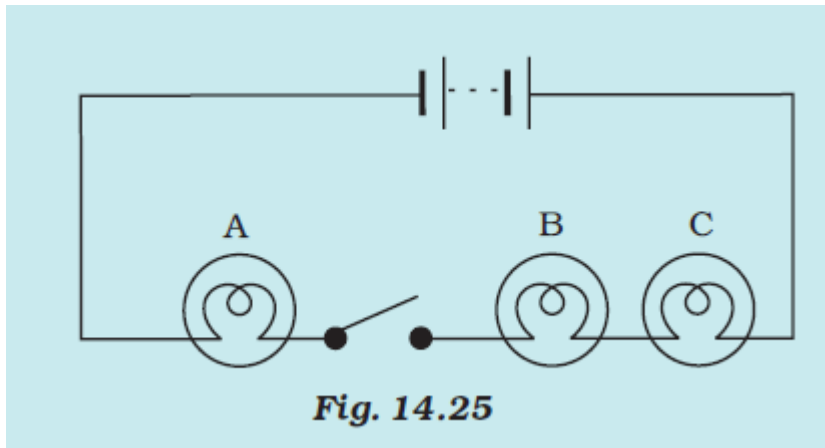


*Fig. 14.4 A cell holder*

**Solution 12.** Following may be the possible defects in the circuit:

- i) loose connections
- ii) used up electric cells
- iii) switches may not be not closed properly.
- iv) fused bulbs

**Question 13. In the circuit shown in Fig. 14.25**



- (i) Would any of the bulb glow when the switch is in the 'OFF' position?
- (ii) What will be the order in which the bulbs A, B and C will glow when the switch is moved to the 'ON' position?

**Solution 13.**

- i) No, the bulb will not glow as the circuit is incomplete when the switch is off.
- ii) If the switch is On, all the bulbs will glow simultaneously.