

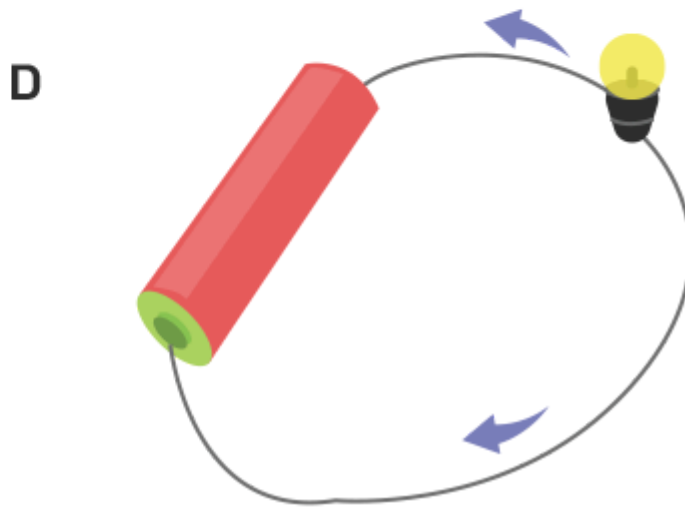
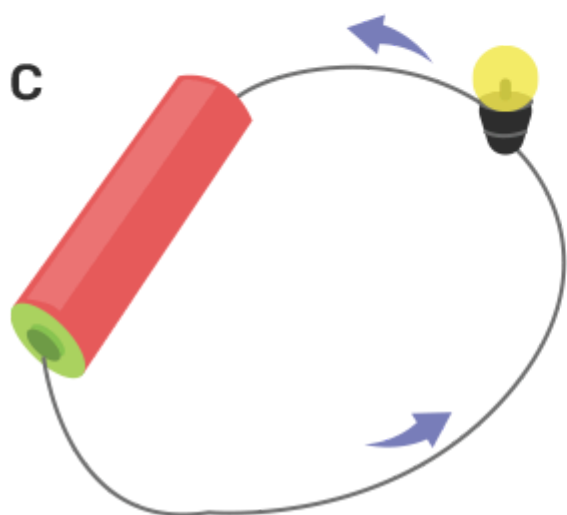
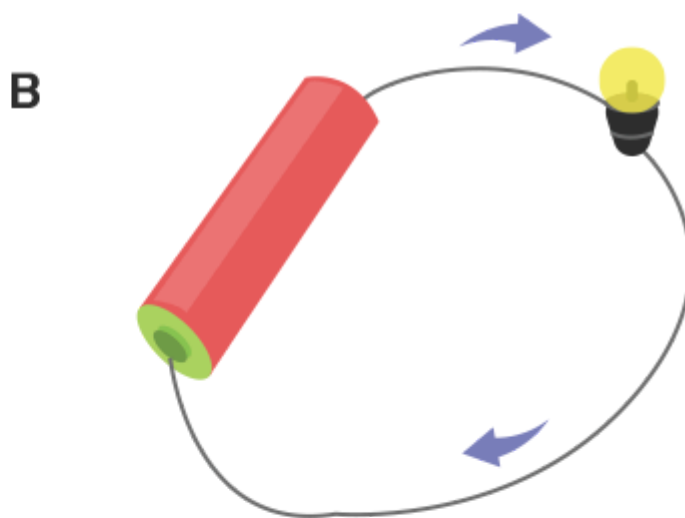
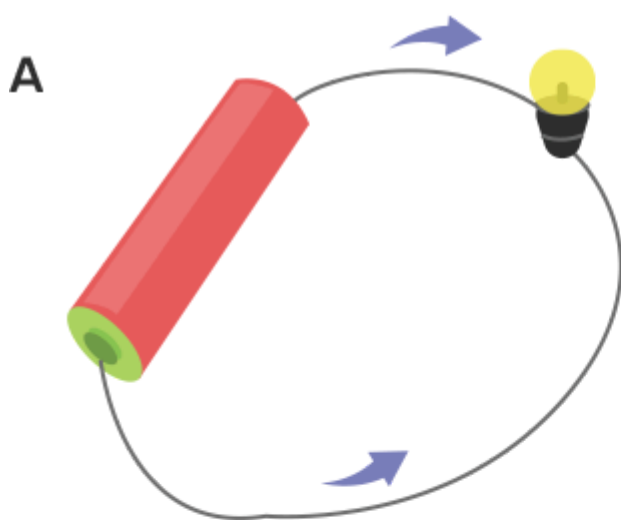
Chapter 12: Electricity and Circuits

NCERT Exemplar · Class 6 · Science

Multiple Choice Questions

Question 1

Choose from the options a, b, c and d given in Fig. 12.1, the figure which shows the correct direction of the current.



Solution

Ans: The correct answer is option (b).

In an electric circuit, current flow is measured from the positive terminal to the negative terminal of the electric cell.

Question 2

Choose the incorrect statement.

A.

A switch is the source of electric current in a circuit.

B.

A switch helps to complete or break the circuit.

C.

A switch helps us to use electricity as per our requirement.

D.

When the switch is open, there is an air gap between its terminals.

Answer

Correct option: A

Solution

Ans: The correct answer is option (a). In a circuit, the source of the electric current is a switch.

Question 3

In an electric bulb, light is produced due to the glowing of

A.

The glass case of the bulb.

B.

The thin filament.

C.

The thick wires supporting the filament.

D.

Gases inside the glass case of the bulb.

Answer

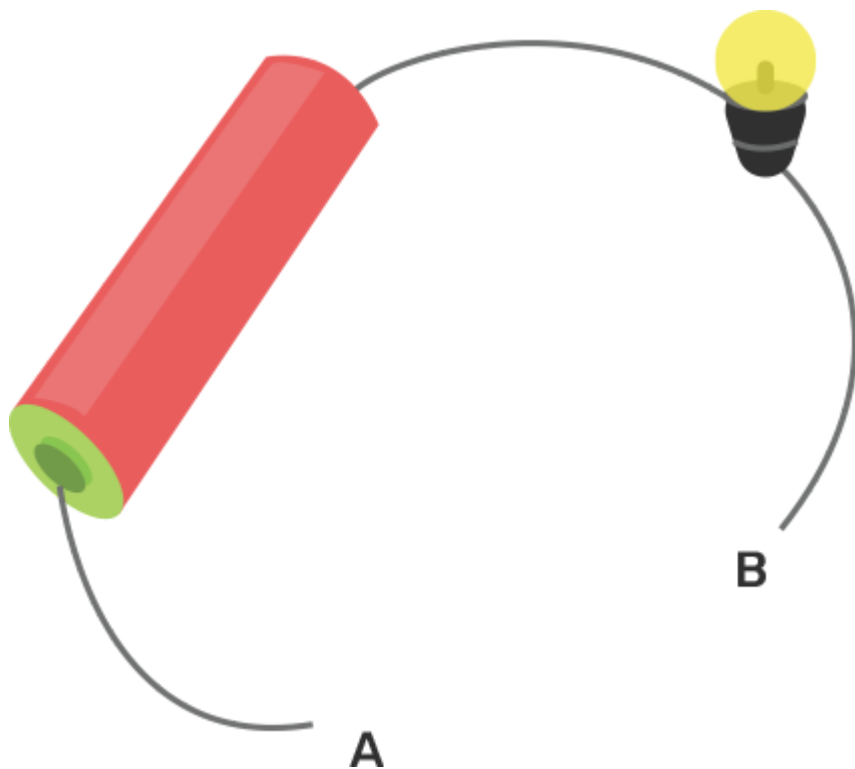
Correct option: B

Solution

Ans: The correct answer is option (b) the thin filament. There is a thin filament present inside a bulb that glows and produces light.

Question 4

In the following arrangement shown in Fig. 12.2, the bulb will not glow if the ends A and B are connected with



A.

A steel spoon

B.

A metal clip

C.

A plastic clip

D.

A copper wire

Answer

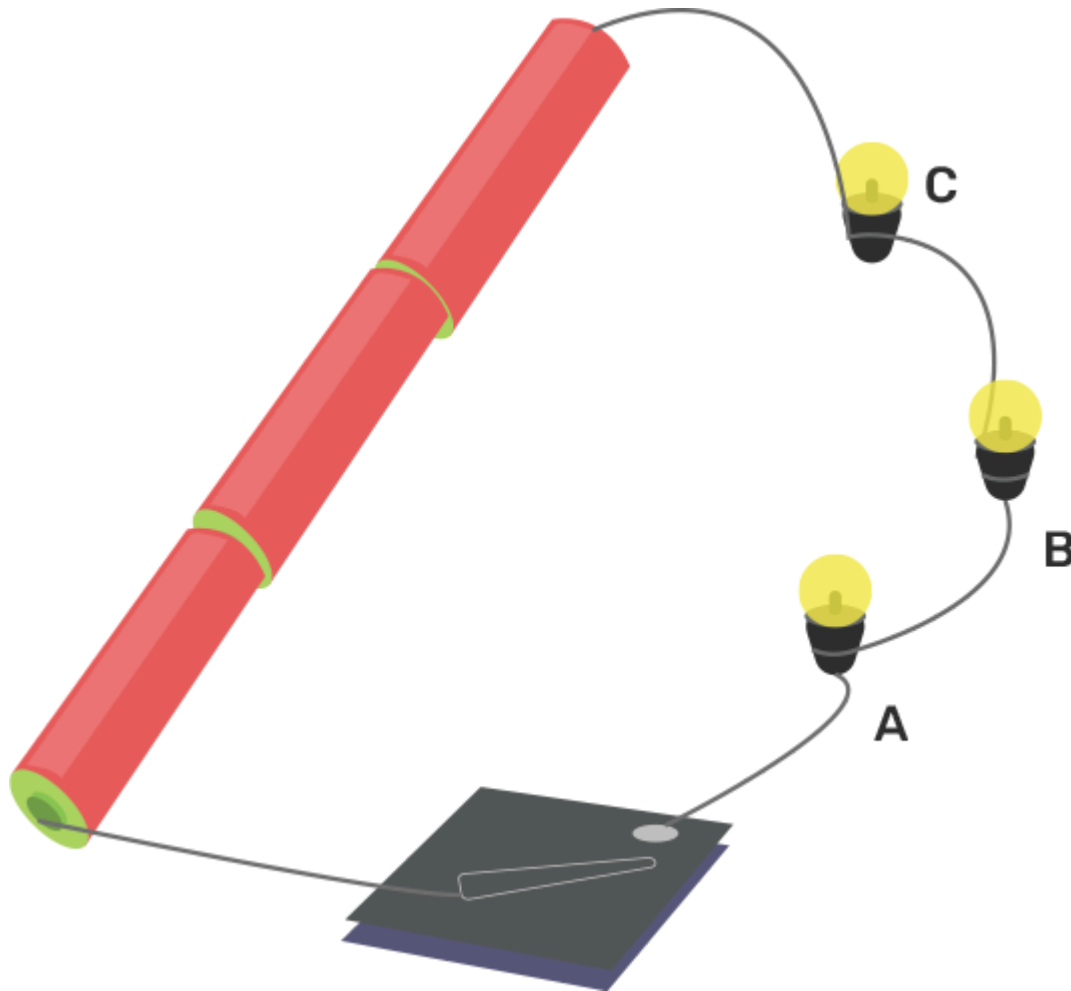
Correct option: C

Solution

Ans: The correct answer is option (c) a plastic clip. Plastic is an insulator because it is a bad conductor of electricity.

Question 5

In the circuit shown in Fig. 12.3, when the switch is moved to 'ON' position,



A.

the bulb A will glow first.

B.

bulb B will glow first.

C.

The bulb C will glow first.

D.

All bulbs will glow together.

Solution

Ans: The correct answer is an option (d) all bulbs will glow together. As soon as the circuit is finished, the current will be discovered at every place in it.

Question 6

Filament of a torch bulb is

A.

A metal case.

B.

Metal tip at the centre of the base.

C.

Two thick wires.

D.

A thin wire.

Answer

Correct option: D

Solution

Ans: The correct answer is option (d), a thin wire. The filament of the bulb is made of a thin wire made from tungsten.

Question 7

Paheli is running short of connecting wires. To complete an electric circuit, she may use a

A.

Glass bangle

B.

Thick thread

C.

Rubber pipe

D.

Steel spoon

Answer

Correct option: D

Solution

Ans: The correct answer is option (d) Steel spoon. Steel is an excellent electrical conductor.

Very Short Answer Questions**Question 8**

In which of the following circuits A, B, and C given in Fig. 12.4, will the cell be used up very rapidly?

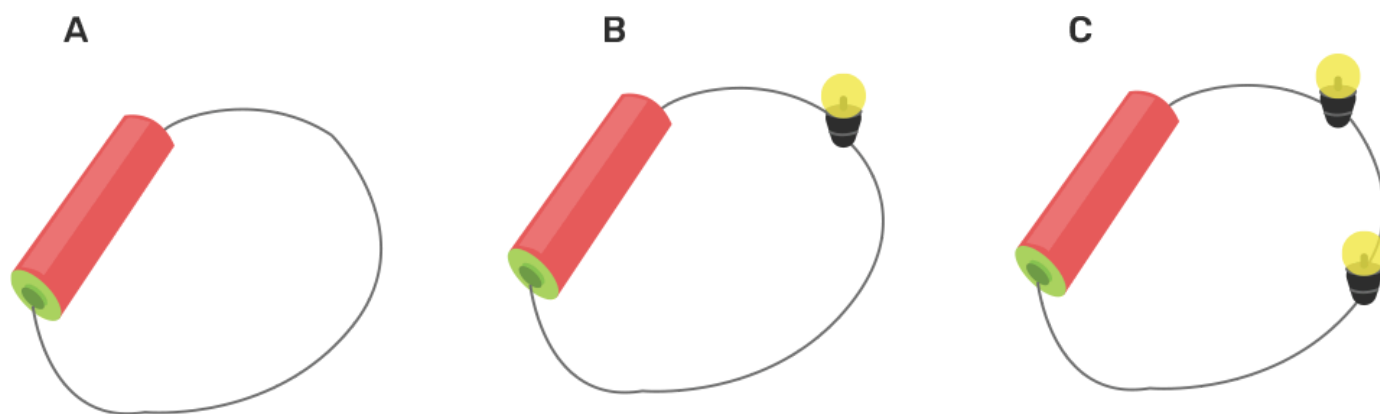


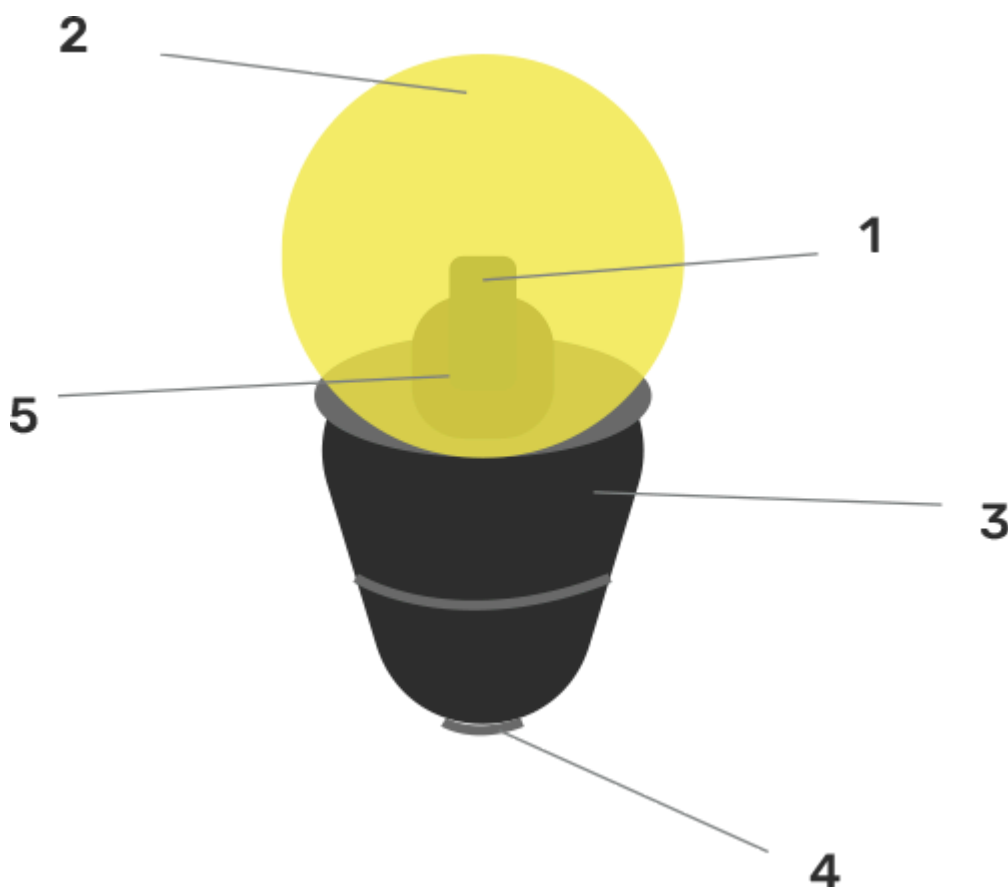
Fig. 12.4

Solution

Ans: The cell will get used up pretty quickly in circuit A.

Question 9

Fig. 12.5 shows a bulb with its different parts marked as 1, 2, 3, 4 and 5. Which of them label the terminals of the bulb?



Solution

Ans: Label 3 and label 4 are the endpoints in the supplied bulb. A terminal is the component of the bulb via which power is delivered to the filament.

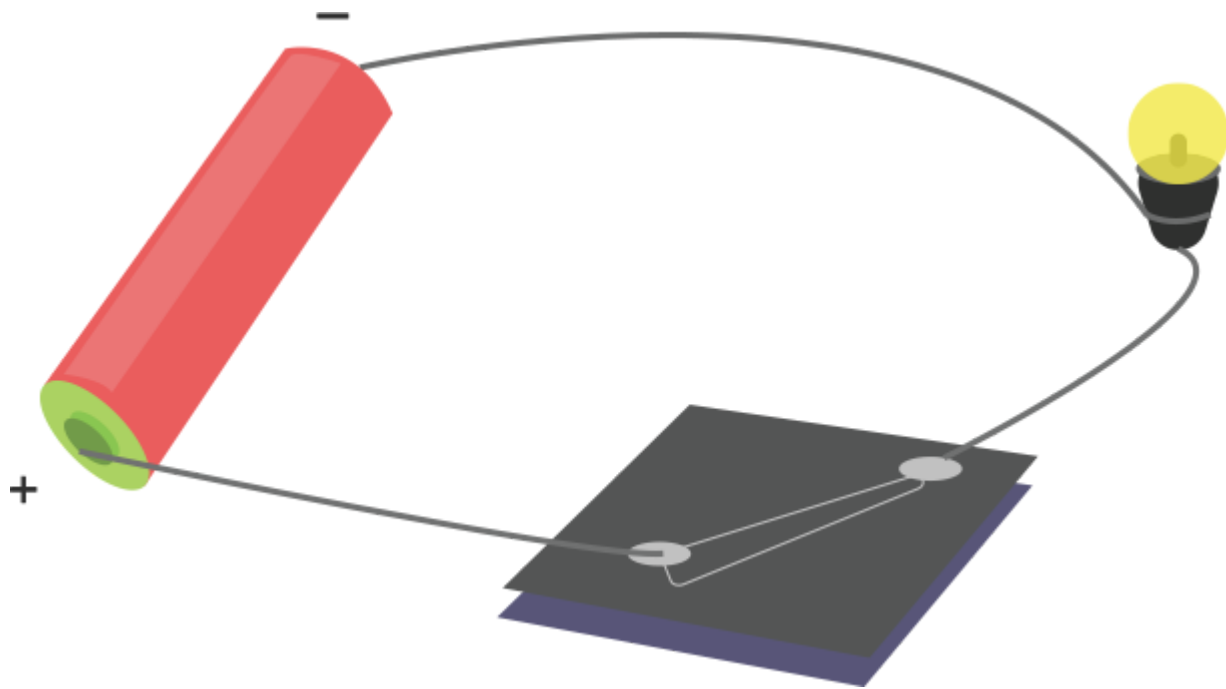
Short Answer Questions

Question 10

You are provided with a bulb, a cell, a switch and some connecting wires. Draw a diagram to show the connections between them to make the bulb glow.

Solution

Ans: The circuit diagram prepared will be as follows:



Question 11

Will the bulb glow in the circuit shown in Fig. 12.6? Explain.

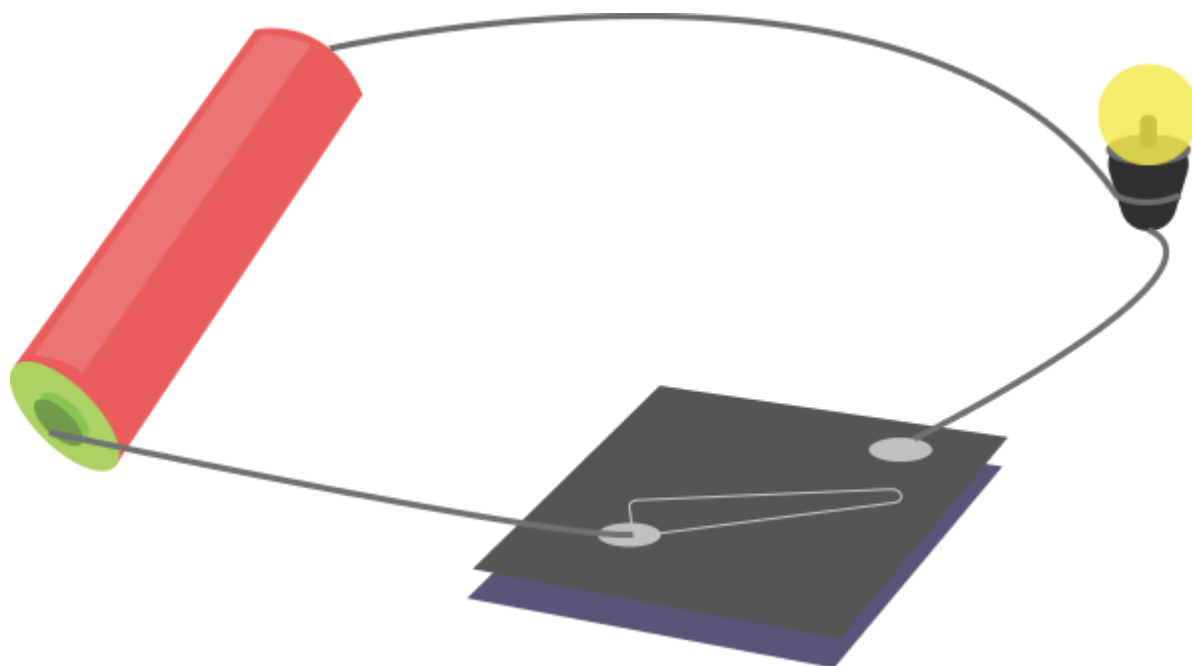


Fig. 12.6

Solution

Ans: Since the switch is open, the bulb will not light, indicating that the circuit is disconnected.

Question 12

An electric bulb is connected to a cell through a switch as shown in Fig. 12.7. When the switch is brought in 'ON' position, the bulb does not glow. What could be the possible reason/s for it? Mention any two of them.

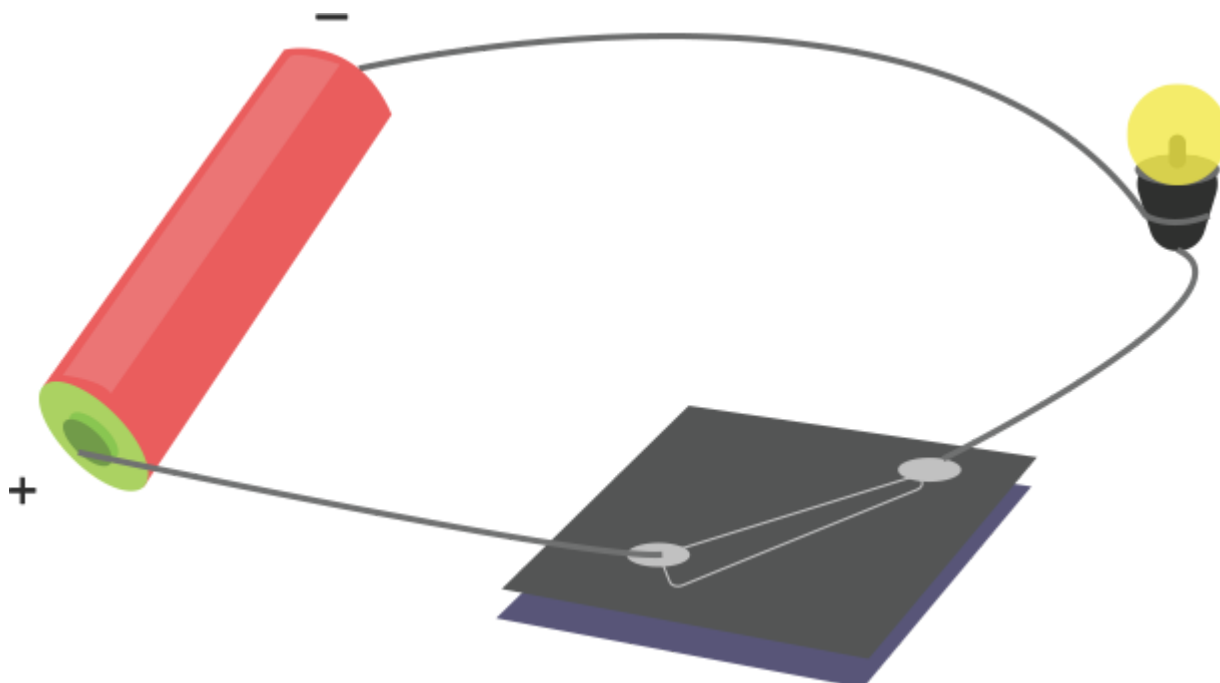


Fig. 12.7

Solution

Ans: There might be a variety of causes for this:

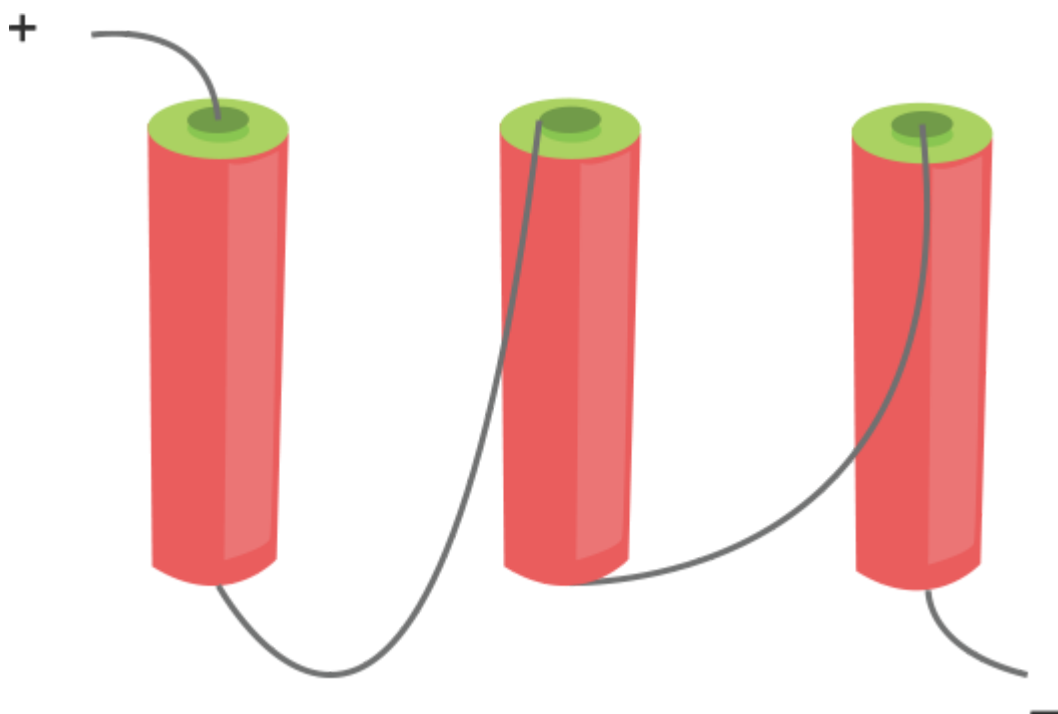
- i. The cell is used.
- ii. The bulb has blown out.
- iii. Interconnections that aren't secure.
- iv. A breakage in one of the connecting wires.

Question 13

A torch requires three cells. Show the arrangement of the cells, with a diagram, inside the torch so that the bulb glows.

Solution

Ans: The bulb will be connected to the positive and negative terminals. The arrangement of the cells will be as follows:



Question 14

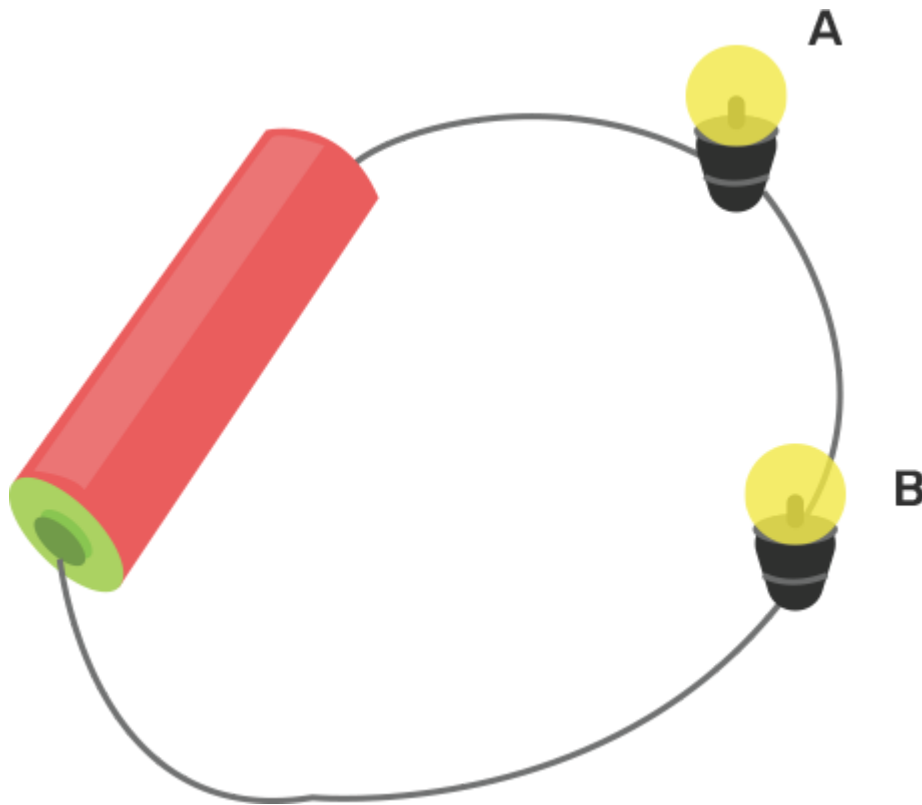
When the chemicals in the electric cell are used up, the electric cell stops producing electricity. The electric cell is then replaced with a new one. In rechargeable batteries (such as the type used in mobile phones, cameras and inverters), they are used repeatedly. How?

Solution

Ans: Secondary cells or storage cells can replenish rechargeable batteries by delivering current.

Question 15

Paheli connected two bulbs to a cell, as shown in Fig. 12.8. She found that the filament of bulb B was broken. Will bulb A glow in this circuit? Give a reason.

**Solution**

Ans: The bulb will not glow as the filament is broken, which makes the circuit incomplete.

Question 16

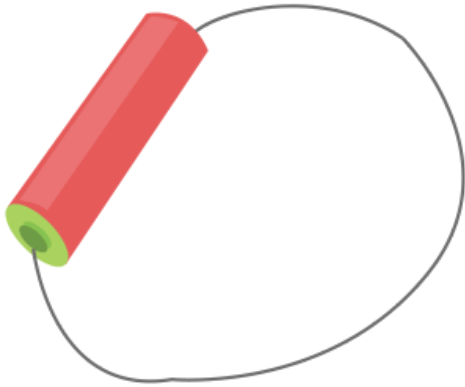
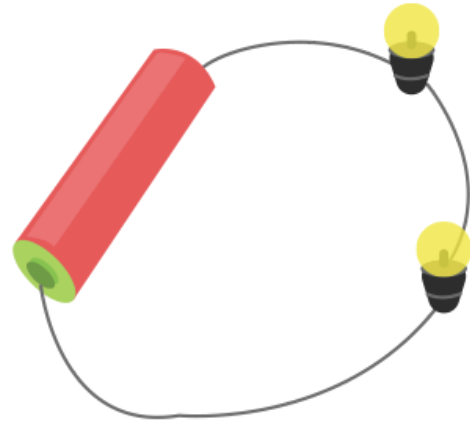
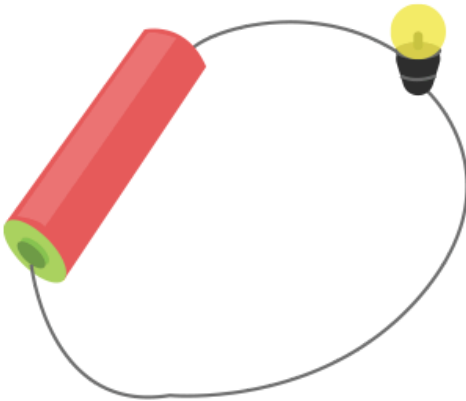
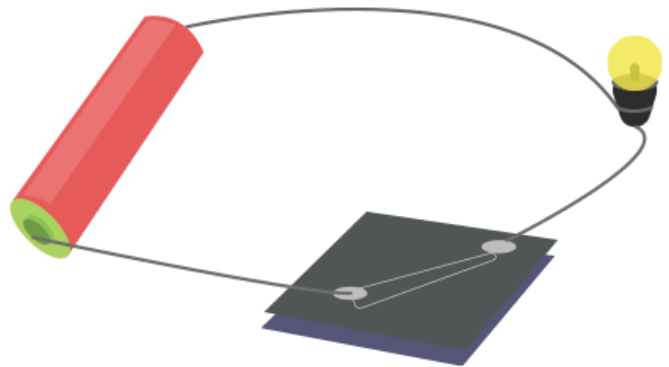
Why do bulbs have two terminals?

Solution

Ans: In a bulb, the filament is a small thin wire attached to two terminals inside the circuit to allow electricity to flow through it.

Question 17

Which of the following arrangements, A, B, C and D given in Fig. 12.9, should not be set up? Explain why.

A**B****C****D****Solution**

Ans: Because Circuit A is an incomplete circuit, it is improper. The current will travel from the cell's negative terminal to the positive terminal, using all power and leaving no output.

Question 18

A fused bulb does not glow. Why?

Solution

Ans: When a bulb's filament is broken, the bulb is said to have been fused, which means it won't light up because the filament is the bulb's major source of light. The circuit is not complete since the filament is damaged, and the bulb can not light.

Question 19

Paheli wanted to glow a torch bulb using a cell. She could not get connecting wires, instead, she got two strips of aluminium foil. Will she succeed? Explain, how?

Solution

Ans: Aluminium is a metal that conducts electricity well. Yes, the aluminium foils will serve as connecting wires, attaching one strip to the bulb's negative terminal and the other to the bulb's positive terminal.

Long Answer Questions

Question 20

Boojho has a cell and a single piece of connecting wire. Without cutting the wire in two, will he be able to make the bulb glow? Explain with the help of a circuit diagram.

Solution

Ans: With the suggested configuration, he will be able to light the bulb. He can connect one of the bulb's terminals straight to the electric cell's negative terminal. As a result, he won't require any additional cable for our electric circuit. The diagram depicts the needed setup:

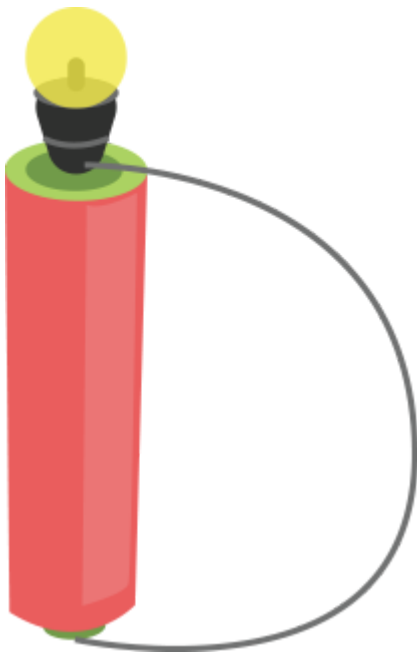
**Question 21**

Fig. 12.10 A and B show a bulb connected to a cell in two different ways.

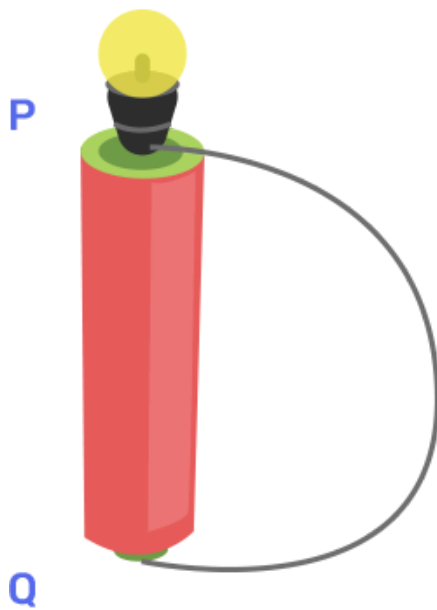
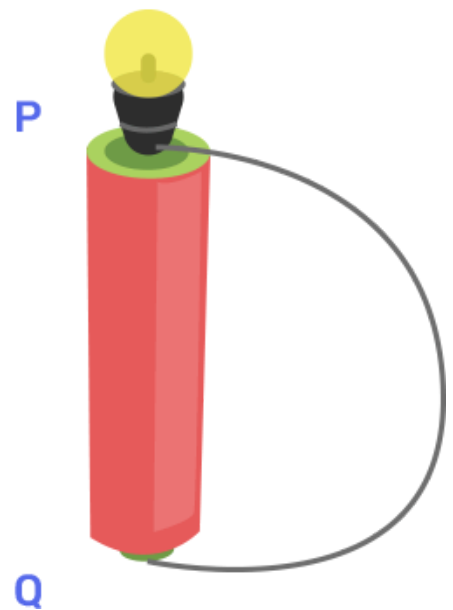
A**B**

Fig. 12.10

(i) What will be the direction of the current through the bulb in both cases? (Q to P or P to Q)

(ii) Will the bulb glow in both cases?

(iii) Does the brightness of the glowing bulb depend on the direction of current through it?

Solution

Ans: Current always flows from a battery's positive terminal to its negative terminal throughout the circuit. In the example of current flow from Q to P, current will flow from the positive terminal Q to the negative terminal P. Whereas, in the case of P to Q; current will flow from the negative terminal P to the positive terminal Q.

Ans: Because the current is flowing in both circumstances, the bulb will light up.

Ans: Whether the bulb glows brighter or duller depends on the circuit's quantity of current and voltage. The direction of the current flow has no impact on it.

Question 22

Think of six activities that use electric current. Also, name the devices used to perform the activity in tabular form. One example has been done for you:

Activity you perform	Device
Example- Get light	Torch
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Solution

Ans:

Activity you perform	Device
Example- Get light	Torch
Prepare an icecream	Refrigerator
Watch movies	Television
Listening songs	Radio
Talk to someone far	Telephone
Ironing clothes	Electric Iron

Question 23

A torch is not functioning, though contact points in the torch are in working condition. What can be the possible reasons for this? Mention any three.

Solution

Ans: The reason for the faulty functioning of the torch can be:

- The cells may be disorganised.
- The filament of the bulb might be fractured, causing the bulb not to ignite.
- The cells may be depleted.
- The switch is defective.

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