SCIENCE

STD VI

ELECTRIC CIRCUITS

1. What is an electric current?

A1.*The flow of positive charge in a circuit is called electric current.

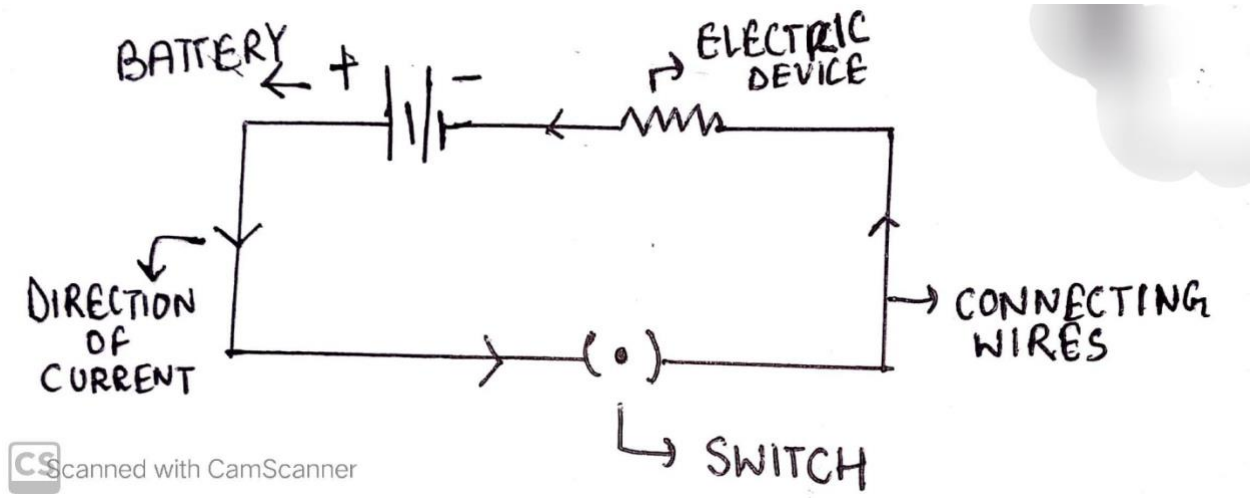
*It flows from positive terminal to the negative terminal in a closed circuit.

*The direction of the arrows shows the direction of the current.

Q2. What is an electric circuit? Draw the symbols that represent an electric circuit.

A2. The path along which electric current flows is known as electric circuit.

* It consists of connecting wires ,battery or cells, electric devices and a switch.



*The symbols that represent an electric circuit-

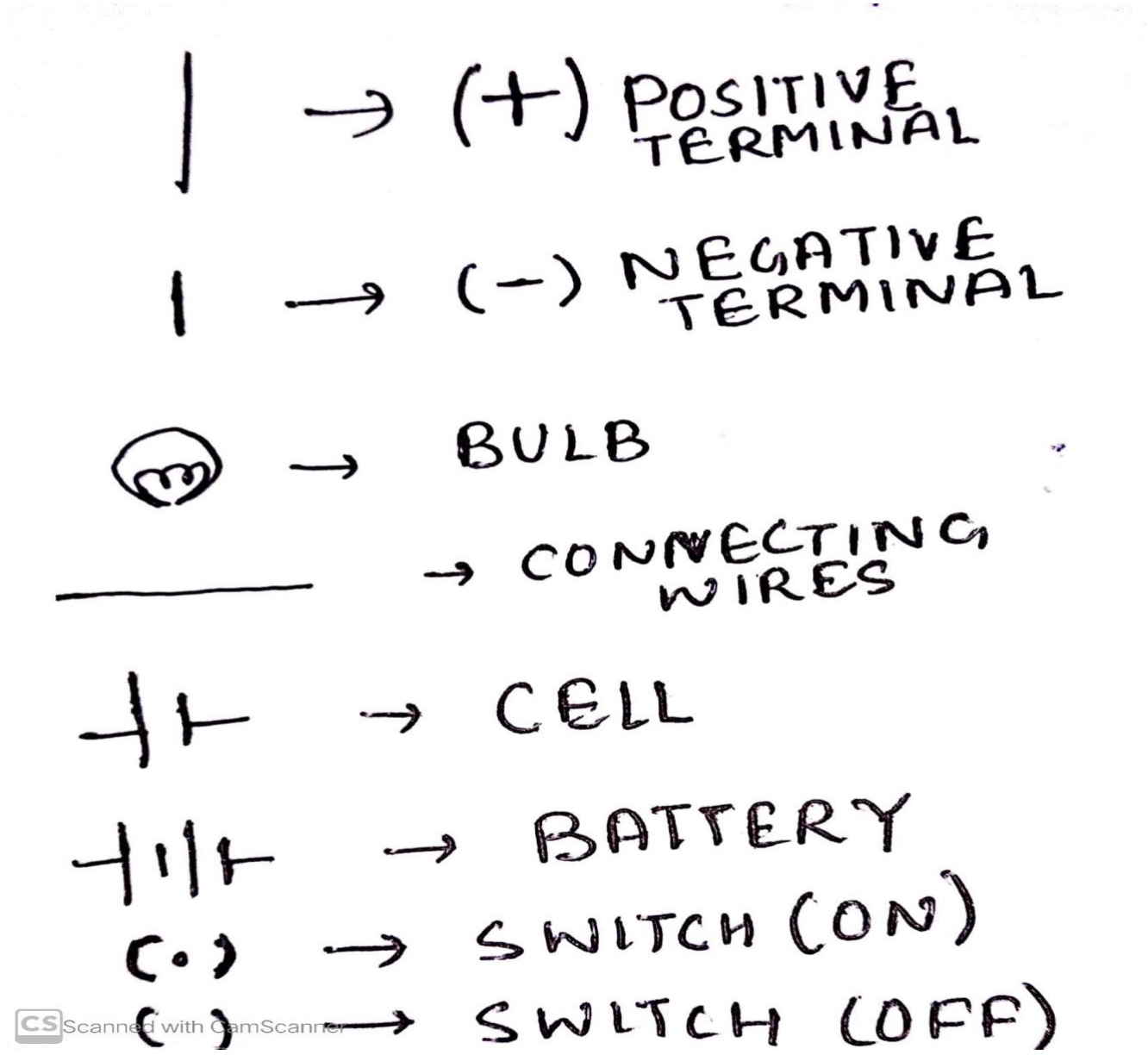
Battery.

Electrical devices/Bulb

Connecting wire

Switch (on)

Switch (off)



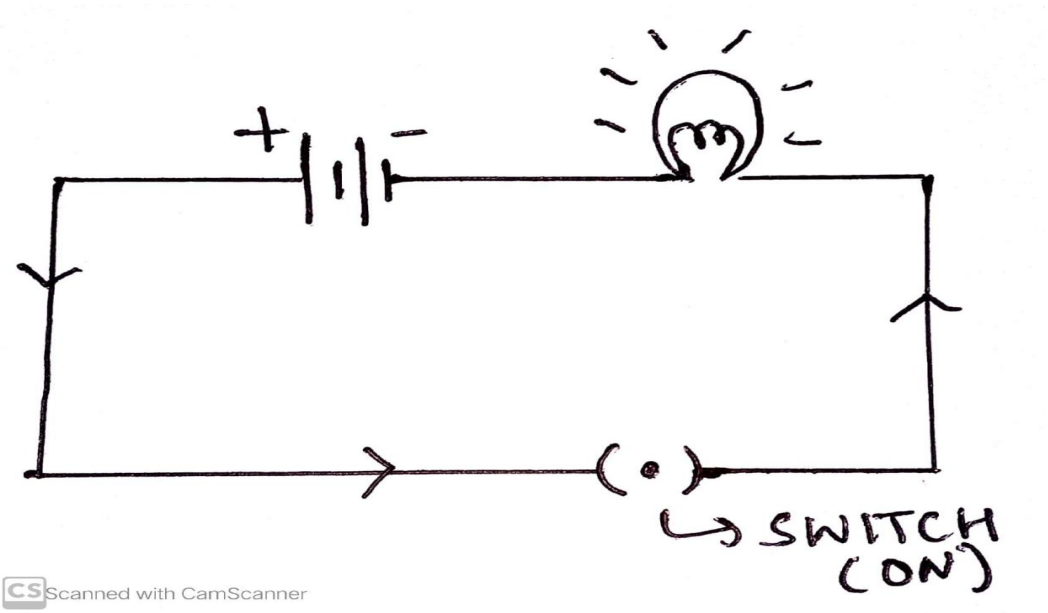
Q3. Nothing happens if you touch a cell but you can get a bad shock if you touch an electrical socket. Why?

A3. This is so because cells supply a very small amount of electrical energy as they have 1.5 volts, while an electrical socket has 220 volts ,so they supply a huge amount of electrical energy and can give us a nasty shock.

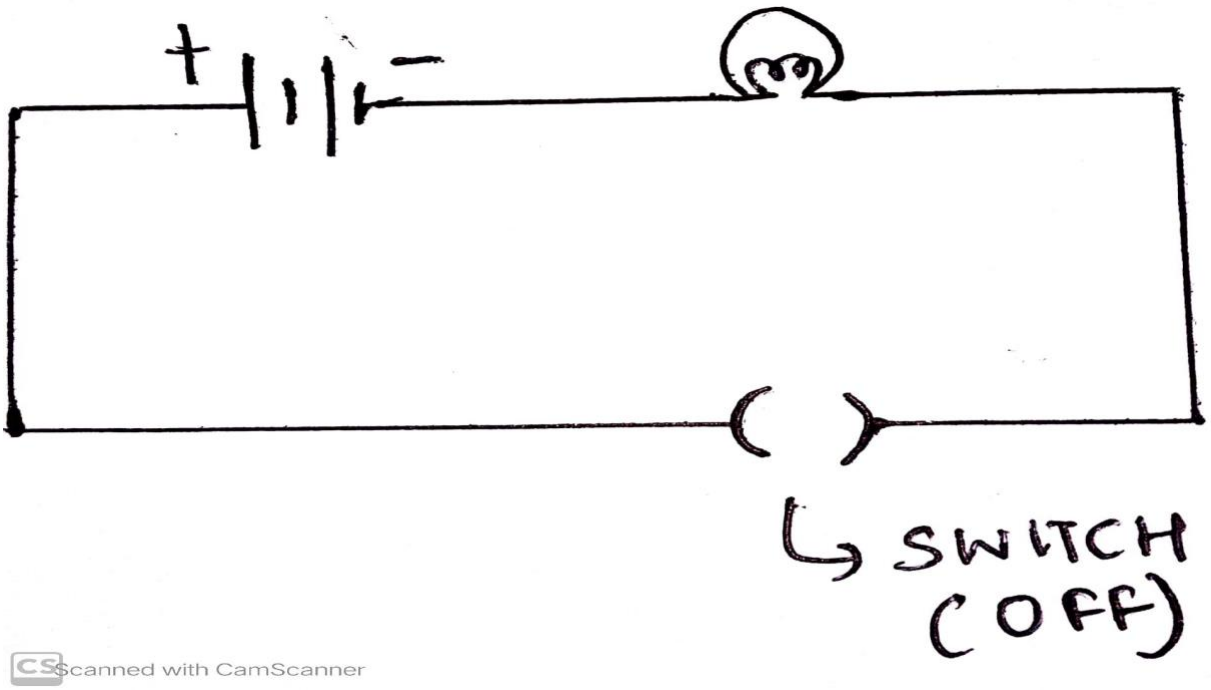
Q4. What is a switch?

A4. A switch is a device used for breaking and closing a circuit.

*When the switch is ON, it is represented by (.) and the circuit is closed with current is flowing through it.



*When the switch is OFF, the circuit breaks and it is represented by ( ) and no current flows through the circuit.



Q5. What are conductors and insulators? Give some examples.

A5. Materials that allow current to pass through them ,are known as conductors. Eg. Silver (Ag), Copper (Cu), Graphite and tap water.

*The materials that do not allow current to pass through them, are called as insulators. Eg. Plastic, paper, wood.

Q6. Describe a cell from outside.

A6*A dry cell is cylindrical in shape.

*It has a metal case made up of zinc.

*The metal cap at the top is positive terminal while the broad base is the negative terminal.

*A normal dry cell gives 1.5 volts.

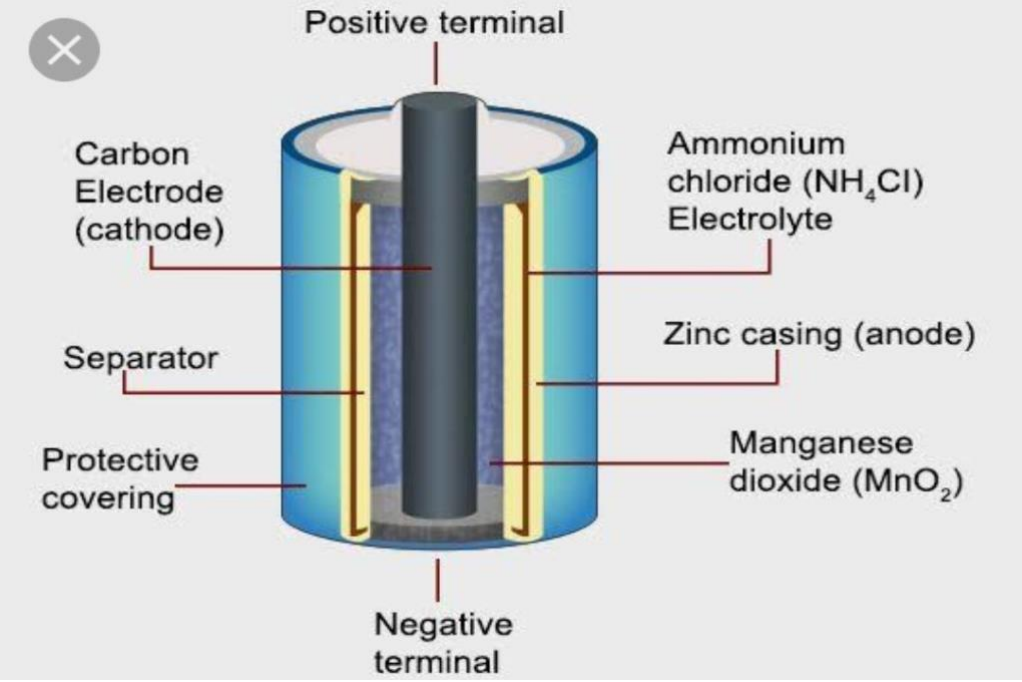
AN ELECTRIC CELL

Q7. What is inside a cell? What is its significance?

A7. *Inside the metal container, there is a carbon rod and a dark grey paste of chemicals around it.

*The paste consists of NH4Cl (Ammonium Chloride) and MnO2 (Manganese dioxide).

*A reaction between the paste and the zinc cover or the metal case sets up an electric current.



Q8. How would you test whether or not a common household appliance conducts electricity?

A8. *We can use a tester to see if a common household appliance conducts electricity or not.

*If the tester glows, on being connected to the appliance,then it is conducting electricity.

*If the tester does not glow ,then the appliance is not conducting electricity at that moment.

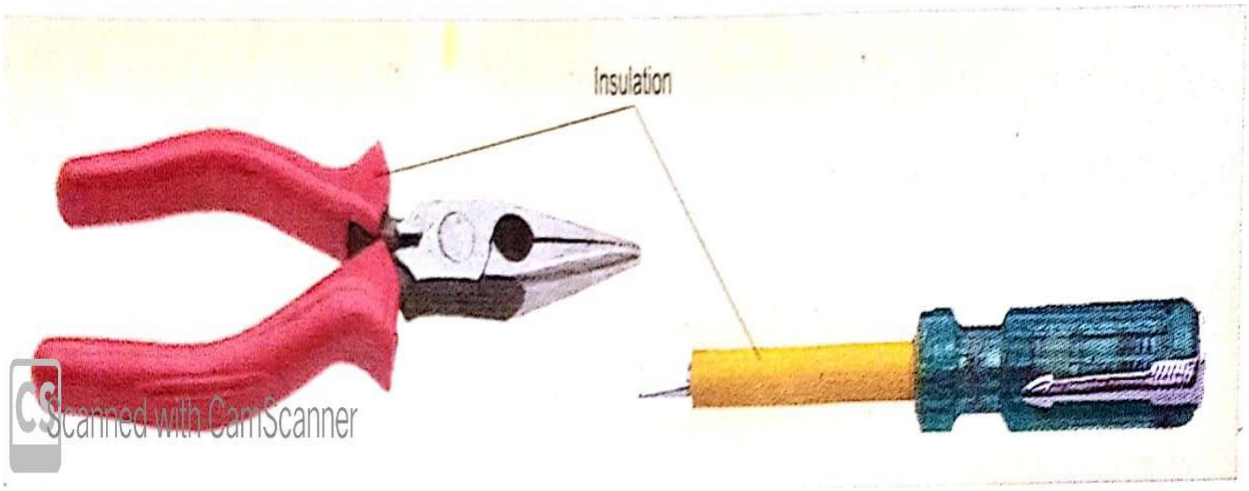
Q9. Explain the importance of insulators.

A9. Insulators are very useful in the following ways-

*To make electrical switches so that we do not get electric shock , while switching the circuit on or off.

*Electric wires have insulation cover that prevents short circuit.

*The handles of the instruments such as line testers, screw drivers,pliers used by an electrician are covered by insulating pmaterials.



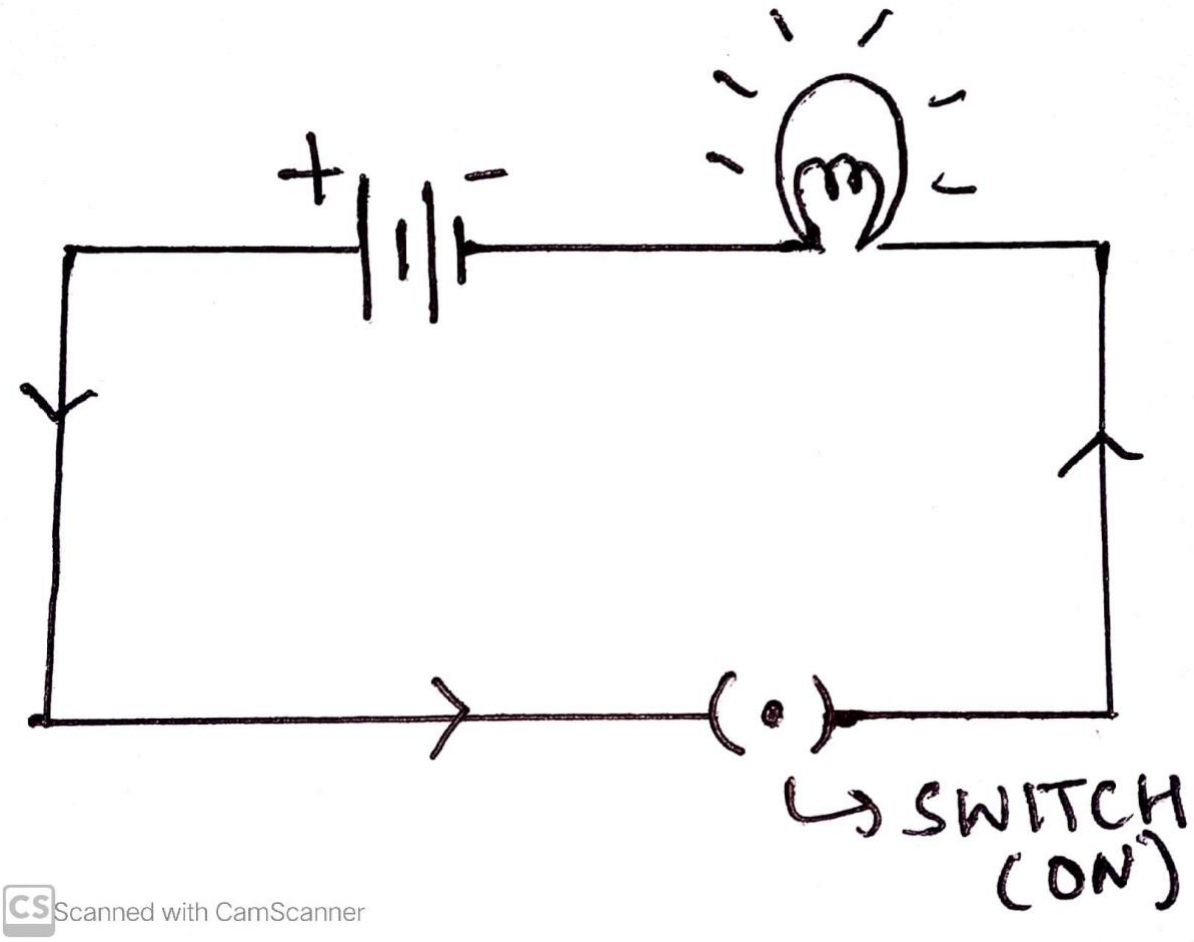
Q10. Explain the conditions under which a bulb glows when it is connected by wires to a cell.

A10. The conditions under which a bulb glows when connected to a cell are-

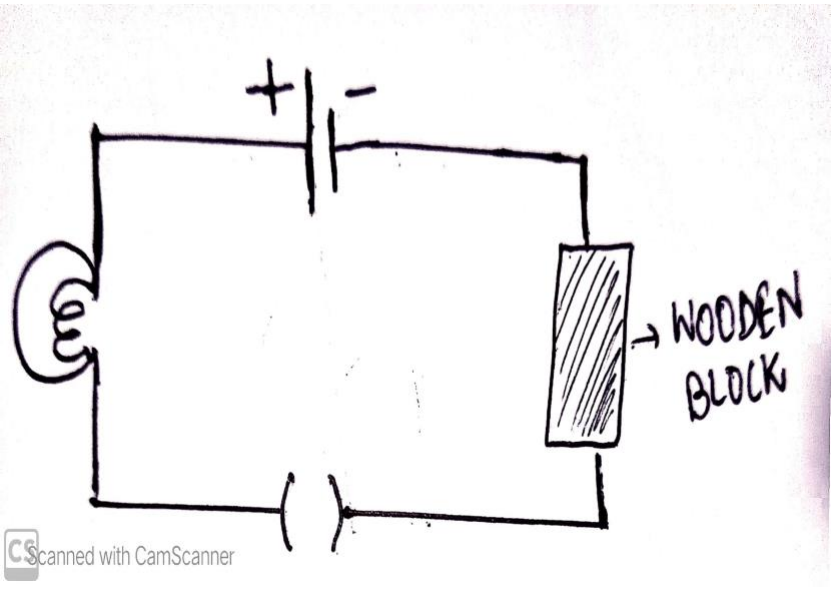
*The circuit should be complete.

*The switch should be ON.

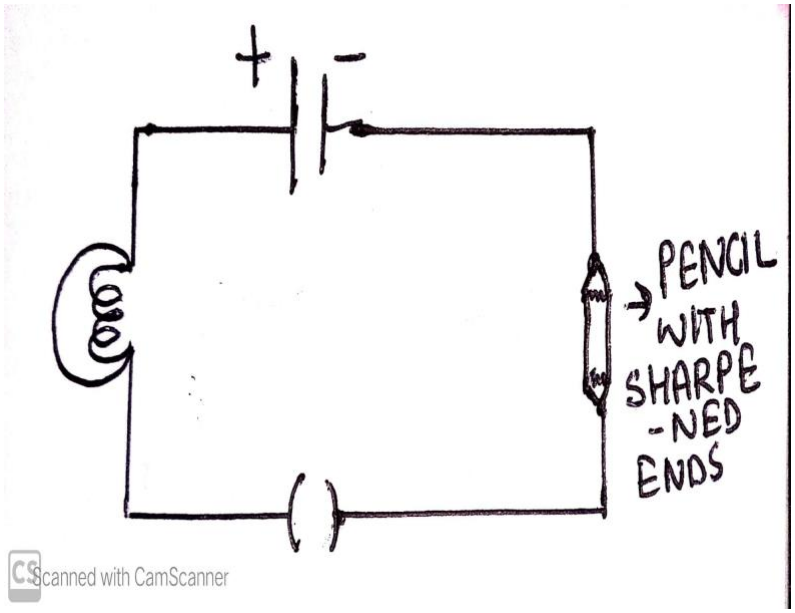
*The bulb should not be fused.



Q11. On closing the circuit, in which of the given circuits ,the bulb will glow?



(A)



(B)

A11.*The bulb will glow in circuit (B) because both terminals of the battery are connected to the sharpened ends of the pencil, that contains graphite.

*As graphite is a good conductor of electricity, it would allow electric current to pass and thus the bulb would glow.

*While in circuit (A), the terminals are connected to a wooden object, wood being an

insulator does not allow any current to pass through , and the bulb will not glow.