

SCIENCE

CHAPTER-12 ELECTRICITY AND CIRCUITS

Exercises

Question 1:

Fill in the blanks:

- (a) A device that is used to break an electric circuit is called _____.
- (b) An electric cell has _____ terminals.

Answer 1:

- (a) A device that is used to break an electric circuit is called **switch**.
- (b) An electric cell has **two** terminals.

Question 2:

Mark 'True' or 'False' for following statements:

- (a) Electric current can flow through metals.
- (b) Instead of metal wires, a jute string can be used to make a circuit.
- (c) Electric current can pass through a sheet of thermo Col.

Answer 2:

- (a) Electric current can flow through metals. (True)
- (b) Instead of metal wires, a jute string can be used to make a circuit. (False)
- (c) Electric current can pass through a sheet of thermo Col. (False)

Question 3:

Explain why the bulb would not glow in the arrangement shown in Fig. 12.13.



Fig. 12.13

Answer 3:

The handle of screw is made up of insulator, which does allow to current to flow. That is why the bulb is not glowing.

Question 4:

Complete the drawing shown in Fig 12.14 to indicate where the free ends of the two wires should be joined to make the bulb glow.



Fig. 12.14

Answer 4:



Question 5:

What is the purpose of using an electric switch? Name some electrical gadgets that have switches built into them.

Answer 5:

A switch is a simple device that either breaks the circuit or completes it. The switches used in lighting of electric bulbs and other devices in homes work on the same principle. In radio, TV, mobiles, torch and electric toys have in built switches.

Question 6:

Would the bulb glow after completing the circuit shown in Fig. 12.14 if instead of safety pin we use an eraser?



Fig. 12.14

Answer 6:

Eraser is insulator, so circuit will not complete. As a result the bulb will not glow.

Question 7:

Would the bulb glow in the circuit shown in Fig. 12.15?



Fig. 12.15

Answer 7:

Both the wire are connected to only one terminal of the bulb, so current will not flow through the bulb and it would not glow. We should make a correction as follows:



Question 8:

Using the "conduction tester" on an object it was found that the bulb begins to glow. Is that object a conductor or an insulator? Explain.

Answer 8:

Since the object allows current to flow and completes the circuit and makes bulb to glow. It means the object is a conductor of electricity.

Question 9:

Why should an electrician use rubber gloves while repairing an electric switch at your home? Explain.

Answer 9:

Electricians frequently touch copper wires or they may accidentally come in contact with live wires (wires carrying current). Since human body is a good conductor, electricians may get shock. Rubber is an insulator. To prevent themselves from electric shock or flow of current, the electricians use rubber gloves while repairing.

Question 10:

The handles of the tools like screwdrivers and pliers used by electricians for repair work usually have plastic or rubber covers on them. Can you explain why?

Answer 10:

Without the help of insulators, the use of electrical tools like pliers and screwdrivers will give electric shock to user. Wood and plastics are insulators and help in avoiding direct contact with electric current. When electricians touch these live electric wires with these tools covered with plastic or rubber, current does not flow in their body making safer them from any accident.

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