

**Class: VII**  
**Subject: Physics**  
**Topic: Electric current**  
**No. of Qs: 20**

Q 1. What happens when the bulb gets fused?

Sol: When the bulb gets fused, its filament breaks, the circuit breaks and it does not glow as the current stops flowing.

Q 2. Draw the symbols for the following:

(i) Switch in the OFF position

(ii) Connecting Wires

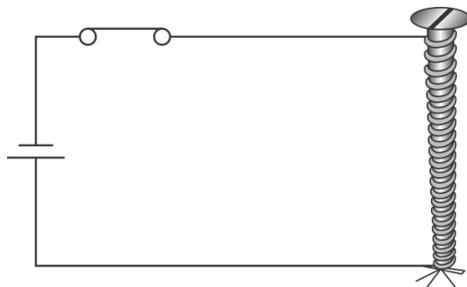
Sol: (i) Switch in the 'OFF' position:



(ii) Connecting wire:



Q 3. Identify the given figure. Why we should not switch on the current for more than few seconds through it?



Sol: The given figure is an electromagnet. We should not switch on the current for more than few seconds through an electromagnet because the electromagnet weakens the cell quickly if left connected.

Q 4. What do you observe if the electric bulb remains switch 'ON' for a long period?

Sol: The temperature of the electric bulb will be raised and it becomes hot.

Q 5. How a fuse wire prevents damages to electrical circuits and possible fires?

Sol: There is a maximum limit for the current to flow through the circuit. If accidentally, the current exceeds the safe limit, the wire may become overheated and may cause fire. In this case, the fuse wire blows off and breaks the circuit thus prevents the damages to electrical circuit.

Q 6. What is the characteristic of fuse wire?

Sol: Fuse wire should have low melting point and high resistance.

Q 7. What do you mean by an electromagnet?

Sol: Electromagnet is a temporary magnet which behaves like a magnet only when electric current flows through it. When the electric current is switched off it loses its magnetism.

Q 8. Why is it that same current flowing through the tungsten filament of an electric bulb produces enormous heat but almost negligible heat is produced in the connecting wires of the bulb?

Sol: This is because of the fact that the fine tungsten filament has a very high resistance whereas copper connecting wires have very low resistance.

Q 9. Give two advantages of electromagnets over permanent magnets.

Sol: 1. The magnetism of an electromagnet can be switched on or switched off as desired. This is not possible with a permanent magnet.

2. An electromagnet can be made very strong by increasing the number of turns in the coil, and by increasing the current passing through the coil. On the other hand, a permanent magnet cannot be made so strong.

Q 10. How can we say that the electric circuit is complete? What happens when the circuit is complete?

Sol: When the switch is in 'ON' position, the circuit from the positive terminal of the battery to the negative terminal is complete. The circuit is then said to be closed and the current flows throughout the circuit instantly.

Q 11. (a) Identify the given symbols.

(i)



(ii)



(b) How a fuse wire prevents damages to electrical circuits and possible fires?

Sol: (a) (i) Bulb  
(ii) Switch in 'ON' position

(b) There is a maximum limit for the current to flow through the circuit. If accidentally, the current exceeds the safe limit, the wire may become overheated and may cause fire. In this case, the fuse wire blows off and breaks the circuit thus prevents the damage to electrical circuit.

Q 12. Some electrical appliances have elements in them. How do you notice that they have become hot?

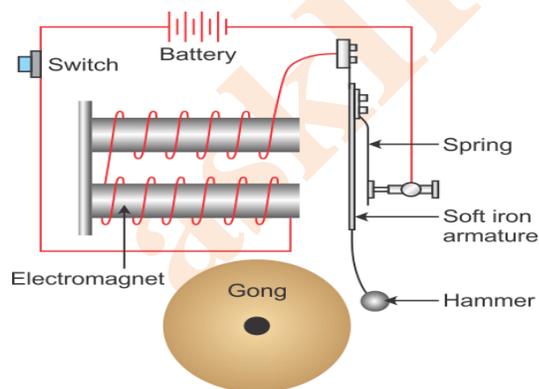
Sol: Some electrical appliances have elements in them. When they are switched on after connecting to the electric supply their elements becomes red hot and give out heat.

Q 13. Where can we place a key or a switch in an electric circuit?

Sol: A key or a switch can be placed anywhere in an electric circuit.

Q 14. Draw a diagram to show the circuit of an electrical bell.

Sol: **The circuit of an electrical bell.**



Q 15. What is a circuit diagram? What is its use?

Sol: A diagram which tells us how the various components in a circuit have been connected by using the electrical symbols of the components is called a circuit diagram. We usually represent an electric circuit by its circuit diagram because it is much easier to draw a circuit diagram by using symbols.

Q 16. What are the causes of short circuiting and overloading?

Sol. The short circuiting may occur due to the touching of live wire and neutral wire directly. Overloading may be due to the flow of excessive current when many devices are connected to a single socket.

Q 17. Identify the given symbols.

(i)



(ii)



Sol:

(i) Bulb

(ii) Switch in 'ON' position

Q 18. What is the function of needle in a magnetic compass?

Sol: The needle in a magnetic compass is a tiny magnet which points in the north-south direction.

Q 19. What is the magnetic effect of electric current?

Sol: When electric current passes through a wire, it behaves like a magnet. This is called magnetic effect of electric current.

Q 20. What happens when a large amount of current passes through a wire?

Sol: If large amount of current passes through a wire, the wire may become so hot that it may even melt and break.