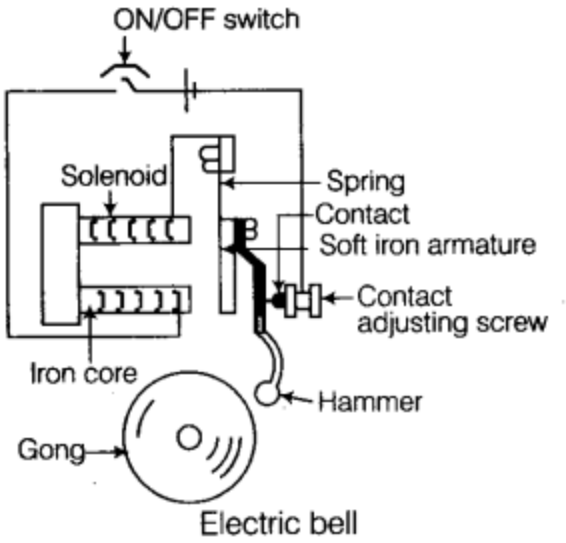
Board – CBSE	Class – 7	Topic – Electric Current and its Effects

1. How does the magnetic effect of electric current help in the working of an electric bell? Explain with the help of a diagram.

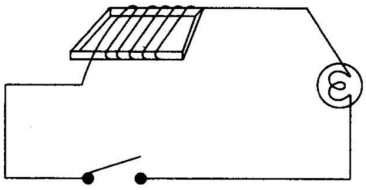
   Ans:

   As depicted in the diagram, when the switch is in the ON position, an electric current passes through the coil or solenoid. By the phenomenon of the magnetic effect of current, the coil or solenoid gets magnetised, attracting nearby soft iron armature, and the hammer strikes the gong to produce a sound.

   Thus, the electric bell starts ringing, and as soon as the switch is OFF, no current flows through the coil and its magnetisation stops. So, the bell stops ringing.



2. Will the compass needle show deflection when the switch in the circuit shown by fig. is closed?



Ans.

No, because there is no source of electric current in this circuit, i.e., there is no battery.

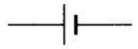
3. Draw in your notebook the symbols to represent the following components of electrical circuits: connecting wires, switch in the 'OFF' position, bulb, cell, switch in the 'ON' position and battery.

Ans.

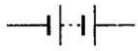
Connecting wires

Switch in 'on' position

Bulb 

Cell 

Switch in 'off' position 

Battery 

4. Which property of a conducting wire is utilised in making an electric fuse?

Ans:

Electric fuse wire is made from some special material that has a low melting point. Therefore, when a large electric current is passed through a circuit, it melts quickly, breaks the circuit, and prevents damage to the electrical circuit.

5. Name device used these days in place of electric fuses in electrical circuits.

Ans:

The device used these days in place of an electric fuse is MCB (Miniature Circuit Breaker). This is a switch that automatically turns off when the current in a circuit exceeds the safe limit.

6. Paheli does not have a night lamp in her room. She covered the bulb of her room with a towel in the night to get dim light. Has she taken the right step? Give one

reason to justify your answer.

Ans:

No, she has not taken the right step. Due to the excessive heat of the bulb, the towel may burn. It will also result in the wastage of electrical energy.

7. What is the magnetic effect of electric current?

   Ans:

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

8. Why are Compact Fluorescent Lamps (CFLs) preferred over electric bulbs?

   Ans:

   CFLs are preferred over electric bulbs because electric bulbs use more power of electricity and losses electrical energy in the form of heat. However, CFLs do not waste electrical energy as heat.

9. Why is an electric fuse required in all electrical appliances?

   Ans:

   All electrical appliances require an electric fuse to prevent damage from excessive current flow and during short circuits.

10. Can we use the same fuse in a geyser and a television? Explain.

    Ans:

    We cannot use the same fuse in a geyser and television because the fuse used in every appliance has some limit to withstand the current flowing through it. So, different appliances have fuses of different ratings.

11. Name two electric devices for each where
    (a) heating effect of current is used and
    (b) magnetic effect of current is used.

    Ans:
    (a) Heating effect of current is used in electric heater and geyser.
    (b) Magnetic effect of current is used in electric bells and cranes to lift heavy magnetic materials from one place to another.

12. What are the causes of short-circuiting and overloading?
    Ans
    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.

13. What is a circuit diagram? What is its use?
    Ans
    A diagram that 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 easier to draw a circuit diagram using symbols.

14. Some electrical appliances have elements in them. So how do you notice that they have become hot?
    Ans
    Some electrical appliances have elements in them. After connecting to the electric supply, their elements become red hot and give out heat when they are switched on.

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

Ans

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