ELECTRIC CURRENT AND EFFECTS -EXTRA QS

I. VERY SHORT ANSWER (1M):

1. Name the factors upon which the heat produced in a wire depends

2. What is a battery?

3. Why copper wire is not used to make the filament of bulbs?

5.4.. Name the device used these days in place of electric fuses in electrical circuits. Why is an electric fuse required in all electrical appliances?

6.What are the filaments of a bulb made up of?

7.Why are fuse wires not provided in an electric circuit containing an electric cell?

8.What are electromagnets?

9.Mention the name of the two devices that work based on of magnetic effects of current.

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

11. For question numbers 11 to 13, two statements are given- one labelled Assertion (A) and the other labelled Reason (R).

Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below

i) **Both A and R are true, and R is the correct explanation of the assertion.**

ii) **Both A and R are true, but R is not the correct explanation of the assertion.**

iii) **A is true but R is false.**

iv) **A is false but R is true**

12. **Assertion (A):** Fuse is a safety device that prevents damage to electrical circuits and possible fires.

Reason (R): The fuse wire blows off and breaks the circuit and preventing the fire and damage.

13. **Assertion (A):** Battery is a combination of two cells only.

Reason (R): The positive and negative terminals are generally marked on the cells.

14. **Assertion (A):** The heating up of a thin conducting wire on passing an electric current through it, is known as the heating effect of current.

Reason(R): Various electrical appliances that are based on the heating effect of current contain a coil of wire called an element.

II - PASSAGE BASED QUESTIONS:

An electric bell consists of a coil of wire wound on an iron piece. The coil acts as an electromagnet. An iron strip with a hammer at one end is kept close to the electromagnet. There is a contact screw near the iron strip. When the iron strip is in contact with the screw, the current flows through the coil which becomes an electromagnet. It, then pulls the iron strip. In the process, the hammer at the end of the strip strikes the gong of the bell to produce a sound. However, when the electromagnet pulls the iron strip, it also breaks the circuit. The current stops flowing through the coil.

i) Which of the following appliances have an iron strip, a hammer, a contact screw and a gong?

a) Electric bell b) Electric kettle c) Electric bulb d) Electric iron

ii) In an electric bell, which of these gets attracted to the electromagnet?

a) Hammer b) Soft iron strip c) Screw d) none of these.

iii) When electric current passes through a wire, it behaves like a magnet. This is the

a) Magnetic effect of current b) Electrical effect of current

c) Heating effect of current d) Optical effect of current

iv) Electric Bell works on the principle.

a) Electrical energy is converted into mechanical energy

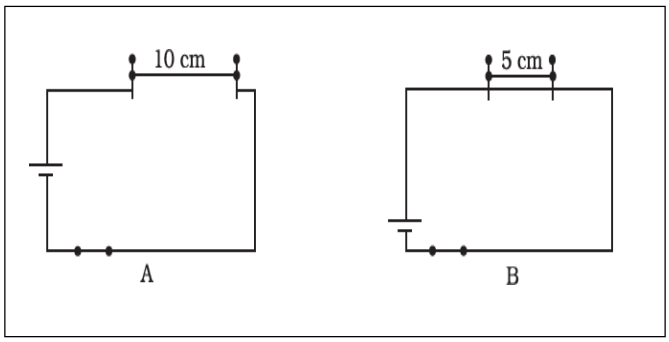
b)Electrical energy is converted into sound energy

c) Mechanical energy is converted into sound energy

d) Sound energy is converted into electrical energy

III. CASE STUDY-BASED QUESTIONS:

1.Paheli took a wire of length of 10 cm. Boojho took a wire of 5 cm of the same material and thickness. Both of them connected the wires as shown

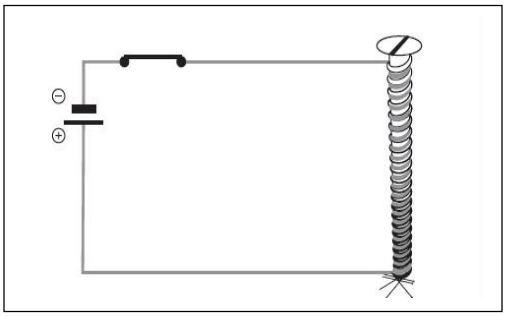


in the circuit given in the figure given below. The current flowing in both circuits is the same.

(i) Will the heat produced in both cases be equal? Explain.

(ii) Will, the heat produced be the same if the wires taken by them are of equal lengths but of different thicknesses Explain.

2. Rohan has wound a long-insulated piece of wire around an iron nail in the form of a coil. The free ends of the wire are connected to a cell through a switch. The current is switched on and some pins are placed near the ends of



the nail.

(i) Why does the nail attract the pins?

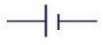
(ii) What will happen if we connect more cells in the circuit?

(iii) What will happen if we use some other material like a plastic straw in place of the nail?

IV .a) SHORT ANSWER TYPE QUESTIONS (2 M):

1. Why does the fuse wire a have low melting point?

2. Draw the circuit symbols for:

a) A cell  b)A battery of two cells 

c) An open switch 

d) a bulb 

3. Name two electric devices for each where-

(a) heating effect of current is used and

(b) magnetic effect of current is used

4. How can the strength of a magnetic field be increased?

5. Batteries used in tractors, trucks and inverters are also made from cells. Then why it is called a battery

6. 6.(a) Can we use the same fuse in a geyser and a television set? Explain.

(b) Why do we cover plug pinholes which are within the reach of children with cellotape or a plastic cover when not in use?

IV. b) SHORT ANSWER TYPE QUESTIONS (3 M):

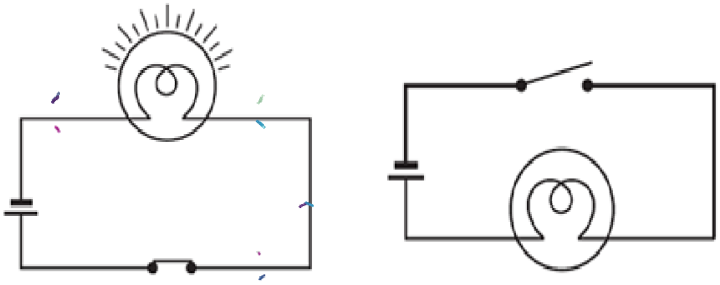
1.Explain how to make a simple electromagnet

2.What causes short-circuit

3.b. What causes overloading?

4.Boojho made an electromagnet by winding 50 turns of wire over an iron screw. Paheli also made an electromagnet by winding 100 turns over a similar iron screw. Which electromagnet will attract more pins? Give reason.

4.. Identify the types of circuits shown below and write the difference between them



A B

5. Differentiate between cells in series and cells in parallel

[LONG ANSWER TYPE QUESTIONS (5 M):

1.What are MCBs? Write the full form of it.

2. Briefly explain the construction and working of an electric bell with the help of a labelled diagram.

3. List five uses of electromagnets (Hint: The uses of electromagnets can be listed as follows: