# 4 Materials : Metals and Non-Metals

## Multiple Choice Questions

1. Which of the following is not a metal?
   (a) copper (c) aluminium
   (b) sulphur (d) iron

2. The substance that will be flattened on beating with a hammer is
   (a) crystal of iodine (c) piece of coal
   (b) lump of sulphur (d) zinc granule

3. Boojho has learnt that non-metals on beating with a hammer are generally broken into pieces. Which of the following is a non-metal?
   (a) iron nail (c) copper plate
   (b) aluminium wire (d) piece of coal

4. Materials which can be drawn into wires are called ductile. Which of the following is not a ductile material?
   (a) silver (c) sulphur
   (b) copper (d) aluminium

5. Metals are generally hard. Which of the following metals is an exception and can be cut with a knife?
   (a) iron (c) gold
   (b) sodium (d) magnesium

6. Metals are generally solid. Which of the following metals is in the liquid state at room temperature?
   (a) mercury (c) aluminium
   (b) silver (d) sodium

7. Metals generally react with dilute acids to produce hydrogen gas. Which one of the following metals does not react with dilute hydrochloric acid?
   (a) magnesium (c) iron
   (b) aluminium (d) copper

8. Which of the following reacts with cold water vigorously?
   (a) carbon (c) magnesium
   (b) sodium (d) sulphur

9. The metal which produces hydrogen gas on reaction with dilute hydrochloric acid as well as sodium hydroxide solution is
   (a) copper (c) aluminium
   (b) iron (d) sodium

10. Which of the following non-metals reacts and catches fire on exposure to air?
   (a) phosphorus (c) sulphur
   (b) nitrogen (d) hydrogen

11. Generally metallic oxides are basic and non-metallic oxides are acidic in nature. Solution of which of the following oxides in water will change the colour of blue litmus to red?
   (a) sulphur dioxide (c) iron oxide
   (b) magnesium oxide (d) copper oxide

12. Which of the following property is not responsible for copper to be used as electrical conduction wires?
   (a) ductility (c) good conductor of electricity
   (b) colour (d) it is solid

## VERY SHORT ANSWER QUESTIONS

13. Name two soft metals which can be cut with a knife.

14. Which non-metal is essential for our life and all living beings inhale it during breathing?

15. Name two major non-metals which are present in fertilisers and enhance the growth of plants.

16. Which non-metal is used to disinfect water?

17. A purple coloured non-metal forms a brown solution in alcohol which is applied on wounds as an antiseptic. Name the non-metal.

18. Zinc sulphate forms a colourless solution in water. Will you observe any colour on adding copper turning in it?

19. Why are bells made of metals?

20. Which liquid metal is used for making thermometers?

21. Which of the following metals can displace the other two metals from their salt solutions?

zinc, iron, copper

## SHORT ANSWER QUESTIONS

22. Paheli bought a statue made of copper. To her surprise it acquired a dull green coating after a couple of months. Explain the reason.

23. In Fig 4.1 you find that the bulb glows when an iron nail is placed between two ends of wire. Complete the following sentences on the bases of this fact.



Fig 4.1

(a) _____ is a metal.

(b) Metals are good _____ of electricity.

24. If in Fig. 4.1 iron nail is replaced by a wooden stick, will the bulb glow or not? Justify your answer.

25. Paheli prepared a blue coloured solution of copper sulphate in beaker A and placed an iron nail in it. Boojho prepared a yellowish green solution of ferrous sulphate in beaker B and placed a copper wire in it. What changes will they observe in the two beakers after an hour?

26. A doctor prescribed a tablet to a patient suffering from iron deficiency. The tablet does not look like iron. Explain.

27. Match the substances in **Column A** with their applications given in **Column B**.

| Column A (Substance) | Column B (Application) |
|---|---|
| (a) oxygen | (i) for making crackers |
| (b) copper | (ii) for disinfecting water |
| (c) sulphur | (iii) all living beings inhale during breathing |
| (d) iron | (iv) for making electric wires |
| (e) chlorine | (v) for making rails |

## LONG ANSWER QUESTIONS

28. Some of the following statements are incorrect. Find the incorrect statements and correct them.
    (a) The property of metals by virtue of which they can be drawn into wires is called ductility.
    (b) Metals are good conductor of electricity but poor conductor of heat.
    (c) Articles made of metals produce ringing sound when struck hard.
    (d) Oxides of non-metals and metals are acidic in nature.
    (e) A less reactive metal replaces a more reactive metal from its salt solution in water.

29. Iron is more reactive than copper. Can you write an activity to show this?

30. Fill in the blanks to complete the following paragraph.

    The name of the product formed in the reaction of sulphur and _____ is sulphur dioxide gas. When sulphur dioxide is dissolved in_____, sulphurous acid is formed. The sulphurous acid turns _____ litmus paper to _____. Generally oxides of _____ are acidic in nature.

    After completing the paragraph write two questions which you can raise on the basis of this information.

31. Find out the names of three metals and three non-metals from the box given as Fig 4.2.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| A | X | T | M | S | P | K | L | G |
| X | T | S | U | L | P | H | U | R |
| I | L | R | H | M | N | D | I | L |
| C | I | R | O | N | S | E | J | K |
| A | L | U | M | I | N | I | U | M |
| R | M | U | Q | T | R | S | T | U |
| B | N | P | C | O | P | P | E | R |
| O | X | Y | G | E | N | V | W | X |
| N | Y | Z | T | A | B | G | H | K |

Fig 4.2

32. Complete the crossword given in Fig. 4.3 with the help of the clues.

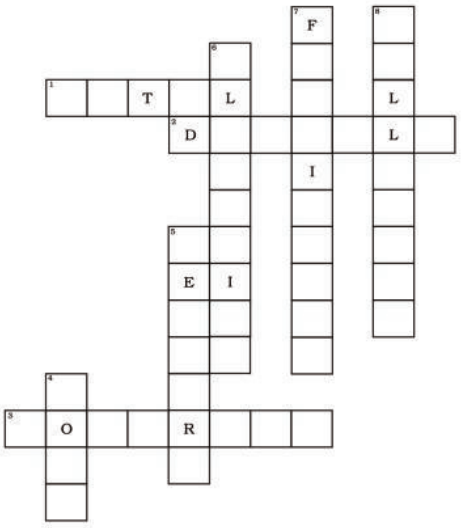



Fig 4.3

**Across**

1. Which is generally hard, ductile, malleable and sonorous.
2. A metal is called so it can be drawn into wires.
3. Metal bells are used because of this property.

**Down**

4. A metal generally used for making jewellery.
5. A metal which is liquid at room temperature.
6. A metal which reacts with acid as well as base to form hydrogen gas.
7. Substances used to enhance the growth of plants.
8. Property by virtue of which metals can be beaten into thin sheets.