

# BIJENDRA PUBLIC SCHOOL, PURNEA

Class - 8

Subject - SCIENCE

## Chapter - 4 MATERIALS : METALS AND NONMETALS

A. Very Short Answer Questions.

1. Identify the type of elements which are neither malleable nor ductile.

Ans. The type of elements which are neither malleable nor ductile are:- Zinc, Mercury, Arsenic, Antimony, Sodium and Potassium etc.

2. Name a property which is common to the metals occurring near the bottom of the reactivity series.

Ans. The metals occurring near the bottom of the reactivity series are least reactive metals.

3. Name a metal that is kept under kerosene.

Ans. Sodium

4. What type of reaction is the reaction between copper sulphate solution and zinc plate.

Ans. Metal displacement reaction

5. An oxide of sulphur turns blue litmus red. Is it acidic or basic?

Ans. It is acidic in nature.

B. Short Answer Questions

1. Classify the following into metals and nonmetals:- Iodine, Lead, Carbon, Sulphur, Aluminium, Silicon

Ans. Metals : Lead, Aluminium  
Non-metal : Iodine, Carbon, Sulphur  
Metalloids : Silicon

2. What is meant by the reactivity series of metals?

Ans. The arrangement of metals in a vertical column in order of decreasing reactivity is called reactivity series of metals or, activity series of metals.

3. Which of the following are (a) acidic (b) basic oxides?

Phosphorous pentoxide, Sulphur trioxide, Sodium oxide, Magnesium oxide.

Ans. (a) Acidic oxide :- Phosphorus pentoxide, Sulphur trioxide.

(b) Basic oxide :- Magnesium oxide and Sodium oxide.

4. Mention one main use of each of the following : Copper, Aluminium, Phosphorus and Hydrogen.

Ans. Copper : It is used of making electrical wire and cables.

Aluminium: It is used for making utensils and for making wires and cables also.

Phosphorus: It is used for the manufacture of matchsticks.

Hydrogen: It is used as a fuel.

5. Write the word equations for the reaction; Reaction of magnesium with boiling water:

Ans. Word equation for reaction of magnesium with boiling water are:

Magnesium + Water (2H<sub>2</sub>O) → Magnesium hydroxide + Hydrogen  
(Mg) (Boiling) Mg(OH)<sub>2</sub> H<sub>2</sub>

### C. Long Answer Type Questions

1. Mention some physical properties of metals.

Ans. Some physical properties of metals are:

- i. Physical state : All metals except mercury are solid at room temperature.
  - ii. Appearance (Colour and lustre) :- Most of the metals are silvery grey and they have metallic lustre.
  - iii. Hardness: All metals (except sodium, potassium) are hard.
  - iv. Malleability: All metals are malleable.
  - v. Ductility : All metals are ductile.
  - vi. Conduction of heat and electricity: All metals are good conductor of heat and electricity.
2. More reactive metals occur in the combined form whereas less reactive metals occur as free metal in nature. Give reasons.

Ans. More reactive metal has greater tendency to form compounds that's why they are found only in the form of their compound. But the less reactive metal has not the tendency to form compounds. So they mostly found in free state in the nature.

3. Describe the reaction:

Magnesium + Copper Sulphate Solution  $\rightarrow$  Magnesium Sulphate + Copper, in terms of the reactivity series of metals.

Ans. Magnesium is more reactive than copper according to the reactivity series of metal. So, when magnesium reacts with copper sulphate solution (blue solution), then magnesium displace copper from copper sulphate solution and forms magnesium sulphate which is colourless solution and copper remains in the solution alone.

4. What is meant by malleability? Name the most malleable metal.

Ans. Mostly metals are malleable, that means it can be hammered into very thin sheets. The most malleable metal is silver, it can be change in thin leaves.

5. Mention the main uses of the following: Phosphorous, Sulphur, Copper, Iron, Aluminium, Hydrogen.

Ans. Phosphorus: It is used for the manufacture of matchsticks, rat poison, phosphoric acid and fertilizers.

Sulphur : It is used for the vulcanization of rubber, for the manufacture of gun powder sulphuric acid.

Copper : It is used for making alloys, utensils, kettles, coins etc. And for making electrical wires and cables also.

Iron: It is used for making steels, iron sheets and bars used in construction. Engine parts and for making bridges also.

Aluminium: It is used for making, electrical wires and cables, domestic utensils, alloys, metallic points, aluminium foil.

Hydrogen: It is used as a fuel for the manufacturing Ammonia, Hydrogen chloride, Vegetable ghee, hydrogenation of oils etc.

D. Tick (✓) the Odd-One out giving reasons

1. Ans. Arsenic - Arsenic is a metalloid and all are non metals.
2. Ans. Metal - All the three are properties of non-metal, so metal is odd-one.
3. Ans. Sodium - Sodium is most reactive than all other metals, it is odd-one.
4. Ans. Graphite - Generally non-metals are non-conductor of heat and electricity that's why it is odd one.
5. Ans. Sodium oxide - It can burn at room temperature, but another three can burn at certain temperature.

E. Define the following terms:

1. Sonority
2. Metal displacement reaction
3. Galvanisation

- Ans.
1. Sonority : Metals are sonorous that means when metals struck hard produce a ringing sound. So that it is used for making bells and wires for musical instruments.
  2. Metal displacement reaction : A reaction in which a more reactive metal displaces a less reactive metal from its salt solution is called a metal displacement reaction.
  3. Galvanisation : Galvanisation is the process of applying a protective zinc-coating to iron or steel, to prevent rusting.