**Class - 8th**

**Chapter- 4**

**Metals and Non-Metals**

**Exercises**

**Section I**

**A. Select and tick the correct option :**

**Ans.** 1. Sodium 2. b 3. c 4. b

**B. Fill in the blanks :-**

1. **Ores** are the minerals from whcih metals can be extracted conveniently and profitably.

2. Non-metals cannot be beaten into thin **sheets** or **foils**.

3. Magnesium burns in air to form **magnesium oxide**.

4. **Copper** does not react with hydrochloric and but reacts with sullphuric acid.

5. A **less** reactive metal cannot replace a **more** reactive meal.

**C. Write true or false :-**

 1. false 2. true 3. true 4. false 5. true

**Section II**

**A. Very short answre questions :-**

**1.Give some examples of metals.**

**Ans 1**. Iron, copper, silver, gold, tin, aluminium, mercury, etc. are examples of metals.

**2. How can we obtain sulphur and chlorine gas?**

**Ans 2**. Sulphur is mined in its free state or as sulphide ore from the Earth’s crust and Chlorine gas is produced by the electrolysis of common salt.

**3.If a metal coin is dropped on hard floor,it produces a ringing sound. What is this property of metals known as?**

 **Ans 3.**This property of metals is known as sonority.

**4. An element forms an oxide which is acidic in nature. Is the element a metal or non-metal?**

**Ans 4.** This element is non-metal.

**5.Write a word equation for the reaction of magnesim with oxygen.**

**Ans 5.** Mg +O -- MgO

**B. Short answer questions :**

 **1.State two physical properties on the basis of which metals can be distinguished from non-metals.**

**Ans 1.**  Two physical properties on the basis of whcih metals can be distinguished

from non-metals are as follows :

(i) **Physical State :** All metals are generally solid at room temperature, except mercury and gallium which are liquid at room temperature. Iron, copper, aluminium, gold, silver are some of the examples of metals.

Non-metals may be solid, liquid or gases at the room temperature. For example, carbon, sulphur and phosphorus are solid non-metals, bromine is a liquid non-metal whereas hydrogen, oxygen, nitrogen and chlorine gaseous non-metals.

(ii) **Lustre :** Metals are lustrous, that is, they have a shining surface and can be polished. Non-metals are not lustrous nor do they have a shiny appearance except iodine and graphite which are lustrous in appearance.

Metals, except sodium and potassium, have high densities. Sodium and potassium have much lower densities.

**2.Compare the properties of metals and non-metals with respect to :-**

**Ans 2.** (i) **Hardness :** Non-metals usually have low densities and are soft. Diamond, however, is an exception. Diamond is the hardest natrual substance known.

(ii) **Ductility :** The property by virtue of which metals can be drawn into wires is called ducitility. Non-metals are brittle and cannot be drawn into a wire.

(iii) **Conduction of heat and elecricity :** Almost all metals conduct heat and electricity. But non-metals do no conduct electricity. Graphite is an exception. It conduct electricity in spite of being non metal.

**3.Element A is soft , brittle and does conduct electricity.Which of the two elements,A or B is a non-metal?**

**Ans 3.** Element A is non-metal.

**4.How do metals react with bases?**

**Ans 4**. Metals react with bases to form salts and hydrogen gas.

Metal + Base Salt + Hydrogen

Aluminium is metal and sodium hydroxide is a base. When aluminium is heated with sodium hydroxide solution, then sodium aluminate (salt) and hydrogen gas are formed:

Sodium hydroxide+ Aluminium -- Sodium aluminate+ Hydrogen

 (NaOH) + (Al) ---- (NaAlO2) + H2

Zinc metal also reacts with sodium hydroxide solution to form hydrogen gas. In general we can say that Some metals react sodium hydroxide to produce hydrogen gas.

**5.What is displacement reaction?**

**Ans 5.** In displacement reactions, a more reactive metal replaces a less reactive metal from its compound.

**C. Long answer questions :**

 **1.Give an accunt of occurrence of non-metals.**

**Ans 1.** Most non-metals occur in nature in a combined state. However, some non-metals occur both in a free state and a combined state. Oxygen and nitrogen occur in a free state in air and in a combined state in the Earth’s crust. Sulphur occurs in a free as well as a combined state in the Earth’s crust.

Five out of the six noble gases, i.e., helium, neon, argon, krypton and xenon occur only in a free state in nature.

**2. With the help of activity explain that metals are good cnductors of electricity While non-metals are not.**

**We can show this with the helps of follow activity.**

**Ans 2**. Book page no. 56 Activity -2

**3.How do metals react with oxygen?**

**Ans 3**. Metals react with oxygen to form their oxides. Different meals react with

oxygen under different conditions.

Metal + oxygen----- metal oxide

Sodium reacts with oxygen at room temperature to form sodium oxide.

Magnesium on heating, burns in air to form magnesium oxide (MgO).

The metallic oxides formed are basic in nature and turn red litmus solution blue.

A greenish deposit on the surface of copper vessels, when

exposed to air for long due to the formation of a mixture of copper hydroxide and copper carbonate.

2Cu + H2O + CO2 + O2------ Cu(OH)2 + CuCO3

**4.State five characteristics of metals and five characteristics of non-metals.**

**Ans 4.** Five characteristics of metals and non-metals are as follows :

**Metals :** (i) Most metals have a metallic shine called lustre. (iii) Most metals are hard (iv) Most metals can be drawn into thin wires. (v) metals react with oxygen to form metal oxides.

**Non-metals :** (i) Most non-metals are in their gaseous state at room temperature.

(ii) Non-metals do not have lusture. (iii) Most non-metals are soft.

(iv) Non-metals are neither malleable, nor ductile (v) Non-metals react with

oxygen to form acidic oxides.

**5.Give some uses of metals and non-metals.**

**Ans 5.** Book page no. 62 ( point 1,2,3 for uses of metals and point 9,10,11 for uses of non-metal)