



# SHIKSHA CLASSES

Sub. : Science  
Std. : X<sup>th</sup> - CBSE

**Answer Paper**  
3. Metals and non metals.

Marks : 30  
Time : 1 Hour.

## SECTION (A)

( Each - 1 Mark)

**Q.1 : Name the ore of aluminium.**

Ans. : Bauxite is an ore of aluminium

OR

**Which of the following represent the correct order of decreasing reactivity?**

Ans. : a)  $Mg > Al > Zn > Fe$

**Q.2 : Define alloy.**

Ans. : An alloy is a homogeneous mixture of two or more metals or a metal and a nonmetal.

OR

**Give two examples of amphoteric oxides.**

Ans. : Aluminium oxide and zinc oxide.

**Q.3 : Assertion (A) : Brass is an alloy of zinc and magnesium.**

**Reason (R) : Alloys are homogenous mixture of two or more metals.**

Ans. : d) A is false but R is true.

**Q.4: Assertion (A) : Different metals have different reactivities with water and dilute acids.**

**Reason (B) : Reactivity of a metal depends on its position in the reactivity series.**

Ans. : a) Both A and R are true, and R is correct explanation of the assertion.

**Q.5: Assertion (A) : Iron is the most widely used metal. But it is never used in its pure state.**

**Reason (R) : Pure iron is very soft and stretches easily when hot.**

Ans. : a) Both A and R are true, and R is correct explanation of the assertion.

**Q.6 : Gold is soluble in.**

Ans. : d) Aqua regia.

OR

**Hematite is an ore of**

Ans. : a) Iron

**Q.7 : Read the following and answer any two question from 5(i) to 5(iii).**

**(2 Mark)**

An ore on treatment ----- brisk effervescences.

i) **What type of ore is this?**

Ans. : d) Carbonate

ii) **By which process the metal is obtained?**

Ans. : b) Calcination

iii) **This type of ore is heated in.**

Ans. : c) In absence of air

**Q.8 : Which one of the following properties is not generally exhibited by ionic compounds?**

Ans. :b) Electrical conductivity in solid state

**Q.9: Which of the following non-metal is lustrous?**

Ans. :d) Iodine

**Q.10: An element X is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in air. It reacts vigorously with water. Identify the element from the following**

Ans. :b) Na

**Q.11: Reaction between X and Y forms compound Z. X loses electron and Y gains electron. Which of the following properties is not shown by Z?**

Ans. :c) Conducts electricity in molten state

**Q.12: The ability of metals to be drawn into thin wires is known as**

Ans. :a) ductility

**Q.13: The electronic configurations of three elements X, Y and Z are X - 2, 8; Y - 2, 8, 7 and Z - 2, 8, 2. Which of the following is correct?**

Ans. :d) Y is a non-metal and Z is a metal.

**Q.14 : The atomic numbers of four elements A, B, C and D are 6, 8, 10 and 12 respectively. The two elements which can react to form ionic bonds (or ionic compound) are:**

Ans. :d) B and D

### SECTION (B)

(Each - 2 Mark)

**Q.15: Define amphoteric oxides.**

Ans. : The oxides which shows the properties of both basic as well as acidic oxides is called as amphoteric oxides.

OR

**Define corrosion.**

Ans. : The surface of some metals such as iron is corroded when they are exposed to moist air for a long period of time. This phenomenon is known as corrosion.

**Q.16: What is meant by aqua regia? Which metal is dissolved in aqua regia?**

Ans. : Aqua regia is freshly prepared mixture of concentrated hydrochloric acid and concentrated nitric acid in the ratio 3 : 1.

Gold is the metal which is dissolved in aqua regia.

### SECTION (C)

(Each - 3 Mark)

**Q.17: Pratyush took sulphur powder on a spatula and heated it. He collected the gas evolved by inverting a test tube over it, as shown in fig.**



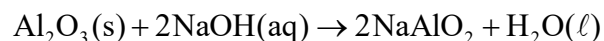
containing  $M_2O_3$ . Explain the method used for concentration of the ore. Also give reason for choosing that method.

**Ans.** : Since electronic configuration is 2, 8, 3, atomic no. of the metal is 13. As it is the most abundant metal in the earth's crust the metal 'M' is aluminium (Al).

The ore of the metal containing  $M_2O_3$  is Bauxite  $Al_2O_3 \cdot 2H_2O$ .

The method used for concentration of the ore is chemical separation method. This method is suitable because Al is a very reactive metal. This method is based on the difference in chemical reactivity of ore and gangue. This method is also known as Bayer's method.

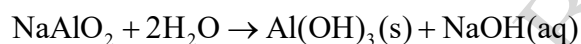
i) The powdered Ore is treated with hot conc. NaOH solution.



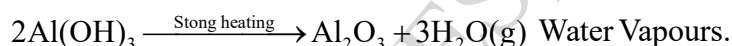
(from Sodium  
bauxite ore) Aluminate  
(water Soluble)

Impurities do not react with NaOH and are separated by filtration.

ii) The filtrate containing sodium aluminate is diluted with water to obtain a precipitate of aluminium hydroxide.



iii) The precipitate is washed, dried and heated to give pure alumina.



**OR**

: i) How do you classify elements into metals and non-metals on the basis of their electronic configuration? Choose metal and non-metal out of the following :

${}_{11}^{23}A$ ,  ${}_{9}^{19}B$ ,  ${}_{12}^{24}C$ ,  ${}_{15}^{31}D$ ,  ${}_{17}^{35}E$

ii) What type of bond will be formed if

- 'A' combines with 'B'
- 'A' combines with 'E'
- 'C' combines with 'E'
- 'D' combines with 'E'

**Ans.** : i) Elements which contain 1 to 3 electrons in their outermost shells are metals.  
Elements containing 4 to 7 electrons in their valence shell are non-metals.

**Electronic configuration :**



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