RAVI MATHS TUITION CENTER , WHATSAPP - 8056206308

Metals And Non-Metals T2 Q

10th Standard

Science

22 x 1 = 22

1) Which of the following metals exist in their native state in nature?
(i) Cu (ii) Au (iii) Zn (iv) Ag

(a) (i) and (ii) (b) (ii) and (iii) (c) (ii) and (iv) (d) (iii) and (iv)

2) Metals are refined by using different methods. Which of the following metals are refined by electrolytic refining?
(i) Au (ii) Cu (iii) Na (iv) K

(a) (i) and (ii) (b) (i) and (iii) (c) (ii) and (iii) (d) (iii) and (iv)

3) Silver articles become black on prolonged exposure to air. This is due to the formation of

(a) Ag_3N (b) Ag_2O (c) Ag_2S (d) Ag_2S and Ag_3N

4) Galvanisation is a method of protecting iron from rusting by coating with a thin layer of

(a) Gallium (b) Aluminium (c) Zinc (d) Silver

5) If copper is kept open in air, it slowly loses its shining brown surface and gains a green coating. It is due to the formation of

(a) $CuSO_4$ (b) $CuCO_3$ (c) $Cu(NO_3)_2$ (d) CuO

6) Generally, metals are solid in nature. Which one of the following metals is found in liquid state at room temperature?

(a) Na (b) Fe (c) Cr (d) Hg

7) 2 ml each of concentrated HCl, HNO_3 and a mixture of concentrated HCl and concentrated HNO_3 in the ratio of 3 : 1 were taken in test tubes labelled as A, B and C. A small piece of metal was put in each test tube. No change occured in test tubes A and B but the metal got dissolved in test tube C respectively. The metal could be

(a) Al (b) Au (c) Cu (d) Zn

8) An alloy is

(a) An element (b) A compound (c) A homogeneous mixture (d) A heterogeneous mixture

9) An electrolytic cell consists of (i) Positively charged cathode (ii) Negatively charged anode (iii) Positively charged anode (iv) Negatively charged cathode

(a) (i) and (ii) (b) (iii) and (iv) (c) (i) and (iii) (d) (ii) and (iv)

10) Alloys are homogeneous mixtures of a metal with a metal or nonmetal. Which among the following alloys contain non-metal as one of its constituents?

(a) Brass (b) Bronze (c) Amalgam (d) Steel

11) Which among the following statements is incorrect for magnesium metal?

(a) It burns in oxygen with a dazzling white flame. (b) It reacts with cold water to form magnesium oxide and evolves hydrogen gas

(c) It reacts with hot water to form magnesium hydroxide and evolves hydrogen gas.

(d) It reacts with steam to form magnesium hydroxide and evolves hydrogen gas.

12) Which among the following alloys contain mercury as one of its constituents?

(a) Stainless steel (b) Alnico (c) Solder (d) Zinc amalgam

13) 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?

(a) Has high melting point (b) Has low melting point (c) Conducts electricity in molten state (d) Occurs as solid

14) Generally, non-metals are not conductors of electricity. Which of the following is a good conductor of electricity?

(a) Diamond (b) Graphite (c) Sulphur (d) Fullerene

15) Electrical wires have a coating of an insulating material. The material, generally used is

(a) Sulphur (b) Graphite (c) PVC (d) All can be used

16) Which of the following non-metals is a liquid?

(a) Carbon (b) Bromine (c) Phosphorus (d) Sulphur

17) When iron fillings are heated in a stream of dry hydrogen chloride the compound formed is $FeCl_x$ where X is

(a) 1 (b) 2 (c) 3 (d) 4

18) The second most abundant metal in the earth's crust is

(a) oxygen (b) silicon (c) aluminium (d) iron

19) A greenish coating develops on copper utensils due to formation of

(a) $CuCO_3$ (b) $Cu(OH)_2$ (c) $Cu(OH)_2.CuCO_3$ (d) CuO

20) Rusting of iron takes place in

(a) ordinary water (b) distilled water (c) both ordinary and' distilled water (d) none of the above

21) Bronze is an alloy

(a) Cu and Zn (b) Zn and Ni (c) Cu and Sn (d) Cu, Zn, Tn

22) During smelting, an additional substance is added which combines with impurities to form a fusible product known as

(a) slag (b) mud (c) gangue (d) flux

3 x 1 = 3

23) **Assertion:** Different metals have different reactivities with water and dilute acids.

Reason: Reactivity of a metal depends on its position in the reactivity series.

Codes

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

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

(c) A is true, but R is false.

(d) A is false, but R is true.

24) **Assertion:** Iron is the most widely used metal. But it is never used in its pure state.

Reason: Pure iron is very soft and stretches easily when hot.

Codes

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

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

(c) A is true, but R is false.

(d) A is false, but R is true.

25) **Assertion:** The oxides of sulphur and phosphorus are acidic in nature.

Reason: Metal oxides are basic in nature.

Codes

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

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

(c) A is true, but R is false.

(d) A is false, but R is true.

5 x 4 = 20

26) (i) Write the Electron dot structures for sodium, oxygen and magnesium.

(ii) Show the formation of Na_2O and MgO by the transfer of electrons.

(iii) What are the ions present in these compounds?

27) Write equations for the reactions of :

(i) iron with steam

(ii) calcium with water

(iii) potassium with water

28) What is an alloy? How is an alloy made? List two purpose of making alloys. Mention the constituents and two properties of each of the following alloys.

(i) Stainless steel

(ii) Brass

29) Show that for rusting of iron both air and moisture are required.

30) Write two differences between calcination and roasting.

2 x 4 = 8

31) The arrangement of metals in a vertical column in the decreasing order of their reactivities is called the reactivity series or activity series of metals. The most reactive metal is at the top position of the reactivity series. The least reactive metal is at the bottom of the reactivity series.

Hydrogen, though a non-metal, has been included in the activity series of metals only for comparison. Apart from it, the hydrogen atom also has tendency to lose its valence electron and form cation which behaves like metal.

$\mathrm{H} \rightarrow \mathrm{H}^{+} + e^{-}$

(i) Which metal can be displaced by copper from its salt solution?

(a) Zinc **(b) Silver** **(c) Iron** **(d) Lead**

(ii) An element 'X after reacting with acids liberates hydrogen gas and can displace lead and mercury from their salt solutions. The metal 'X is

(a) copper **(b) gold** **(c) calcium** **(d) hydrogen.**

(iii) the most reactive metal is

(a) potassium **(b) barium** **(c) zinc** **(d) calcium**

(iv) The metal which does not liberate hydrogen gas after reacting with acid is

(a) zinc **(b) lead** **(c) iron** **(d) gold**

(v) Which of the following metals does not react with water at all?

(I) Sodium

(II) Copper

(III) Aluminium

(IV) Lead

(a) I and III only **(b) IV only** **(c) II and IV only** **(d) I, II, III and IV**

32) Non-m;tals are highly electronegative in nature. They have a tendency to gain electrons in their valence shell to achieve nearest noble gas configuration. Thus, they form anions and act as good oxidising agents.

$X \quad + ne^{-} \longrightarrow X^{n-}$

(non-metal atom) (anion)

They react with air or oxygen on heating to form oxides which react with water to form acids. Thus, nonmetal oxides are acidic in nature. Non-metals do not react with dilute acids at all. This is because they are electronegative and therefore, cannot displace hydrogen from acids but they form covalent hydrides when heated with hydrogen.

(i) The acid formed when sulphur trioxide reacts with water is

(a) sulphurous acid **(b) sulphuric acid** **(c) both (a) and (b)** **(d) none of these**

(ii) An element 'X' forms an oxide XO_2 , which is a very useful gas used in the process of photosynthesis. The element 'X' is

(a) sulphur **(b) nitrogen** **(c) carbon** **(d) phosphorus**

(iii) Non-metals generally act as

(a) oxidising agents **(b) reducing agents** **(c) both (a) and (b)** **(d) none of these**

(iv) Which of the following elements produces basic oxide on reacting with oxygen?