Year 2024

Very Short Answer Type Question [1 marks]

1) A metal and a non-metal that exists in liquid state at the room temperature are respectively :**[(31/1/1); (31/1/2); (31/3/3)]**
   (a) Bromine and Mercury
   (b) Mercury and Iodine
   (c) Mercury and Bromine
   (d) Iodine and Mercury

2) Oxides of aluminium and zinc are : **[(31/1/1); (31/1/2); (31/3/3)]**
   (a) acidic (b) basic (c) amphoteric (d) neutral

3) When 2 mL of sodium hydroxide solution is added to few pieces of granulated zinc in a test tube and then warmed, the reaction that occurs can be written in the form of a balanced chemical equation as : **[(31/1/1); (31/1/2); (31/3/3)]**
   (a) $NaOH + Zn \longrightarrow NaZnO_2 + H_2O$
   (b) $2NaOH + Zn \longrightarrow Na_2ZnO_2 + H_2$
   (c) $2NaOH + Zn \longrightarrow NaZnO_2 + H_2$
   (d) $2NaOH + Zn \longrightarrow Na_2ZnO_2 + H_2O$

4) The oxide which can react with HCI as well as KOH to give correspondingsalt and water is **[(31/2/1); (31/2/2); (31/2/3)]**
   (a) CuO (b) Al_2O_3(c) Na_2O (d) K_2O

5) Consider the following cases :
   (a) $CaSO_4 + Al \longrightarrow$
   (b) $CuSO_4 + Ca \longrightarrow$
   (c) $FeSO_4 + Cu \longrightarrow$
   (d) $ZnSO_4 + Mg \longrightarrow$
   The cases in which new products will form are
   (a) (a) and (b) (b) (b) and (c)(c) (c) and (d) (d) (b) and (d)

6) Which of the following is an alloy of copper and tin? **[(31/2/2)]**
   (a) Nichrome (b) Brass (c) Constantan (d) Bronze

7) Four solutions, namely glucose, alcohol, hydrochloric acid and sulphuric acid filled in four separate beakers are connected one by one in an electric circuit with a bulb. The solutions in which the bulb will glow when current is passed are : **[(31/4/1); (31/4/2); (31/4/3)]**
   (a) Glucose and alcohol
   (b) Alcohol and hydrochloric acid
   (c) Glucose and sulphuric acid
   (d) Hydrochloric acid and sulphuric acid

8) The metals which are found in both free state as well as combined state are : **[(31/4/1); (31/4/2); (31/4/3)]**
   (a) Gold and platinum
   (b) Platinum and silver
   (c) Copper and silver
   (d) Gold and silver

9) A metal 'X' is used in thermit process. When 'X' is heated with oxygen, it gives an oxide 'Y', which is amphoteric in nature. 'X' and 'Y' respectively are **[(31/5/1); (31/5/2); (31/5/3)]**
   (a) Mn, MnO_2 (b) Al, Al_2O_3 (c) Fe, Fe_2O_3 (d) Mg, MgO

Assertion(A) and Reason(R)

(a)Both Assertion(A) and Reason(R) are true and Reason(R) is the correct explanation of the Assertion(A).
(b)Both Assertion(A) and Reason(R) are true, but Reason(R) is not the correct explanation of the Assertion(A).
(c)Assertion(A) is true, but Reason(R) is false.
(d)Assertion(A) is false, but Reason(R) is true.

1) Assertion (A) : Different metals have different reactivities with waterand dilute acids.**[(31/2/1)]**
Reason (R) : Extraction of a metal from its ore depends on its position inthe reactivity series.
2) Assertion (A) : Metals in the middle of activity series are found in natureas sulphides or carbonates. **[(31/2/2)]**
Reason (R) : The sulphide ores are calcinated whereas carbonate ores areroasted to extract metals from them.
3) Assertion (A) : Carbon reduces the oxides of Sodium and Magnesium. **[(31/2/3)]**
Reason (R) : Sodium and Magnesium have more affinity for Oxygen than Carbon.
4) Assertion (A) : Oxides of metals show basic characters. **[(31/3/2)]**
Reason (R) : Oxides of metals react with acid to form salt and water.
5) Assertion (A): A piece of Zinc metal gets reddish brown coating when kept in copper sulphate solution for some time.
Reason (R) : Copper is more reactive metal than Zinc.**[(31/3/3)]**
6) Assertion (A) : The extraction of metals from their sulphide ores cannot take place without roasting of the ore.
Reason (R) : Roasting converts sulphide ores directly into metals. **[(31/4/1); (31/4/2); (31/4/3)]**

Short Answer Type Question [3 marks]

1) It is observed that Calcium on reaction with water floats on its surface. Explain why it happens. Also write a balanced chemical equation for the reaction that occurs. What happens when the aqueous solution of the product of this reaction reacts with Carbon dioxide gas ? Write a balanced chemical equation for the reaction. **[(31/2/1); (31/2/2); (31/2/3)]**
2) Draw a labelled diagram to show electrolytic refining of copper. State what happens when electric current is passed through the electrolyte taken in this case.**[(31/2/1); (31/2/2)]**
3) (a) Sodium metal is stored under kerosene oil. Why ?
(b) Some metal oxides are soluble in water. What are the aqueous solutions of these oxides called ? Write one example of such a solution.
(c) At ordinary temperature the surface of metals such as magnesium, aluminium, zinc etc. is covered with a thin layer. What is the composition of this layer ? State its importance.**[(31/2/2)]**
4) State reasons for the following :
(a) Zinc oxide is an amphoteric oxide.
(b) Sodium metal is stored in bottle filled with kerosene oil.
(c) In the reactions of nitric acid with metals, generally hydrogen gas is not evolved. **[(31/3/1)]**
5) State giving reason the reduction process to obtain the following metals from their compounds :
(i) Mercury,
(ii) Copper and
(iii) Sodium **[(31/3/1); (31/3/2)]**
6) State giving reason for the change in appearance observed when each of the following metal is exposed to atmospheric air for some time :

(i) Silver,
(ii) Copper and
(iii) Iron **[(31/3/1) ; (31/3/2); (31/3/3)]**

7) Write electronic configuration of Sodium (At. No.11) and Oxygen (At. No. 8) and show the formation of the ionic compound obtained when these two elements combine. Name anion and cation present in the compound. **[(31/3/1); (31/3/2)]**

8) Name the chemical reaction that occurs between iron (III) oxide and aluminium metal. Write its balanced chemical equation. Why is this reaction called displacement reaction ? Give one use of this reaction. **[(31/3/3)]**

9) A student is working in a laboratory with metal 'E' which is stored under kerosene oil. Some how a small piece of this metal falls in a beaker containing water and starts burning.
(i) Name the metal 'E'.
(ii) Write chemical equation for the reaction when metal 'E' reacts with water. State the nature (acidic/basic/neutral) of the product obtained.
(iii) Name the process by which this metal 'E' is obtained from its molten chloride. **[(31/3/3)]**

10) Name the ore of mercury and state the form in which it is found in nature. Write the chemical equations along with the condition required for the reactions involved in the extraction of mercury from its ore. **[(31/5/1); (31/5/3)]**

11) Suggest an activity to differentiate between the chemical properties (acidic or basic character) of the product obtained on burning a metal (magnesium) and a non-metal (sulphur). **[(31/5/2)]**

Case Study [4 marks]

1) The metals produced by various reduction processes are not very pure. They contain impurities, which must be removed to obtain pure metals. The most widely used method for refining impure metals is electrolytic refining.
(i) What is the cathode and anode made of in the refining of copper by this process ?
(ii) Name the solution used in the above process and write its formula.
(iii) (A) How copper gets refined when electric current is passed in the electrolytic cell ?
OR
(iii) (B) You have two beakers 'A' and 'B' containing copper sulphate solution. What would you observe after about 2 hours if you dip a strip of zinc in beaker 'A' and a strip of silver in beaker 'B'? Give reason for your observations in each case. **[(31/1/1); (31/1/2); (31/1/3)]**

2) Three metal samples of magnesium, aluminium and iron were taken and rubbed with sand paper. These samples were then put separately in test tubes containing dilute hydrochloric acid. Thermometers were also suspended in each test tube so that their bulbs dipped in the acid. The rate of formation of bubbles was observed. The above activity was repeated with dilute nitric acid and the observations were recorded.
Answer the following questions :
(a) When activity was done with dilute hydrochloric acid, then in which one of the test tubes was the rate of formation of bubbles the fastest and the thermometer showed the highest temperature ?
(b) Which metal did not react with dilute hydrochloric acid ? Give reason.
(c) (i) Why is hydrogen gas not evolved when a metal reacts with dilute nitric acid ? Name the ultimate products formed in the reaction.
OR

(c) (ii) Name the type of reaction on the basis of which reactivity of metals is decided. You have two metals X and Y. How would you decide which is more reactive than the other ? **[(31/4/1); (31/4/2); (31/4/3)]**

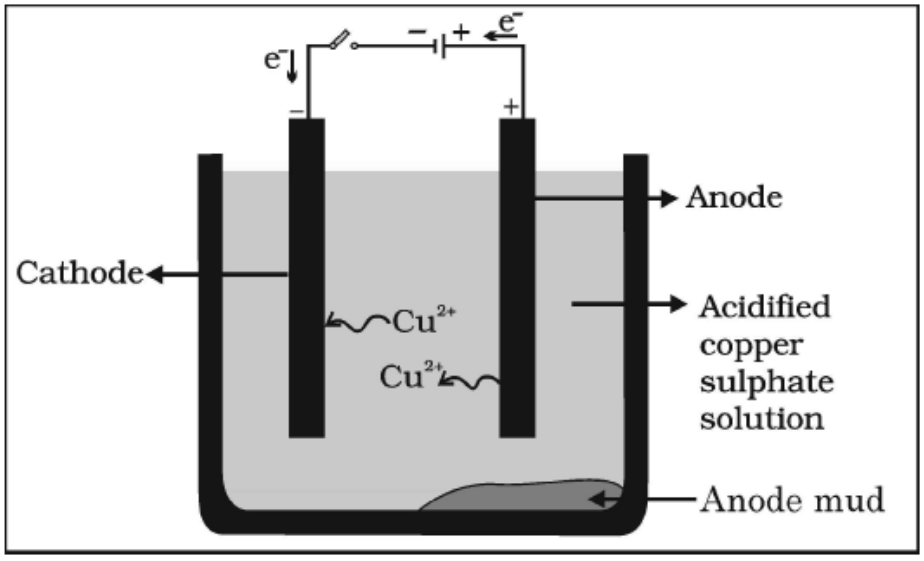
Year 2023

Very Short Answer Type Question [1 marks]

1) A metal 'X' is used in thermite process. When X is burnt in air it gives an amphoteric oxide 'Y. 'X' and 'Y' are respectively : **[(31/1/1)]**
(a)Fe and Fe_2O_3 (b) Al and Al_2O_3 (c) Fe and Fe_3O_4 (d) Al and Al_3O_4

2) Copper is used for making cooking utensils. Which of the following physical properties of copper is NOT responsible for the same? **[(31/1/2)]**
(a)Malleability (b) High melting point (c) Thermal conductivity (d) High reactivity

3) The following diagram shows the electrolytic refining of copper: **[(31/1/3)]**



Which of the following statements is incorrect description of process?
(a) The impure metal from the anode dissolves into electrolyte.
(b) The pure metal from the electrolyte is deposited on the cathode.
(c) Insoluble impurities settle down at the bottom of the anode.
(d) On passing the current through the electrolyte, the pure metal from the anode dissolves into the electrolyte.

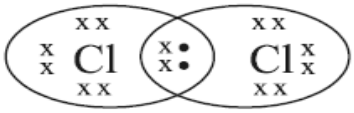
4) Which of the following metals do not corrode in moist air? **[(31/1/3)]**
(a) Copper (b) Iron (c) Gold (d) Silver

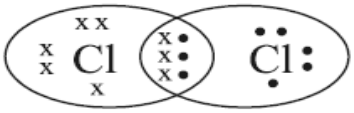
5) When zinc reacts with sodium hydroxide, the product formed is:**[(31/2/1); (31/2/3)]**
(a)Sodium oxide (b) Sodium zincate (c) Zinc hydroxide (d) Zinc oxide

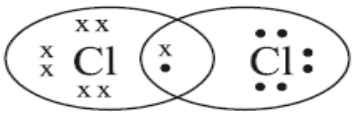
6) Among the following, the metal with lowest density is:
(a)Lithium (b) Lead (c) Magnesium (d) Aluminium **[(31/2/1); (31/2/2)]**

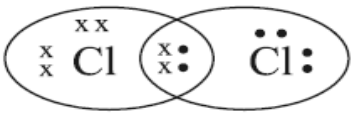
7) Thenumberofelectronsintheoutermostshelloftheatomofanon-metalcanbe:
(a) 1, 2 or 3 (b) 3, 4 or 5 (c) 5, 6 or 7 (d) 5, 6 or 8 **[(31/2/1), (31/2/2); (31/2/3)]**

8) The electron dot structure of chlorine molecule is : **[(31/4/1); (31/4/2); (31/4/3)]**

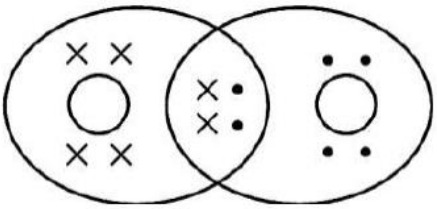
(a) 

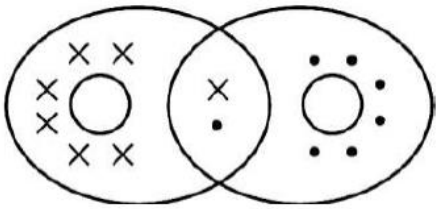
(b) 

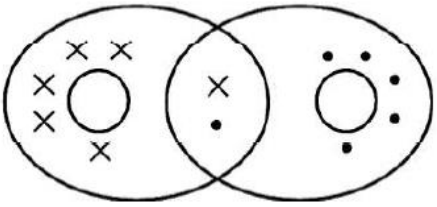
(c) 

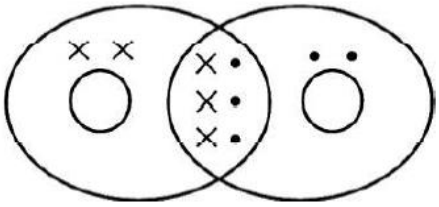
(d) 

9) The correct representation of covalent bonding in an oxygen molecule is : **[(31/5/1);(31/5/2); (31/5/3)]**

(a) 

(b) 

(c) 

(d) 

10) Which of the following statements is true for an amphoteric oxide?**[(31/5/1);(31/5/2); (31/5/3)]**
(a) It reacts only with acid and does not form water.
(b) It reacts with acid as well as base to form salt and hydrogen gas.
(c) It reacts with both acid as well as base to form salt and water.
(d) It reacts only with base and does not form water.

11) Bronze is an alloy of **[(31/6/1); (31/6/2); (31/6/3)]**
(a) Copper and Zinc (b) Aluminium and Tin(c) Copper, Tin and Zinc (d) Copper and Tin

12) Metal oxides generally react with acids, but few oxides of metal also react with bases. Such metallic oxides are : **[(31/6/2); (31/6/3)]**
I. MgO II. ZnO III. Al_2O_3 IV. CaO
(a) I and II (b) II and III (c) II and IV (d) I and IV

Assertion(A) and Reason(R)

These consist of two statements —Assertion(A) and Reason(R). Answer these questions selecting the appropriate option given below:
(a)Both Assertion(A) and Reason(R) are true and Reason(R) is the correct explanation of the Assertion(A).
(b)Both Assertion(A) and Reason(R) are true, but Reason(R) is not the correct explanation of the Assertion(A).
(c)Assertion(A) is true, but Reason(R) is false.
(d)Assertion(A) is false, but Reason(R) is true.

1) Assertion(A):Sodium oxide is an amphoteric oxide.
Reason(R):Metal oxides which react with both acids as well as bases are known as amphoteric oxides. **[(31/2/1); (31/2/3)]**
2) Assertion (A): Sodium, calcium and magnesium are obtained by the electrolysis of their molten oxides.
Reason (R): These metals have more affinity for oxygen than carbon. **[(31/2/2)]**
3) Assertion (A) : Melting point and boiling point of ethanol are lower than that of sodium chloride. **[(31/6/1); (31/6/2); (31/6/3)]**
Reason (R) : The forces of attraction between the molecules of ionic compounds are very strong.

Very Short Answer Type Question [2 marks]

1) Write the constituents of solder alloy. Which property of solder makes it suitable for welding electrical wires? **[(31/1/3)]**

Short Answer Type Question [3 marks]

1) With the help of suitable chemical equations, list the two main differences between roasting and calcination. How is metal reduced from the product obtained after roasting/calcinations of the ore? Write the chemical equation for the reaction involved. **[(31/2/1); (31/2/2)]**
2) (a) Copper reacts with a moist gas 'A' in the air and slowly loses its shiny brown surface. It turns green. Identify 'A' and the substance of the green coating formed on the surface of copper.
(b) How is copper obtained from its sulphide ore ? Write the chemical equations for the reaction involved in its extraction. **[(31/2/3)]**

Case Study [4 marks]

1) Almost all metals combine with oxygen to form metal oxides. Metal oxides are generally basic in nature. But some metal oxides show both basic as well as acidic behaviour. Different metals show different reactivities towards oxygen. Some react vigorously while some donot react at all.**[(31/1/1); (31/1/2); (31/1/3)]**
(a)What happens when copper is heated in air? (Give the equation of the reaction involved).1
(b)Why are some metal oxides categorized as amphoteric ? Give one example. 1
(c)Complete the following equations: 2
   i. $Na_2O(s) + H_2O(l)$
   ii. $Al_2O_3 + 2NaOH$

OR

(c) On burning Sulphur in Oxygen a colourless gas is produced. 2
   ii. Write chemical equation for the reaction.
   iii. Name the gas formed.
   iv. State the nature of the gas.
   v. What will be the action of this on a dry litmus paper?

2) The melting points and boiling points of some ionic compounds are givenbelow :

Compound	Melting Point (K)	Boiling Point (K)
NaCl	1074	1686
LiCl	887	1600
$CaCl_2$	1045	1900
CaO	2850	3120
$MgCl_2$	981	1685

These compounds are termed ionic because they are formed by the transfer of electrons from a metal to a non-metal. The electron transfer in such compounds is controlled by the electronic configuration of the elements involved. Every element tends to attain a completely filled valence shell of its nearest noble gas or a stable octet.

(i) Show the electron transfer in the formation of magnesium chloride. 1

(ii) List two properties of ionic compounds other than their high melting and boiling points.

(iii) While forming an ionic compound say sodium chloride how does sodium atom attain its stable configuration ? 2

OR

(iii) Give reasons : 2

(i) Why do ionic compounds in the solid state not conduct electricity ?

(ii) What happens at the cathode when electricity is passed through an aqueous solution of sodium chloride ? **[(31/4/1); (31/4/2); (31/4/3)]**

3) Metals are required for a variety of purposes. For this we need their extraction from their ores. Ores mined from the earth are usually contaminated with many impurities which must be removed prior to the extraction of metals. The extraction of pure metal involves the following steps :

(1) Concentration of ore

(2) Extraction of the metal from the concentrated ore

(3) Refining of the metal

(a) Name an ore of Mercury and state the form in which Mercury is present in it. 1

(b) What happens to zinc carbonate when it is heated strongly in a limited supply of air ? 1

(c) The reaction of a metal A with Fe2O3 is highly exothermic and is used to join railway tracks.

(I) Identify the metal A and name the reaction taking place.

(II) Write the chemical equation for the reaction of metal A with Fe_2O_3. 2

OR

(c) We cannot use carbon to obtain sodium from sodium oxide. Why? State the reactions taking place at cathode and anode during electrolytic reduction of sodium chloride. 2**[(31/5/1); (31/5/2); (31/5/3)]**

4) On the basis of reactivity metals are grouped into three categories — 4

(i) Metals of low reactivity

(ii) Metals of medium reactivity

(iii) Metals of high reactivity

Therefore metals are extracted in pure form from their ores on the basis of their chemical properties.

Metals of high reactivity are extracted from their ores by electrolysis of the molten ore.

Metals of low reactivity are extracted from their sulphide ores, which are converted into their oxides. The oxides of these metals are reduced to metals by simple heating.

(a) Name the process of reduction used for a metal that gives vigorous reaction with air and water both.

(b) Carbon cannot be used as a reducing agent to obtain aluminium from its oxide ?Why ?

(c) Describe briefly the method to obtain mercury from cinnabar. Write the chemical equation for the reactions involved in the process.

OR

(c) Differentiate between roasting and calcination giving chemical equation for each. **[(31/6/1); (31/6/2); (31/6/3)]**

Year 2020

Very Short Answer Type Question [1 marks]

1) Covalent compounds are generally poor conductors of electricity. Why? **[(31/5/1); (31/5/2); (31/5/3)]**

Multiple choice question [1 marks]

1) The compound obtained on reaction of iron with steam is/are :
   (a) Fe_2O_3 (b) Fe_3O_4 (c) FeO (d) Fe_2O_3 and Fe_3O_4 **[(31/1/2)]**
2) An element 'X' reacts with O_2 to give a compound with a high melting point.This compound is also soluble in water. The element "X" is likely to be:
   (a) iron (b) calcium (c) carbon (d) silicon **[(31/1/2)]**

Assertion and Reasons

Two statements are given – one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below :
(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.

1) Assertion (A) : The metals and alloys are good conductors of electricity.
   Reason (R) : Bronze is an alloy of copper and tin and it is not a good conductor of electricity.
   [(31/1/2); (31/2/2); (31/2/3)]

Short Answer Type Questions [3 Mark]

1) What is 'rusting'? Describe with labelled diagram an activity to investigate the conditions under which iron rusts. **[(31/1/2)]**
2) List three differentiating features between the processes of galvanisation and alloying.**[(31/4/1); (31/4/2); (31/4/3)]**
3) Compare in tabular form the reactivities of the following metals with cold and hot water :
   (a) Sodium
   (b) Calcium
   (c) Magnesium **[(31/4/1); (31/4/2); (31/4/3)]**
4) A shining metal 'M', on burning gives a dazzling white flame and changes to a white powder 'N'.
   (a) Identify 'M' and 'N'.
   (b) Represent the above reaction in the form of a balanced chemical equation.
   (c) Does 'M' undergo oxidation or reduction in this reaction? Justify.**[(31/5/1); (31/5/2)]**

Long Answer Type Questions [5 Mark]

1) Carbon cannot reduce the oxides of sodium, magnesium and aluminium to their respective metals. Why? Where are these metals placed in the reactivity series? How are these metals obtained from their ores? Take an example to explain the process of extraction along with chemical equations.**[(31/1/3)]**
2) (a) What is thermit process? Where is this process used? Write balancedchemical equation for the reaction involved.
   (b) Where does the metal aluminium, used in the process, occurs in thereactivity series of metals?

(c) Name the substances that are getting oxidised and reduced in theprocess.**[(31/1/2)]**

3) (a) How is the method of extraction of metals high up in the reactivity series different from that for metals in the middle ? Why cannot the same process be applied for them ? Name and explain the process of extraction of sodium.
(b) Draw a labelled diagram of electrolytic refining of copper. **[(31/2/1)]**

4) What happens when (Write the balanced equation involved) –
(i) Copper is heated in air?
(ii) Aluminium oxide is reacted with hydrochloric acid?
(iii) Potassium reacts with water?
(iv) Cinnabar is heated in air?
(v) Aluminium oxide reacts with sodium hydroxide?**[(31/2/1)]**

5) (a) Complete and balance the following chemical equations :
(i) $Al_2O_3 + HCl \longrightarrow$
(ii) $K_2O + H_2O \longrightarrow$
(iii) $Fe + H_2O \longrightarrow$
(b) An element 'X' displaces iron from the aqueous solution of iron sulphate. List your observations if the element 'X' is treated with the aqueous solutions of copper sulphate, zinc sulphate and silver nitrate. Based on the observations arrange X, Zn, Cu and Ag in increasing order of their reactivities. **[(31/2/2)]**

6) (a) Name the following :
(i) Metal that can be cut by knife
(ii) Lustrous non-metal
(iii) Metal that exists in liquid state at room temperature
(iv) Most malleable and ductile metal
(v) Metal that is best conductor of electricity
(vi) Non-metal that can exist in different forms
(b) How are alloys better than metals? Give composition of solder and amalgam.**[(31/2/2)]**

7) Write all the steps in proper sequence of obtaining pure copper from the ore in which it exists in nature.**[(31/2/3)]**

8) (a) Show the formation of aluminium ion and chloride ion by transfer of electrons.
(b) State the formula and the nature of compound formed if electron transfer takes place between the two.
(c) State with reason any three characteristics of the compounds formed by transfer of electrons.**[(31/2/3)]**

9) Write balanced chemical equations to explain what happens, when
(i) Mercuric oxide is heated.
(ii) Mixture of cuprous oxide and cuprous sulphide is heated.
(iii) Aluminium is reacted with manganese dioxide.
(iv) Ferric oxide is reduced with aluminium.
(v) Zinc carbonate undergoes calcination. **[(31/3/1); (31/3/2)]**

10) (i) By the transfer of electrons, illustrate the formation of bond in magnesium chloride and identify the ions present in this compound.
(ii) Ionic compounds are solids. Give reasons.
(iii) With the help of a labelled diagram show the experimental set up of action of steam on a metal.**[(31/3/1); (31/3/2)]**

11) A metal 'M' is stored under kerosene. It vigorously catches fire, if a small piece of this metal is kept open in air. Dissolution of this metal in water releases great amount of energy and the metal catches fire. The solution so formed turns red litmus blue.
(a) Name the metal 'M'.
(b) Write formula of the compound formed when this metal is exposed to air.
(c) Why is metal 'M' stored under kerosene?
(d) If oxide of this metal is treated with hydrochloric acid, what would be the products?
(e) Write balanced equations for:
(i) Reaction of 'M' with air.
(ii) Reaction of 'M' with water.
(iii) Reaction of metal oxide with hydrochloric acid.**[(31/3/3)]**

12) (a) Write electron dot structures of Ca (At. No. 20) and O(At. No. 8).
(b) Show the formation of calcium oxide by transfer of electrons.
(c) Name the ions present in this compound.
(d) List four important characteristics of this compound.**[(31/3/3)]**

13) (a) (i) Write two properties of gold which make it the most suitable metal for ornaments.
(ii) Name two metals which are the best conductors of heat.
(iii) Name two metals which melt when you keep them on your palm.
(b) Explain the formation of ionic compound CaO with electron-dot structure. Atomic numbers of calcium and oxygen are 20 and 8 respectively.**[(31/4/1)]**

14) Define an alloy. How is an alloy prepared ? List two advantages of making alloys. Write the composition of stainless steel. Why is steel preferred over iron ? List two reasons.**[(31/4/2)]**

15) (a) Define the terms 'alloy' and 'amalgam'. Name the alloy used for welding electric wires together and write its constituents.
(b) Name the constituents of the following alloys :
(i) Brass (ii) Stainless steel (iii) Bronze
State one property in each of these alloys which is different from its constituents.**[(31/4/3)]**

16) Two ores X and Y were taken. On heating these ores it was observed that
(a) ore X gives CO_2 gas, and
(b) ore Y gives SO_2 gas.
Write steps to convert these ores into metals, giving chemical equations of the reactions that take place. **[(31/5/1); (31/5/2)]**

17) (a) With the help of a diagram explain the method of refining of copper by electrolysis.
(b) How are broken railway tracks joined? Give the name of the process and the chemical equation of the reaction involved. **[(31/5/1); (31/5/2)]**

18) (a) What is an amalgam?
(b) Why is solder used for making electrical fuse ?
(c) What is galvanisation ? State its significance.
(d) In the electrolytic refining of copper, name the anode and cathode used and the electrolyte taken in the cell. **[(31/5/3)]**

19) (a) Explain the formation of ionic compound, Al_2O_3 with electron-dot structure:
(Given : Atomic no. of Al and O are 13 and 8 respectively)
(b) What happens when (Report only observations)
(i) a reactive metal reacts with a dilute mineral acid?
(ii) an amphoteric oxide reacts with sodium hydroxide solution?
(iii) a metal of low reactivity is dropped in the salt solution of a metal of high reactivity?
(iv) a metal carbonate is treated with acid? **[(31/5/3)]**

Year 2019

Very Short Answer Type Questions [2 Marks]

1) Show the formation of magnesium oxide by the transfer of electrons. **[(31/3/2)]**
2) What are ionic compounds? Why do ionic compounds not conduct electricity in the solid state? **[(31/3/2)]**
3) Give reasons :
   a. Platinum, gold and silver are used to make jewellery.
   b. Metals like sodium and potassium are stored under oil. **[(31/2/1)]**
4) Silver articles become black when kept in open for some time, whereas copper vessels lose their shiny brown surfaces and gain a green coat when kept in open. Name the substances present in air with which these metals react and write the name of the products formed. **[(31/2/1)]**
5) Give reason :
   (a) Carbonate and sulphide ores are usually converted into oxides during the process of extraction.
   (b) Aluminium is a highly reactive metal; still it is widely used in making cooking utensils. **[(31/2/2)]**
6) Name a metal of medium reactivity and write three main steps in the extraction of this metal from its sulphide ore. **[(31/2/3)]**
7) Show the formation of Na_2O by the transfer of electrons. **[(31/3/3)]**

Short Answer Type Questions [3 Marks]

1) Explain the following:
   i. Sodium chloride is an ironic compound which does not conduct electricity in solid state where as it does conduct electricity in molten state as well as in aqueous solution.
   ii. Reactivity of aluminium decrease if it is dipped in nitric acid.
   iii. Metals like calcium and magnesium are never found in their free state in nature. **[(31/1/3)]**
2) What are amphoteric oxides? Give an example. Write balanced chemical equations to justify your answer. **[(31/2/1); (31/2/2)]**
3) During the reaction of some metals with dilute hydrochloric acid, the following observations were made by a student :
   a. Silver does not show any change.
   b. Some bubbles of a gas are seen when lead is reacted with the acid.
   c. The reaction of sodium is found to be highly explosive.
   d. The temperature of the reaction mixture rises when aluminium is added to the acid.

   Explain these observations giving appropriate reason. **[(31/2/3)]**
4) Given below are the steps for the extraction of copper from its ore. Write the chemical equation of the reactions involved in each case.
   (i) Roasting of copper (I) sulphide
   (ii) Reduction of copper (I) oxide from copper (I) sulphide
   (iii) Electrolytic refining **[(31/2/3)]**
5) Out of three metals P, Q and R, P is less reactive than Q and R is more reactive than P and Q both. Suggest an activity to arrange P, Q and R in order of their decreasing reactivity. **[(31/3/1); (31/3/2); (31/3/3)]**

6) Name the ore of mercury. With the help of balanced chemical equations, explain the process of extraction of mercury from its ore. **[(31/3/1); (31/3/2); (31/3/3)]**
7) How is the method of extraction of metals high up in the reactivity series different from that for metals in the middle? Why can the same process not be applied for them? Name the process used for the extraction of these metals. **[(31/4/1); (31/4/2)]**
8) A metal X, which is used in thermit process, when heated with oxygen gives an oxide Y which is amphoteric in nature. Identify X and Y. Write balanced chemical equations of the reactions of oxide Y with hydrochloric acid and sodium hydroxide. **[(31/4/3)]**
9) An ore on treatment with dilute hydrochloric acid produces brisk effervescence. Name the type of ore with one example. What steps will be required to obtain metal from the enriched ore? Also write the chemical equations for the reactions involved in the process. **[(31/5/1); (31/5/3)]**
10) An ore on treatment with dil. HCl gives the smell of rotten egg. Name the type of this ore. How can the metal be obtained from its concentrated ore? **[(31/5/2)]**

Long Answer Type Questions [5 Marks]

1) (a) List in tabular form three chemical properties on the basis of which we can differentiate between a metal and a non-metal.
   (b) Give reasons for the following:
   i. Most metals conduct electricity well.
   ii. The reaction of iron (II) oxide [Fe_2O_3] with heated aluminium is used to join cracked machine parts. **[(31/1/1)]**
2) (a) Write chemical equations for the following reactions:
   i. Calcium metal reacts with water.
   ii. Cinnabar is heated in the presence of air.
   iii. Manganese dioxide is heated with aluminium powder.
   What are alloys? List two properties of alloys. **[(31/1/2)**

Year 2018

Long Answer Type Questions [5 Marks]

1) (a) Write the steps involved in the extraction of pure metals in the middle of the activity series from their carbonate ores.
   (b) How is copper extracted from its sulphide ore? Explain the various steps supported by chemical equations. Draw labelled diagram for the electrolytic refining of copper. **[All India]**
2) Distinguish between metals and non-metals on the basis of
   (i) two physical properties and (ii) three chemical properties. **[For Blind Student]**
3) (1) A non-metal 'P' which is the largest constituent of air, when heated with hydrogen in 1:3 ratio in the presence of catalyst (Fe) gives a gas Q.
   (2) On heating P with oxygen an oxide R is formed.
   (3) If this oxide (R) is passed into water in the presence of air, an acid S is formed which acts as a strong oxidizing agent.
   a. Identify P, Q, R and S, and give chemical equations of the reactions involved to justify your answer.
   b. To which group and period of modern periodic table does this non-metal P belong? **[For Blind Student]**

Practical Skill Based Questions [2 Marks]

1) A student added few pieces of aluminium metal to two test tubes A and B containing aqueous solutions of iron sulphate and copper sulphate. In the second part of her experiment, she added iron metal to another test tubes C and D containing aqueous solutions of aluminium sulphate and copper sulphate. In which test tube or test tubes will she observe colour change ? On the basis of this experiment, state which one is the most reactive metal and why. **[All India]**
2) What is observed when a solution of sodium sulphate is added to a solution of barium chloride taken in a test tube? Write equation for the chemical reaction involved and name the type of reaction in this case. **[All India]**

Year 2015

Very Short Answer Type Questions [2 Marks]

1) Write one example of each of
   (i) a metal which is so soft that, it can be cut with knife and a non-metal which is the hardest substance.
   (ii) a metal and a non-metal which exist as liquid at room temperature.
2) Mention the names of the metals for the following:
   (i) Two metals which are alloyed with iron to make stainless steel.
   (ii) Two metals which are used to make jewellary.

Short Answer Type Questions [3 Marks]

1) State three reasons for the following facts
   (i) Sulphur is a non-metal
   (ii) Magnesium is a metal
   One of the reasons must be supported with a chemical equation.
2) What is cinnabar? How is metal extracted from cinnabar? Explain briefly.
3) (a) Write the electron dot structures for potassium and chlorine.
   (b) Show the formation of KCl by the transfer of electrons.
   (c) Name the ions present in the compound, KCl.
4) (a)State the electron-dot structure for calcium and sulphur.
   (b) Show the formation of CaS by the transfer of electrons.
   (c) Name the ions present in this compound CaS. Atomic number of Ca = 20, O = 16.

Long Answer Type Question [5 Marks]

1) (a) Write electron dot diagram for chlorine (At No. 17) and calcium (At No. 20).
   Show the formation of calcium chloride by transfer of electrons.
   (b) Identify the nature of above compound and explain three physical properties of such compound.

Year 2014

Short Answer Type Questions [3 Marks]

1) You are given samples of three metals. Sodium, magnesium and copper. Suggest any two activities to arrange them in order of decreasing activity.

2) You are provided with magnesium ribbon and sulphur powder. Explain with the help of an activity that metal oxides are basic and non-metal oxide are acidic in nature.

Long Answer Type Question [5 Marks]

1) (a) An ore on treatment with dilute hydrochloric acid produces brisk effervesces. What type of ore is this? What steps will be required to obtain metal from the enriched ore. ,
(b) Copper coin is kept immersed in silver nitrate solution for some time. What change will take place in coin and colour of the solution ? Write balanced chemical equation of the reaction involved.

Year 2013

Short Answer Type Question [2 Marks]

1) Give reason for the following:
(a) School bells are made up of metals.
(b) Electric wires are made up of copper.

Short Answer Type Questions [3 Marks]

1) Suggest a method of reduction for the following metals during their metallurgical processes:
(i) metal 'A' which is one of the last, second or third position in the reactivity.
(ii) metal 'B' which gives vigorous reaction even with water and air.
(iii) metal 'C' which is kept in the middle of activity series.

Long Answer Type Question [5 Marks]

1) (a) Define activity series of metals. Arrange the metals gold, copper, iron and magnesium in order of their increase in reactivity.
(b) What will you observe when:
(i) Some zinc pieces are put in copper sulphate solution.
(ii) Some silver pieces are put into green coloured ferrous sulphate solution.

Year 2012

Very Short Answer Type Question [1 Mark]

1) A green layer is gradually formed on a copper plate left exposed to air for a week in a bathroom. What could this green substance be? **[CBSE (CCE)]**

Very Short Answer Type Questions [2 Marks]

1) Name the following:
(a) A metal, which is preserved in kerosene.
(b) A lustrous coloured non-metal.
(c) A metal, which can melt while kept on palm.
(d) A metal, which is a poor conductor of heat. **[CBSE (CCE)]**
2) Explain why calcium metal after reacting with water starts floating on its surface. Write the chemical equation for the reaction. Name one more metal that starts floating after some time when immersed in water. **[CBSE (CCE)]**

3) Give reason for the following:
(a) Aluminium oxide is considered as an amphoteric oxide.
(b) Ionic compounds conduct electricity in molten state. **[CBSE (CCE)]**

Short Answer Type Questions [3 Marks]

1) (a) Explain the formation of ionic compound CaO with electron dot structure. Atomic number of calcium and oxygen are 20 and 8 respectively.
(b) Name the constituent metals of bronze. **[CBSE (CCE)]**
2) A metal 'X' acquires a green colour coating on its surface on exposure to air.
(i) Identify the metal 'X' and name the process responsible for this change.
(ii)Name and write chemical formula of the green coating formed on the metal.
(iii) List two important methods to prevent the process. **[CBSE (CCE)]**
3) Write balanced equations for the reaction of:
(i) aluminium when heated in air. Write the name of the product.
(ii) iron with steam. Name the product obtained.
(iii) calcium with water. Why does calcium start floating in water? **[CBSE (CCE)]**
4) Write balanced chemical equations for the following reactions:
(a) Dilute sulphuric acid reacts with aluminium powder.
(b) Dilute hydrochloric acid reacts with sodium carbonate.
(c) Carbon dioxide is passed through lime water. **[CBSE (CCE)]**
5) What is meant by 'rusting'? With labelled diagrams, describe an activity to find out the conditions under which iron rusts**. [CBSE (CCE)]**
6) (a) Show the formation of Na_2O by the transfer of electrons between the combining atoms.
(b) Why are ionic compounds usually hard?
(c) How is it that ionic compounds in the solid state do not conduct electricity but they do so when in molten state? **[CBSE (CCE)]**
7) (a) Show on a diagram the transfer of electrons between the atoms in the formation of MgO. Write symbols of cation and anion present in MgO.
(b) Name the solvent in which ionic compounds are generally soluble.
(c) Why are aqueous solutions of ionic compounds able to conduct electricity? **[CBSE (CCE)]**
8) What are amphoteric oxides? Choose the amphoteric oxides from amongst the following oxides: Na_2O, ZnO, Al_2O_3, CO_2, H_2O **[CBSE (CCE)]**
9) Define the terms:
(i) mineral
(ii) ore, and
(iii) gangue. **[CBSE (CCE)]**

Long Answer Type Questions [5 Marks]

1) (a) Write the chemical name of the coating that forms on silver and copper articles when these are left exposed to moist air.
(b) Explain what is galvanisation. What purpose is served by it?
(c) Define an alloy. How are alloys prepared? How do the properties of iron change when:
(i) small quantity of carbon,
(ii) nickel and chromium are mixed with it. **[CBSE (CCE)]**

2) (a) Differentiate between roasting and calcination. Explain the two with the help of suitable chemical equations. How is zinc extracted from its ore?
(b) Name two metals that can be used to reduce metal oxides to metals. **[CBSE (CCE)]**
3) (a) In the formation of compound between two atoms A and B, A loses two electrons and B gains one electron.
(i) What is the nature of bond between A and B?
(ii) Suggest the formula of the compound formed between A and B.
(b) On similar lines explain the formation of $MgCl_2$ molecule.
(c) Common salt conducts electricity only in the molten state. Why?
(d) Why is melting point of NaCl high? **[CBSE (CCE)]**
4) (a) Carbon cannot be used as reducing agent to obtain Mg from MgO. Why?
(b) How is sodium obtained from molten sodium chloride? Give equation of the reactions.
(c) How is copper obtained from its sulphide ore? Give equations of the reactions. **[CBSE (CCE)]**
5) How is the method of extraction of metals high up in the reactivity series different from that for metals in the middle? Why the same process cannot be applied for them? Explain giving equations, the extraction of sodium. **[CBSE (CCE)]**
6) Write the names and symbols of two most reactive metals. Explain by drawing electronic structure how any one of the two metals react with a halogen. State any four physical properties of the compound formed. **[CBSE (CCE)]**
7) A metal 'M' which is one of the best conductor of heat and electricity used in making electric wires is found in nature as sulphide ore M_2S?
(i) Name the metal 'M'
(ii) Which process will be suitable for extraction of this metal M from its ore M_2S? Write the balanced chemical reactions involved in the process of extraction.
(iii) With the help of a labelled diagram, explain the process of electrolytic refining of the metal. **[CBSE (CCE)]**
8) Give reasons for the following:
(i) Silver and copper lose their shine when they are exposed to air. Name the substance formed on their surface in each case.
(ii) Tarnished copper vessels are cleaned with tamarind juice.
(iii) Aluminium is more reactive than iron yet there is less corrosion of aluminium as compared to iron when both are exposed to air. **[CBSE (CCE)]**
9) (a) Write the electron dot structures of sodium, oxygen and magnesium.
(b) Show the formation of Na_2O and MgO by transfer of electrons. Name the ions present in these compound.
(c) List three properties of ionic compounds. **[CBSE (CCE)]**
10) What are alloys? How are they made? Name the constituents and uses of brass, bronze and solder. **[CBSE (CCE)]**
11) A metal (E) is stored under kerosene. When a small piece of it is left open in the air, it catches fire. When the product formed is dissolved in water, it turns red litmus to blue.
(i) Name the metal (E).
(ii)Write the chemical equation for the reaction when it is exposed to air and when the product is dissolved in water.
(iii) Explain the process by which the metal is obtained from its molten chloride. **[CBSE (CCE)]**
12) Write two differences between calcination and roasting. **[CBSE (CCE)]**

Year 2011

Very Short Answer Type Questions [1 Mark]

1) A non-metal X exists in two different forms Y and Z. Y is the hardest natural substance, whereas Z is a good conductor of electricity. Identify X, Y and Z. **[CBSE (CCE)]**
2) Why does calcium float in water? **[CBSE (CCE)]**
3) Name a non-metal which is lustrous and a metal which is non-lustrous., **[CBSE (CCE)]**
4) Which gas is liberated when a metal reacts with an acid? How will you test the presence of this gas? **[CBSE (CCE)]**
5) Name the metal which reacts with a very dilute HNO_3 to evolve hydrogen gas. **[CBSE (CCE)]**
6) Name two metals which are found in nature in the free state. **[CBSE (CCE)]**

Short Answer Type Questions [2 Marks]

1) The way, metals like sodium, magnesium and iron react with air and water is an indication of their relative positions in the 'reactivity series'. Is this statement true ? Justify your answer with examples. **[CBSE (CCE)]**
2) $X + YSO_4 \longrightarrow XSO_4 + Y$
   $Y + XSO_4 \longrightarrow$ No reaction
   Out of the two elements, 'X' and 'Y', which is more reactive and why? **[CBSE (CCE)]**
3) What is an alloy? State the constituents of solder. Which property of solder makes it suitable for welding electrical wires? **[CBSE (CCE)]**
4) Using the electronic configurations, explain how magnesium atom combines with oxygen atom to form magnesium oxide by transfer of electrons. **[CBSE (CCE)]**
5) When a metal X is treated with cold water, it gives a base Y with molecular formula XOH (Molecular mass = 40) and liberates a gas Z which easily catches fire. Identify X, Y and Z. **[CBSE (CCE)]**
6) Write chemical equations that shows aluminium oxide reacts with acid as well as base. **[CBSE (CCE)]**

Long Answer Type Questions [5 Marks]

1) (a) Name the main ore of mercury. How is mercury obtained from its ore? Give balanced chemical equation.
   (b) What is thermite reaction? How is it used to join the railway tracks or cracked machine parts?
   (c) Name the method used to extract metals of high reactivity. **[CBSE (CCE)]**
2) (a) How can the metals at the top of the reactivity series be extracted from their ores? Explain with an example.
   (b) Name any one alloy made from
   (i) a metal and a non-metal, and
   (ii) two metals. **[CBSE (CCE)]**
3) (a) Give two methods to prevent the rusting of iron.
   (b) Name the ores of the following metals:
   (i) mercury, and
   (ii) zinc
   (c) Explain with the help of a diagram, how copper metal can be refined? Label the important arrangements in the experimental set up. **[CBSE (CCE)]**
4) With the help of a suitable example, explain how ionic compounds are formed. State any three general properties of ionic compounds. **[CBSE (CCE)]**

5) (a) Explain with an example how the metal (X) which is low in reactivity series and metal (Y) which is high in the reactivity series are obtained from their compounds by reduction process.
(b) Write the electronic configurations of sodium and chlorine. Show the formation of sodium chloride from sodium and chlorine by the transfer of electrons.
(c) List any two observations when a highly reactive metal is dropped in water**. [CBSE (CCE)]**
6) (a) The reaction of metal (X) with ferric oxide is highly exothermic. Metal(X) is obtained from its oxides by electrolytic reduction. Identify (X) and write its reaction with ferric oxide.
(b) Give reason to justify that aluminium oxide is an amphoteric oxide. Also, give another example of amphoteric oxide.
(c) Mention constituent metals present in bronze**. [CBSE (CCE)]**

Year 2010

Very Short Answer Type Questions [1 Mark]

1) What is the valency of silicon with atomic number 14? **[Foreign]**
2) What is the valency of phosphorus with atomic number 15? **[Foreign]**
3) What is the valency of an element with atomic number 35? **[Foreign]**
4) What changes in the colour of iron nails and copper sulphate solution do you observe after keeping the iron nails dipped in copper sulphate solutionfor about 30 minutes ?

Very Short Answer Type Questions [2 Marks]

1) Elements magnesium and oxygen respectively belong to group 2 and group 16 of the Modern Periodic Table. If the atomic numbers of magnesium and oxygen are 12 and 8 respectively, draw their electronic configurations and show the process of formation of their compound by transfer of electrons. **[Foreign]**

Short Answer Type Questions [3 Marks]

1) No chemical reaction takes place when granules of a solid, A, are mixed with the powder of another solid, B. However when the mixture is heated, a reaction takes place between its components. One of the products, C, is a metal and settles down in the molten state while the other product, D, floats over it. It was observed that the reaction is highly exothermic.
(i) Based on the given information make an assumption about A and B and write a chemical equation for the chemical reaction indicating the conditions of reaction, physical state of reactants and products and thermal status of reaction.
(ii) Mention any two types of reactions under which above chemical reaction can be classified.**[Delhi]**

Long Answer Type Question [5 Marks]

1) Write the names and symbols of two most reactive metals belonging to group I of the periodic table. Explain by drawing electronic structure how either one of the two metals reacts with a halogen. With which name is the bond formed between these elements known and what is the class of the compound so formed known ? State any four physical properties of such compounds.**[Delhi]**

2) What is meant by refining of a metals ? Name the most widely used method of refining impure metals produced by various reduction processes. Describe with the help of a labelled diagram how this method may be usedfor refining of copper.**[Delhi]**
3) Give reason why
   (i) metals are good conductors, whereas non-metals are badconductors of electricity.
   (ii) metals replace hydrogen from acids whereas non-metals do not.
   (iii) an iron knife dipped in a blue copper sulphate solution turns theblue solution light green.
   (iv) sodium is kept under kerosene.
   (v) carbon cannot reduce the oxides of sodium or aluminium. **[Foreign]**
4) (a) Write two differences between calcination and roasting.
   (b) No reaction takes place when granules of a solid 'A' are mixed with a powder of solid 'B'. However when the mixture is heated a reaction starts with evolution of much heat. Product 'C' of the reaction settles down as a liquid metal and solid product D keeps floating over the liquid 'C'. This reaction is sometimes used for making metals for ready use in odd places.
   (i) Based on this information make assumptions about 'A' and 'B' and corresponding deductions about 'C' and 'D' and write a balanced chemical equation for the reaction. Include in the equation the information about physical states of the reactants and products, need of heating for starting the reaction and the reaction being exothermic.
   (ii) Name two types of chemical reactions to which this reaction can belong. **[Foreign]**

Year 2009

Very Short Answer Type Questions [1 Marks]

1) Name a reducing agent that may be used to obtain manganese from manganese dioxide.**[Delhi]**
2) Arrange the following metals in a decreasing order of activity : **[Foreign]**
   Na, K, Cu, Ag

Very Short Answer Type Questions [2 Marks]

1) What is meant by 'water of crystallisation' of a substance ? Describe an activity to show that blue copper sulphate crystals contain water of crystallisation. **[Foreign]**

Short Answer Type Questions [3 Marks]

1) State reasons for the following:
   (i) Electric wires are covered with rubber like material.
   (ii)From dilute hydrochloric acid, zinc can liberate hydrogen gas but copper cannot.
   (iii) Sulphide ore of a metal is first converted to its oxide to extract the metal from it. **[Foreign]**
2) An ore on heating in air produces sulphur dioxide. Which process would you suggest for its concentration? Describe briefly any two steps involved in the conversion of this concentrated ore into related metal. **[Delhi]**
3) Give reasons for the following observations:
   (i) Ionic compounds in general have high melting and boiling points.
   (ii) Highly reactive metals cannot be obtained from their oxides by heating them with carbon.
   (iii) Copper vessels get a green coat when left exposed to air in the rainy season. **[Foreign]**
4) State reasons for the following observations:
   (i) The shining surface of some metals becomes dull when exposed to air for a long time.
   (ii) Zinc fails to evolve hydrogen gas on reacting with dilute nitric acid.

(iii) Metal sulphides occur mainly in rocks but metal halides occur mostly in sea and lake waters. **[Foreign]**

5) What is meant by 'rusting'? With labelled diagrams describe an activity to find out the conditions under which iron rusts. **[Delhi]**
6) Give reasons for the following observations :
(i) Ionic compounds in general have high melting and boiling points.
(ii) Highly reactive metals cannot be obtained from their oxides by heating them with carbon.
(iii) Copper vessels get a green coat when left exposed to air in rainy season. **[Foreign]**

Long Answer Type Questions [5 Marks]

1) (a) What is meant by corrosion? Name any two methods used for the prevention of corrosion.
(b) Suppose you have to extract metal M from its enriched sulphide ore. If M is in the middle of the reactivity series, write various steps used in extracting this metal. **[All India (C)]**
2) (a) Distinguish between ionic and covalent compounds under the following properties :
(i) Strength of forces between constituent elements
(ii)Solubility of compounds in water
(iii)Electrical conduction in substances
(b) Explain how the following metals are obtained from their compounds by the reduction process
(i) Metal M which is in the middle of the reactivity series.
(ii) Metal N which is high up in the reactivity series. Give one example of each type. **[All India]**
3) (a) Distinguish between 'roasting' and 'calcination'. Which of these two is used for sulphide ores and why ?
(b) Write a chemical equation to illustrate the use of aluminium for joining cracked railway lines
(c) Name the anode, the cathode and the electrolyte used in the electrolytic refining of impure copper. **[All India]**

Year 2008

Very Short Answer Type Questions [1 Marks]

1) Which of the following two metals will melt at body temperature (37°C)? **[Delhi (C)]**
Gallium, Magnesium, Caesium, Aluminium
2) From amongst the metals, sodium, calcium, aluminium, copper and magnesium name the metal. **[Delhi]**
(i) which reacts with water only on boiling and
(ii) which does not reactive and with his team
3) Element 'M' forms a chloride with the formula MCl_2 which is solid with high melting point. To which group of the Periodic element does the element 'M' belong? **[All India (C)]**
4) Show the electronic transfer in the formation of $MgCl_2$ from its elements. **[Foreign]**

Very Short Answer Type Questions [1 Marks]

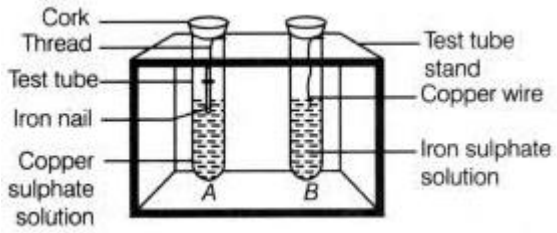
1) Give reason for the following
(a) Gold and silver are used to make jewellery
(b) Carbonate and sulphide ores are usually converted into oxides prior to reduction during the process of extraction **[Delhi (C)]**
2) Give reason for the following
(a) Metals can be given different shapes according to our needs

(b) Hydrogen is not evolved when metal reacts with nitric acid **[Delhi (C)]**

3) Why is that non metals do not displace hydrogen from dilute acid? **[All India]**

Short Answer Type Questions [3 Marks]

1) Observe the two test tubes A and B in the diagram given below and answer the following questions :



(a) In which test you will the reaction takes place ?

(b) Write a balanced equation for the reaction.

(c) Name the type of reaction **[Delhi (C)]**

2) Name two metals which react violently with cold water. Write any three observations you would make when such a metal is dropped into water. How would you identify the gas evolved, if any, during the reaction? **[All India]**

3) (a) What are amphoteric oxides? Choose the amphoteric oxides from amongst the following oxides:

Na_2O, ZnO, Al_2O_3, CO_2, H_2O

(b) Why is it that non-metals do not displace hydrogen from dilute acids ?

4) Name two metals which react violently with cold water. Write any three observations you would make when such a metal is dropped into water. How would you identify the gas evolved, if any, during the reaction?

5) (a) Name a metal for each case:

(i) It does not react with cold as well as hot water but reacts with steam.

(ii) It does not react with any physical state of water.

(b) When calcium metal is added to water the gas evolved does not catch fire but the same gas evolved on adding sodium metal to water catches fire. Why is it so?