

Half Yearly Examination 2018-2019
Chemistry

Class : IX

Time : 2 hrs.+15min.

Full Marks : 80

Section A (40 marks)

Attempt all questions.

Question 1

(a) Choose the correct word from the brackets to complete the sentences :- [5]

- (i) The element which shows variable valency is _____.
(Iron, Sodium, Aluminium)
- (ii) Pressure volume relationship is given by _____.
(Boyle's, Charle's)
- (iii) Hydrogen gas is absorbed by metal _____.
(Copper, Aluminium, Palladium)
- (iv) Acid reacts with base to give salt and water. The reaction is known as _____. (Decomposition, neutralisation)
- (v) Going across a period left to right, atomic size _____. (increases, decreases)

- (b)**
- (i) What is the common name for elements of third period ? [1]
 - (ii) Elements of which two periods are called bridge elements?[1]
 - (iii) One litre of a gas at 10°C is heated till both its volume and pressure are tripled. Find the new temperature.

[3]

{Turn Over}

(c) Give reasons :- [5]

- (i) Hot concentrated H_2SO_4 is not used in the preparation of Hydrogen.
- (ii) Group I elements are called alkali metal.
- (iii) Oxy hydrogen flame is used for cutting and welding metals.
- (iv) A solution of copper II sulphate cannot be stored in a pot made of iron.
- (v) Hydrogen is collected by downward displacement of water.

(d) Write the following equations and balance them:- [5]

- (i) Zinc sulphide + Hydrogen Chloride \longrightarrow Zinc chloride + Hydrogen sulphide.
- (ii) Ammonium Chloride + Calcium Hydroxide \longrightarrow Calcium Chloride + Water + Ammonia
- (iii) Sodium bi sulphite + Sulphuric acid \longrightarrow Sodium Sulphate + water + sulphurdioxide
- (iv) Iron II Chloride + Hydrogen Sulphide \longrightarrow Iron II chloride + Hydrogen chloride + sulphur
- (v) Ammonia + chlorine \longrightarrow Nitrogen + Hydrogenchloride.

(e) What do you observe for the action of heat on the following substances :- [4]

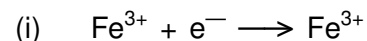
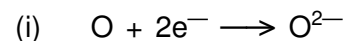
- (a) Ammonium dichromate
- (b) Lead II nitrate.
- (c) Washing soad
- (d) Zinc carbonate.

(f) (i) Calculate the relative molecular mass of the following compounds :-

(i) State which are metals and noble gas in this table.[2]
(ii) Which type of ion will be formed by element A, B and C. [1½]

(iii) Which is larger in size B or C ? Give reason. [1½]

(b) Identify the following reactions as either oxidation or reduction; also give reason for your answer [2]



(c) M is a metal above hydrogen in the activity series and its oxide has the formula M_2O . This oxide when dissolved in water forms the corresponding hydroxide which is a good conductor of electricity. In the above context answer the following questions :-

(i) What kind of chemical bond exists between M and O? [1]

(ii) How many electrons are there in the outer most sheel of M ? [1]

(iii) Name the group to which M belongs ? [1]

- (ii) Na, Li, K (increasing metallic character)
- (iii) F, Cl, Br (increasing non-metallic character)
- (iv) Li, K, Na (increasing atomic size).

(c) Calculate the percentage mass of nitrogen in Ammonium sulphate. [Atomic mass of N=14, H=1, S=32, O=16] [2]

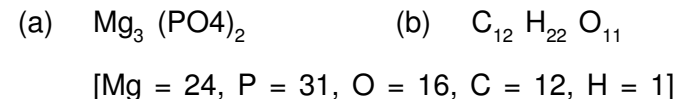
Question 6

- (a) Draw an electron dot diagram to show the formation of each of the following compounds :- [4]
 - (i) Methane
 - (ii) Magnesium Chloride
- (b) Gas is enclosed in a cylinder under S.T.P. condition. At what temperature does the volume of the enclosed gas become 1/6th of its initial volume, pressure remaining constant.
- (c) Match the atomic number 2,4,8,15,19 with each of the following :- [4]
 - (i) A solid non-metal belonging to the third period.
 - (ii) A metal of Group 1
 - (iii) A gaseous element with valency 2.
 - (iv) An element belonging to Group 2.

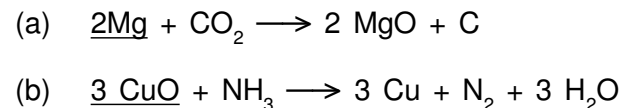
Question 7

(a) The position of the elements A,B,C,D and E in the periodic table are shown below :-

Group I	Group 2	Group 17	Group 18
—	—	—	D
—	B	C	—
A	—	—	E



(ii) State giving reason whether the underlined substances is getting oxidised or reduced.



(c) Name the followings :- [6]

- (i) A solid that is an oxidising agent.
- (ii) An oxidizing agent that does not contain oxygen.
- (iii) Promoter used in Haber's Process.
- (iv) A drying agent used to dry H_2 gas.
- (v) Metalloid in period 3.
- (vi) Position of Hydrogen in the periodic table.

(h) An element belongs to the 3rd period and Group 13 of the period table. State : [4]

- (i) the number of valence electrons.
- (ii) the valency.
- (iii) if it is a metal or nonmetal.
- (iv) the name of the element.

Section B (40 marks)

(Attempt any four questions)

Question 2

(a) (i) Name the first and last element in period 2. [5]

- (ii) What happens to the atomic size of elements moving from top to bottom of a group ?
- (iii) Which of the element has the greatest reactivity among the halogens ?
- (iv) What is the common feature of the electronic configuration of the elements in Group 17 ?

(b) For laboratory preparation of Hydrogen, give the following answers :

- (i) materials used. [2]
- (ii) a balanced chemical equation. [1]
- (iii) why is nitric acid not used in preparation of Hydrogen?
Name the metals which react with dilute HNO_3 to produce H_2 gas ? [2]

Question 3

- (a) State the original colour and colour of residue for the following salts on heating :- [4]
 - (i) Cu CO_3
 - (ii) Cu SO_4
- (b) Elements X, Y and Z have atomic number 6, 9 and 12 respectively, which one :- [3]
 - (i) forms an anion.
 - (ii) forms a cation.
 - (iii) has four electrons in its valence shell.

- (c) Hydrogen can be prepared with the help of cold water. Give a reaction of Hydrogen with (i) a monovalent metal (ii) a divalent metal.
- (d) Why is the Aluminium not used for the laboratory preparation of Hydrogen ? [1]

Question 4

- (a) An atom X has 3 electrons more than the noble gas configuration. What type of ion will it form ? Write the formula of its. [1+3]
 - (i) sulphate (ii) nitrate (iii) hydroxide
- (b) Compare :- [2]
 - (i) Sodium atom and sodium ion (atomic size)
 - (ii) Chlorine atom and chlorine ion (electronic configuration)
- (c) Name the gases evolved when dilute sulphuric acid reacts with the following :- [4]
 - (i) Mg (ii) Na_2CO_3 (iii) FeS (iv) K_2SO_3

Question 5

- (a) Identify the salts completely soluble in water : [4]

Barium nitrate, Iron III Hydroxide, Lead II nitrate, Copper II Sulphate, Calcium Chloride, Calcium Sulphide, Calcium Carbonate, Iron II Sulphide.
- (b) Arrange the following as per the instructions given in the bracket :- [4]
 - (i) He, Ar, Ne (increasing order of number of electron shells)