ICSE Board
Class X Chemistry
Sample Paper - 8

Time: 2 hrs **Total Marks: 80**

General Instructions:

- Answers to this paper must be written on the paper provided separately.
- You will not be allowed to write during the first 15 minutes.
- This time is to be spent in reading the question paper.
- The time given at the head of this paper is the time allowed for writing the answers.

Section I is compulsory.
Attempt any four questions from **Section II.**
The intended marks for questions or parts of questions are given in brackets [ ].

SECTION I (40 Marks)

Attempt **all** questions from this section.

Question 1

a. From the list given below, select the word(s) required to correctly complete the blanks (i) to (v) in the following passage: [5]

Note: Words chosen from the list are to be used only once. Write only the answers, do not copy the passage.

[Reddish brown, ammonium, nitrogen dioxide, hydroxyl, dirty green, ammonia, acidic, alkaline]

Nitrogen and hydrogen combine in the presence of a catalyst to give (i) _____ gas. When the above mentioned gas is passed through water, it forms a solution which will be (ii) _____ in nature, and the solution contains (iii) _____ ions and (iv) _____ ions. The above solution gives a (v) _____-coloured precipitate of iron (II) hydroxide.

b. Select from the list given (a to e) one substance in each case which matches the description given in parts (i) to (v). [5]

(Note: Each substance is used only once in the answer.)

(a) Nitroso iron (II) sulphate
(b) Iron (III) chloride
(c) Chromium sulphate
(d) Lead (II) chloride
(e) Sodium chloride

i. A compound which is deliquescent.
ii. A compound which is insoluble in cold water but soluble in hot water.
iii. The compound responsible for the brown ring during the brown ring test of nitrate ion.
iv. A compound whose aqueous solution is neutral in nature.
v. The compound which is responsible for the green coloration when sulphur dioxide is passed through acidified potassium dichromate solution.

c. For part (c) (i)–(c) (v), select the correct answers from the choices A, B, C and D which are given. [5]
Write only the letter corresponding to the correct answer.

i. A particular solution contains molecules and ions of the solute, so it is a
(a) Weak acid
(b) Strong acid
(c) Strong base
(d) Salt solution

ii. A compound which liberates reddish brown gas around the anode during electrolysis in its molten state is
(a) Sodium chloride
(b) Copper (II) oxide
(c) Copper (II) sulphate
(d) Lead (II) bromide

iii. An organic compound undergoes addition reactions and gives a red colour precipitate with ammoniacal cuprous chloride. Therefore, the organic compound could be
(a) Ethane
(b) Ethene
(c) Ethyne
(d) Ethanol

iv. An organic weak acid is
(a) Acetic acid
(b) Sulphuric acid
(c) Nitric acid
(d) Hydrochloric acid

v. The metal which is a liquid at room temperature is
(a) Sodium
(b) Magnesium
(c) Mercury
(d) Silver

d. State your observation for the following cases: [5]

i. Moist blue litmus is introduced into a gas jar of sulphur dioxide.
ii. Dry red rose petals are placed in a jar of sulphur dioxide.
iii. Paper soaked in potassium permanganate solution is introduced into a gas jar of sulphur dioxide.
iv. Ammonia gas is burnt in an atmosphere of oxygen in the absence of a catalyst.
v. A glass rod dipped in ammonium hydroxide is brought near the mouth of a concentrated hydrochloric acid bottle.

e. Match **Column A** with **Column B.** [5]

Column A	**Column B**
(i) Sodium chloride	Increases
(ii) Ammonium ion	Covalent bond
(iii) Electronegativity across the period	Ionic bond
(iv) Non-metallic character down the group	Covalent and coordinate bond
(v) Carbon tetrachloride	Decreases

f. Write correctly balanced equations for the following reactions: [5]

ii. Burning of a candle in chlorine.
iii. Between nitrogen and oxygen when lightning strikes.
iv. Calcium carbide is heated in a current of nitrogen.
v. Action of heat on sodium nitrate.
vi. Action of heat on aluminium hydroxide.

g. Name the following: [5]

i. Non-metal, good conductor of electricity
ii. Liquid non-metal
iii. Metal used for galvanisation
iv. A yellow non-metal
v. Atomicity of metals

h. Name the gas evolved in each case: [5]

i. The gas produced by the action of concentrated sulphuric acid on sodium chloride.
ii. The gas produced by the action of dilute nitric acid on copper.
iii. The gas produced on heating sodium nitrate.
iv. The gas which burns in oxygen with a green flame.
v. The gas which can be oxidised to sulphur.

SECTION II (40 Marks)

Attempt **any four** questions from this section.

Question 2

a. The questions below are related to the manufacture of ammonia. [5]

i. Name of the process.
ii. In what ratio must the reactants be taken?
iii. Name the catalyst used.
iv. Give the equation for the manufacture of ammonia.
v. Ammonia can act as a reducing agent. Write a relevant equation for such a reaction.

b. Write the equation for the reaction of zinc with each of the following: [3]

i. NaOH
ii. Dilute H_2SO_4
iii. $CuSO_4$

c. [2]

i. A thin layer of zinc is used to protect iron. Name the process.
ii. Name a non-metal having metallic lustre which sublimes on heating.

Question 3

a. Mr Ramu wants to electroplate his keychain with nickel to prevent rusting. For the electroplating process, [5]

i. Name the electrolyte used
ii. Name the cathode used
iii. Name the anode used
iv. Give the reaction at the cathode
v. Give the reaction at the anode

b. Define electroplating. State the reasons for electroplating. [3]

c. [2]

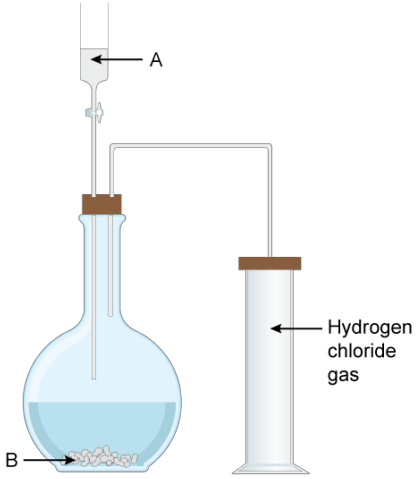
i. A polar covalent compound formed between hydrogen and halogen in Period 2 of the periodic table.
ii. The most metallic element in Period 3.

Question 4

a. [5]

The diagram shows an apparatus for the laboratory preparation of hydrogen chloride:

i. Identify A and B.
ii. Write the equation for the reaction.
iii. How would you check whether the gas jar is filled with hydrogen chloride?
iv. What does the method of collection tell you about the density of hydrogen chloride?



b. The following questions refer to the extraction of aluminium: [5]

i. Name the process by which aluminium is extracted.
ii. Name the ore of aluminium used.
iii. What is the function of cryolite in the electrolyte?
iv. Why is it necessary to replace the anode after some time?
v. Write the reaction taking place at the cathode.

Question 5

a. The following questions are related to iron: [3]

i. Name the acid with which iron is rendered passive.
ii. Name an alloy of iron and carbon.
iii. Name the process by which iron ore is concentrated.

b. Write balanced chemical equations for the following: [5]

i. Monochloroethane is hydrolysed with aqueous KOH.
ii. A mixture of soda lime and sodium acetate is heated.
iii. Ethanol under high pressure and low temperature is treated with acidified potassium dichromate.
iv. Water is added to calcium carbide.
v. Ethanol reacts with sodium at room temperature.

c. What happens to the crystals of washing soda when exposed to air? Name the phenomenon exhibited. [2]

Question 6

a. Name the organic compound prepared by each of the following reactions: [5]

i. $C_2H_5COONa + NaOH \rightarrow$

ii. $CH_3I + 2H \rightarrow$

iii. $C_2H_5Br + KOH$ (alcoholic solution) $\rightarrow$

iv. $CO + 2H_2 \xrightarrow{ZnO}$

v. $CaC_2 + 2H_2O \rightarrow$

b. Alloys are used instead of the metal for certain reasons. Write the reason for each of the following: [5]

i. Solder is used instead of lead.

ii. Duralumin is used instead of aluminium.

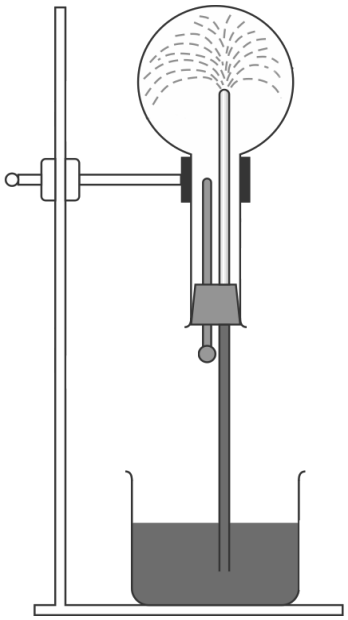
iii. Stainless steel is used instead of iron.

iv. Brass is used instead of copper.

v. Bronze is used instead of copper.

Question 7

a. The diagram shows a simple arrangement of the fountain experiment [5]



i. Name the two gases you have studied which can be used in this experiment.

ii. What is the common property demonstrated by this experiment?

iii. Name the reaction when the aqueous solutions of both gases react.

iv. What are the products formed in the neutralisation reaction?

v. Neutralisation is also known as_____.

b. The following questions refer to the modern periodic table: [5]

i. What are Group I A and IIA elements commonly called?

ii. Group VIIA elements are known as halogens, why?

iii. What is the valency of elements in Group VIII?

iv. Name two elements in Group VIII which are different from the rest of the group elements.

v. Lithium and beryllium although belonging to different groups are found to have similar chemical properties. What is the common name used to represent such similarities?