ICSE Board
Class X Chemistry
Gold Series
Sample Paper - 2

Time: 1½ hrs **Total Marks: 80**

General Instruction:

1. Answers to this paper must be written on the paper provided separately.
2. 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 paper is the time allowed for writing the answers.
This question paper is divided into two sections.
3. **Section I** contains one question with parts (a) to (h); all the eight parts are to be answered.
4. **Section II** contains six questions numbered 2 to 7. You are to answer any four of these questions.
The intended marks of questions or for parts of questions are given in brackets **[ ]**.

SECTION-I (40 Marks)

Attempt **all** questions from this section.

Question 1

(a) Name the following: [5]

(i) An organic compound having - OH as the functional group.
(ii) Flame used for welding and cutting of metals.
(iii) A gas having rotten egg smell.
(iv) The gas dissolved in Nitric acid which gives pale-yellow colour.
(v) An organic acid which is the major constituent of vinegar.

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

(i) Calcium carbide is hydrolysed.
(ii) Ferric oxide is reduced by Aluminium.
(iii) Sulphur dioxide is passed through acidified potassium dichromate solution
(iv) Dissolution of Platinum in Aqua regia.
(v) Ethyl bromide reacts with alcoholic KOH.

(c) [5]

(i) How does metallic character vary in group and period?

(ii) Elements of group 1 are called as (1)_____ metals. These are good(2) _____ agents whereas the elements of Group 17 are called as (3) _____ . These are good (4) _____ agents.

(iii) The vertical columns are called (1) _____ . The horizontal rows are called (2) _____.

(d) [5]

Copy and complete the table. The table summarizes the observation following the addition of barium chloride solution and Lead nitrate solution to the solution of sodium salts.

	Barium chloride solution	Lead nitrate solution
Sodium chloride solution		
Sodium nitrate solution		No reaction
Sodium sulphate solution		

(e) [5]

(i) Who proposed the following law?
'Under the similar conditions of temperature and pressure, equal volumes of all gases contain equal number of molecules.'

(ii) An inorganic compound has the following percentage composition:
P = 22.45% ,Cl = 77.45%.Deduce the empirical formula of the compound.
(P = 31, Cl=35.5)

(iii) Calculate the percentage of Iron in Iron(III)oxide(Fe_2O_3).
(O = 16, Fe=56)

(f) What is the expected pH of the following solutions? [5]

(i) That turns blue litmus red
(ii) That liberates Ammonia from ammonium salts
(iii) Pure water
(iv) Which liberates carbon dioxide from metallic carbonate
(v) Ferric chloride solution

(g) Give the balanced chemical equations for the reaction of Iron with: [5]

(i) Dil. HCl
(ii) Dil.H_2SO_4
(iii) Chlorine
(iv) Copper sulphate
(v) Sulphur

(h) [5]

(i) Name the most common ore of Aluminium.
(ii) Define mineral.
(iii) Give the formula of Bauxite.
(iv) Which two chemical compounds are added to pure bauxite at the time of electrolytic reduction and why?

SECTION-II (40 Marks)

(Attempt any **four** questions from this Section)

Question 2 [10]

(a)

(i) What changes will you observe at cathode, anode and in electrolyte during the electrolysis of copper sulphate solution with copper electrodes?
(ii) Give equations taking place at cathode and at anode.

(b)

A to F below relate to the source and extraction of either zinc or aluminium.

A Bauxite
B Coke
C Cryolite
D Froth floatation
E Sodium hydroxide solution
F Zinc blende

(i) Write down the three letters each from the above list which are relevant to :
(1) Zinc (2) Aluminium

(ii) Fill in the blanks using the most appropriate words from A to F:
(1) The ore from which Aluminium is extracted must first be treated with _____ so that pure Aluminium oxide can be obtained.
(2) Pure aluminium oxide is dissolved in _____ to make a conducting solution.

(iii) Write the formula of Cryolite.

Question 3 **[10]**

(a) What is the major purpose of subjecting concentrated ore to either roasting or calcination?

(b)

Name the most common ore of Aluminium, Zinc and iron. Name the processes by which the named ores are concentrated.

(c) Give balanced chemical equations for the following.

(i) Aluminium hydroxide is heated.
(ii) Zinc oxide is reduced.
(iii) Formation of sodium aluminate on dissolving most common ore of Aluminium in suitable alkali.

(d) Name a metal which reacts both with acids and alkalies to liberate Hydrogen. Give balanced chemical equation also.

Question 4 **[10]**

(a) Draw different isomers having the following molecular formula:

(i) C_5H_{12} (chain)
(ii) C_4H_8 (position)

(b) What is denatured alcohol?

(c) Give two important uses of ethanol.

(d) Write equations for:

(i) Preparation of ethanol by hydration of C_2H_4
(ii) Preparation of acetic acid from ethanol

Question 5 **[10]**

(a) Starting from Lead nitrate how will you prepare the following named salts in laboratory. Write only the balanced chemical equations in support of your answer.

(i) Lead chloride
(ii) Lead sulphide

(b) The follwing table shows the tests a student performed on two aqueous solutions A and B. Write down the observation (i) & (ii) that were made

Test	Observation	Conclusion
(i) To solution A,Sodium hydroxide solution was added	(i)	A contains Fe^{3+}ions
(ii) To Solution B,ammonium hydroxide solution was added slowly till in excess	(ii)	B contains Cu^{2+}ions

(c) What do you observe when:

(i) Excess of ammonia is passed through an aqueous solution of Lead nitrate

(ii) Name of sustance used for drying ammonia

(iii) Write an equation to illustrate the reducing nature of ammonia

(iv) With reference to Haber's process for the preparation of Ammonia, write the equation and the conditions required.

Question 6 **[10]**

(a) Write equations for each of the following reactions:

(i) Chlorine is passed over heated iron.

(ii) Copper sulphate solution is added to Sodium hydroxide solution.

(b)

Element	Group numbers
B	I A or 1
H	VI A or 16
F	IV A or 14
J	VII A or 17
C	II A or 2
K	VII A or 17

(i) Write the formula of the compound formed between B and H.
(ii) In the compound between F and J, what type of bond will be formed ?
(iii) Draw the electron dot structure of the compound formed between C and K.

(c) The elements of one short period of the periodic table are given below in the order from left to right.

Li Be B C O F Ne

(i) To which period these elements belong?
(ii) One element of this period is missing and where should it be placed?
(iii) Which element in this period shows the property of catenation?
(iv) Place the three elements fluorine, Beryllium and nitrogen in the order of increasing electronegativity.
(v) Which element belongs to the halogen series?

Question 7 **[10]**

(a) Fill in the blanks.

(i) Concentrated Sulphuric acid converts Ethanol to _____ as it is a _____ agent.
(ii) Sulphuric acid is commonly called _____ .
(iii) The salts of Sulphuric acid are _____ and _____.
(iv) Sulphuric acid is a _____ acid.
(v) The catalyst employed during Contact process is _____.

(b) Write the equation for the following reactions:

(i) Aluminium nitride and water.
(ii) Calcium carbide and water.
(iii) Ethene and steam.
(iv) Sulphur dioxide and water.
(v) Bromoethane and an aqueous solution of sodium hydroxide.