

ICSE Class 10 Chemistry Sample Paper 6

CHEMISTRY

SCIENCE Paper – 2

(Two hours)

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) Choose the correct answer from the options given below: [5]
- (i) A strong electrolyte from the following is :
- A. Acetic acid
 - B. Oxalic acid
 - C. Ammonium hydroxide
 - D. Sodium hydroxide
- (ii) Electron affinity is maximum in:
- A. Alkali metals
 - B. Alkaline earth metals
 - C. Halogens
 - D. Inert gases

(iii) The main components of brass are :

- A. Copper and Zinc
- B. Copper and lead
- C. Copper and tin
- D. Copper and iron

(iv) The drying agent used to dry NH_3 is:

- A. P_2O_5
- B. conc. H_2SO_4
- C. CaCl_2
- D. CaO

(v) The general formula of alkynes is:

- A. $\text{C}_n\text{H}_{2n-2}$
- B. $\text{C}_n\text{H}_{2n+2}$
- C. C_nH_{2n}
- D. $\text{C}_n\text{H}_{2n+2}\text{O}$

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

- (i) Catalytic oxidation of ammonia
- (ii) Action of concentrated nitric acid on Sulphur.
- (iii) Action of concentrated sodium hydroxide on Zinc oxide
- (iv) Reaction between acetic acid with ethanol in the presence of concentrated sulphuric acid.
- (v) Action of dilute hydrochloric acid on iron.

(c) State any one observation for each of the following: [5]

- (i) Dilute Hydrochloric acid is added to Silver Nitrate solution.
- (ii) Concentrated Nitric acid is added to Copper turnings.
- (iii) Mixture of Ammonium Chloride and Sodium Hydroxide is heated.

- (iv) Ammonium hydroxide solution is added in excess to copper sulphate solution.
- (v) NaOH solution is added to calcium nitrate solution.
- (d) Rewrite the following by inserting appropriate word / words: [5]
- Magnesium Nitride reacts with water to liberate Ammonia.
 - Lead bromide conducts electricity.
 - Starch iodide paper turns blue black in the presence of Chlorine.
 - Hydrogen chloride molecule contains a covalent bond.
 - Acid salts are formed by replacement of the ionisable hydrogen ions of the acid by a metallic ion or ammonium ion.
- (e) (i) Given: $2\text{C}_2\text{H}_6 + 7\text{O}_2 \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O}$ [5]
 2000 cc of O_2 was burnt with 400 cc of ethane.
 Calculate the volume of CO_2 formed and unused O_2
- (ii) Find the number of moles and molecules present in 7.1 g of Cl_2 .
 (At. Wt. Cl = 35.5)
- (iii) Calculate the vapour density of ethene [C =12 , H = 1]
- (f) Identify the terms: [5]
- The energy required to remove an electron from valance shell of a neutral isolated gaseous atom.
 - The method for the concentration of sulphide ores.
 - The property by which carbon bonds with itself to form a long chain.
 - A bond formed by a shared pair of electrons with both electrons coming from the same atom.
 - A substance that conducts electricity in molten or aqueous state.

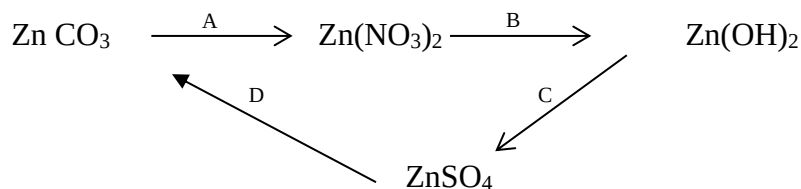
- (g) Arrange the following as per the instruction given in the brackets. [5]
- Li, F, N [increasing order of electronegativity]
 - Na, Al, Cl [increasing order of Ionization potential]
 - O₂, N₂, Cl₂ [increasing order of number of covalent bonds]
 - Zn²⁺, Na⁺, Cu⁺² [order of preference of discharge at the cathode]
 - Br, F, Cl [Decreasing order of atomic radius]
- (h) (i) Draw the structural formula for each of the following: [5]
- But-1-ene
 - Propanoic acid
 - Ethanol
- (ii) Draw the structural isomers of C₄H₁₀

SECTION II (40 Marks)

Attempt **any four** questions from this Section

Question 2

- (a) Write balanced equations for following conversions: [4]



- (b) Show the formation of H₃O⁺ using the electron dot diagram. [3]
State the types of bonds present in it.
- (c) Distinguish between the following pairs of compounds using the test given within the brackets. [3]
- Calcium sulphite and calcium carbonate (using dil. HCl)
 - Calcium nitrate and potassium nitrate (using a flame test)
 - Lead nitrate solution and Zinc nitrate solution (using an alkali)

Question 3

- (a) Study the table and answer the following questions:

[6]

Atom	Atom No.
A	11
B	17

- (i) Compare the positions of A and B in the Periodic Table.
- (ii) Which is more metallic?
- (iii) Write equations for the formation of ions of A and B.
- (iv) What type of bond is formed between A and B?
Mention its physical state and solubility in water.

- (b) Identify the gas evolved in each of the following cases:

[4]

- (i) A colorless gas liberated on decomposition of nitric acid.
- (ii) Water is added to calcium carbide
- (iii) Dilute hydrochloric acid is added to Zinc sulphide.
- (iv) Dilute nitric acid is added to copper.

Question 4

- (a) Write a balanced equation for the following:

[4]

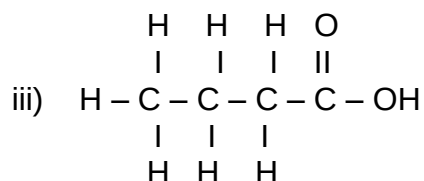
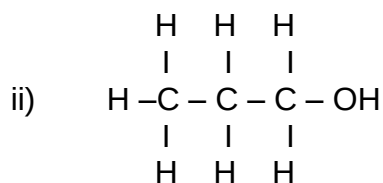
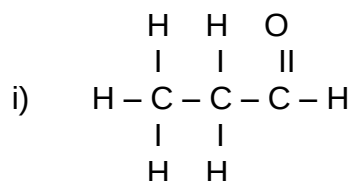
- (i) $\text{C}_2\text{H}_5\text{Br} + \text{alcoholic KOH} \rightarrow$
- (ii) $\text{CH}_3\text{CH}_2\text{COONa} + \text{soda lime} \rightarrow$
- (iii) $\text{C}_2\text{H}_4 + \text{Br}_2 \rightarrow$
- (iv) $\text{C}_2\text{H}_5\text{OH} + \text{Na} \rightarrow$

- (b) State how the following conversions can be carried out.

[3]

- (i) Ethyl chloride to ethyl alcohol
- (ii) Ethyl alcohol to ethene.
- (iii) Ethyl bromide to ethane.

- (c) Give the correct IUPAC name for each of the compounds whose structural formulae are given below. [3]



Question 5

- (a) (i) Name the chief ore of Aluminum and the process of concentration of the ore. [6]
- (ii) Write balanced equations for the conversion of the above ore of aluminum to pure alumina.
- (iii) Name one alloy of Aluminum.
- (b) A compound gave a following data: [4]
- C = 57.82%, O = 38.58% and the rest hydrogen. Its relative molecular mass is 166.
- Find its empirical formula and molecular formula.
- [C = 12, O = 16, H = 1]

Question 6

- (a) (i) Copy and complete the following table: [4]

Name of the process	Catalyst	Temperature	Equation for the reaction
Haber's Process			

- (ii) How is Ammonia separated from unreacted Nitrogen and Hydrogen?
- (b) Give appropriate scientific reasons for each of the following statements. [3]
- (i) Electrolysis of molten lead bromide is considered to be a redox reaction.
- (ii) Although copper is a good conductor of electricity it is a non-electrolyte.
- (iii) Electrical conductivity of acetic acid is less in comparison to that of dil. Sulphuric acid.
- (c) Mention the property of conc. H_2SO_4 exhibited in each of the following reactions with: [3]
- (i) sugar
- (ii) metallic chloride
- (iii) non-metal such as carbon.

Question 7

- (a) Answer the following questions pertaining to laboratory preparation of Hydrogen chloride: [4]
- (i) Write an equation for the laboratory preparation of Hydrogen Chloride.
- (ii) Name the drying agent used.
- (iii) Name the method of collecting Hydrogen Chloride gas.
- (iv) Give a test to identify the gas.

(b) Give reasons for each of the following: [3]

- (i) Direct absorption of HCl gas in water is not preferred.
- (ii) All glass apparatus is used in the laboratory preparation of HNO_3 .
- (iii) NaCl has a high melting point.

(c) Give one point of difference between the following pairs of terms given: [3]

- (i) Calcination and Roasting.
- (ii) Polar and Non Polar covalent compounds.
- (iii) Strong electrolyte and weak electrolyte.