

# ICSE Class 10 Chemistry Sample Paper 5

---

## 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 most appropriate answer.
- (i) Which of the following is a common characteristic of a covalent compound?
- A High melting point.
  - B Conducts electricity when it is in the molten state.
  - C Consists of molecules.
  - D Always soluble in water.
- (ii) Ammonium hydroxide will produce a reddish brown precipitate when added to a solution of :
- A  $\text{CuSO}_4$
  - B  $\text{Zn}(\text{NO}_3)_2$
  - C  $\text{FeSO}_4$
  - D  $\text{FeCl}_3$
- (iii) A salt which in solution gives a bluish white precipitate with  $\text{NaOH}$  solution and a white precipitate with  $\text{BaCl}_2$  solution is:
- A  $\text{CuSO}_4$
  - B  $\text{FeSO}_4$
  - C  $\text{Fe}_2(\text{SO}_4)_3$
  - D  $\text{CuCl}_2$

- (iv) The gas law which relates the volume of a gas to moles of the gas is:
- A Avogadro's Law
  - B Gay-Lussac's Law
  - C Boyle's Law
  - D Charle's Law
- (v) During the electrolysis of acidified water which of the following takes place:
- A Oxygen is released at cathode.
  - B Oxygen is released at anode.
  - C Hydrogen is released at anode.
  - D Sulphur dioxide is released at anode.
- (vi) Duralumin is an alloy of
- A Al and Cu
  - B Cu and Sn
  - C Al and Ag
  - D Al and Fe
- (vii) Hydrogen chloride can be obtained by adding concentrated Sulphuric acid to:
- A NaCl
  - B  $\text{Na}_2\text{SO}_4$
  - C  $\text{Na}_2\text{CO}_3$
  - D  $\text{NaNO}_3$ .
- (viii) Which of the following reactions gives copper as a product
- A Passing dry ammonia over heated copper oxide.
  - B Adding dilute hydrochloric acid to copper oxide.
  - C Heating copper oxide.
  - D Passing oxygen over heated copper oxide?
- (ix) Formation of chloroform from methane and chlorine is an example of:
- A Addition
  - B Dehydration
  - C Substitution
  - D Elimination.

(x) The element with the highest ionization potential in the periodic table is:

- A He
- B Ne
- C Ar
- D Xe

[10]

(b) The equation for the action of heat on calcium nitrate is:



(i) How many moles of  $\text{NO}_2$  are produced when 1 mole of  $\text{Ca}(\text{NO}_3)_2$  decomposes?

(ii) What volume of  $\text{O}_2$  at S.T.P. will be produced on heating 65.6 g of  $\text{Ca}(\text{NO}_3)_2$ ?

(iii) Find out the mass of  $\text{CaO}$  formed when 65.6 g of  $\text{Ca}(\text{NO}_3)_2$  is heated.

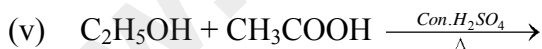
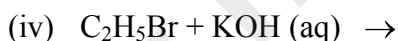
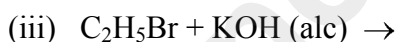
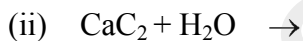
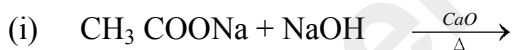
(iv) Find out the mass of  $\text{Ca}(\text{NO}_3)_2$ , required to produce 5 moles of gaseous products.

(v) Find out the mass of  $\text{Ca}(\text{NO}_3)_2$  required to produce 44.8 L of  $\text{NO}_2$  at S.T.P.

(Relative molecular mass of  $\text{Ca}(\text{NO}_3)_2 = 164$  and of  $\text{CaO} = 56$ )

[5]

(c) Name the organic compound prepared by each of the following reactions:



[5]

(d) Identify the following substances:

(i) An acidic gas which gives dense white fumes with  $\text{NH}_3$ .

(ii) An alkane which can also be called a green house gas.

(iii) A solid which when kept in the open, forms a solution after sometime.

(iv) An alloy used in electrical fittings.

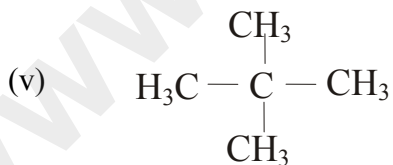
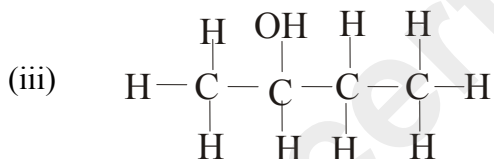
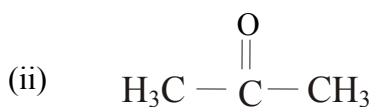
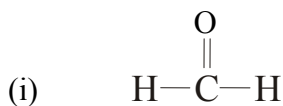
(v) A metal which gives hydrogen gas on reacting with both dilute acid and alkali. [5]

(e) Write equations for the following reactions:

(i) Aluminium oxide and Sodium hydroxide.

(ii) Zinc and dilute sulphuric acid.

- (iii) Nitrogen dioxide and water.
- (iv) Concentrated sulphuric acid and sugar.
- (v) Copper with concentrated nitric acid. [5]
- (f) Name the following:
- (i) Second member of alkene series
- (ii) First member of alkane series
- (iii) Third member of aldehyde series.
- (iv) Second member of carboxylic acid.
- (v) Fourth member of alcohol series. [5]
- (g) Write the I.U.P.A.C. names of the following compounds:



[5]

## SECTION II (40 Marks)

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

### Question 2.

- (a) The following questions refer to the periodic table:
- (i) Name the second last element of the period 3.

- (ii) How many elements are in the second period?
- (iii) Name the element which has the highest electron affinity.
- (iv) Name the element which has the highest electro negativity.
- (v) Name the element which may be placed on group 1 but is not a metal. [5]

(b) Fill in the blanks using the correct options:

- (i) Metals have ----- ionisation potential. (low/ high)
- (ii) Group 18 elements have ----- valence electrons (4 / 8) with the exception of ---- ( He / Ne) with ----- electrons (2 / 8) in valence shell.
- (iii) Group 2 elements are called ----- metals (alkali / alkaline earth). [5]

### Question 3.

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

- (i)  $C_5H_{12}$  (chain)
- (ii)  $C_4H_8$  (position). [5]

(b) What is denatured alcohol? [1]

(c) Give two important uses of ethanol. [2]

(d) Write equations for:

- (i) Preparation of ethanol by hydration of  $C_2H_4$ .
- (ii) Preparation of acetic acid from ethanol. [2]

### Question. 4

(a) Name the method by which following compounds can be prepared:

Select the appropriate method from the following list Neutralization; direct combination; precipitation; metal + acid – use a method only once.

- (i) Sodium sulphate
- (ii) Silver chloride
- (iii) Iron sulphide. [3]

(b) How will you distinguish between following pairs of compounds using  $NH_4OH$ .

- (i) Copper sulphate and iron(II) sulphate.

- (ii) Zinc nitrate and lead nitrate.
- (iii) Iron(II) sulphate and iron(III) sulphate. [3]

(c) Name:

- (i) A greenish yellow gas with pungent smell.
- (ii) An oxide which is yellow when hot and white when cold.
- (iii) A chemical used to deplete ozone layer.
- (iv) A crystalline salt without water of crystallization. [4]

**Question. 5**

(a) Name one:

- (i) metal liquid at room temperature.
- (ii) non-metal which is a conductor of electricity.
- (iii) neutral oxide.
- (iv) metallic oxide which cannot be reduced by hydrogen.
- (v) non-metal which has lustre. [5]

(b) (i) Name the chief ore of aluminium.

- (ii) Name the process used to concentrate the above mentioned ore.
- (iii) Why is alumina added to cryolite in the electrolytic reduction of aluminium?
- (iv) Give cathode and anode reactions involved in extraction of aluminium from its above mentioned ore.

(v) Name the process used for the concentration of zinc blende. [5]

**Question 6.**

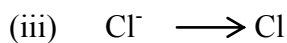
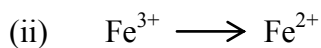
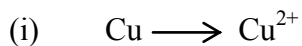
(a) Draw a neat and well labelled diagram for the silver plating on an iron spoon. [3]

(b) Copy and complete the following table related to electrolysis.

S.No.	Name of Electrolyte	Name of Cathode	Name of Anode	Product at Cathode	Product at Anode
1.	CuSO <sub>4</sub> (aq.)	Copper	Copper		
2.	PbBr <sub>2</sub> (molten)	Platinum	Platinum		

[4]

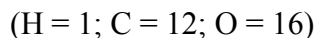
(c) Classify the following as oxidation and reduction reaction, also complete the reaction.



[3]

**Question. 7**

(a) A compound has the following percentage composition by mass:  
Carbon – 54.55%, Hydrogen – 9.09% and Oxygen – 36.26%. Its vapour density is 44. Find the Empirical and Molecular formula of the compound.



[5]

(b) Give the electron dot structure of the following:



[3]

(c) Compare the properties of covalent and electrovalent compounds on the following points:

(i) Solubility

(ii) Structure.

[2]