

ICSE Board
Class X Chemistry
Sample Paper - 10

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) [5]

- i. During the electroplating of silver over a copper spoon, the electrolyte used must contain (1) _____ ions. The (2) _____ is used as a cathode (3) _____ is used as an anode.
- ii. Name one
 - A. Metal, a liquid at room temperature
 - B. Non-metal, a conductor of electricity
 - C. Neutral oxide

(b) Match the description in **Column X** with the appropriate substance in **Column Y**. [5]

Write the number of the description with the letter of the substance.

Column X	Column Y
1. A gas whose solution in water is alkaline.	A. Hydrogen sulphide
2. A solution which bleaches by oxidation.	B. Brass
3. An alloy of copper and zinc.	C. Ammonia
4. A gas which smells of rotten eggs.	D. Ethanol
5. A liquid which is a non-electrolyte.	E. Chlorine water

(c) [5]

- How would you distinguish between Zn^{2+} and Pb^{2+} using ammonium hydroxide solution?
- Copy and complete the following table which refers to the action of heat on some carbonates:

Carbonate	Colour of residue on cooling
Zinc carbonate	
Lead carbonate	
Copper carbonate	

(d) Complete the following table which refers to two practical applications of electrolysis: [5]

	Anode	Electrolyte	Cathode
Silver plating of a spoon		Solution of potassium argentocyanide	
Purification of copper			

(e) Choose the correct words given in brackets to complete the sentences given below: [5]

- An acid is a compound which when dissolved in water gives _____ (hydronium/hydroxide) ions as the only _____ (positive/negative) ions.
- Electrolysis is the passage of _____ (electricity/electrons) through a liquid or a solution accompanied by a _____ (physical/chemical) change.
- Allotropy is the property of a (n) _____ (compound/element) which can exist in two or more forms in the same _____ (chemical/physical) state.
- A (n) _____ (acid/basic) salt is one in which the hydrogen of an acid has been partially replaced by a _____ (metal/non-metal).
- The number of atoms present in one _____ (mole/molecules) of an element is called its _____ (acidity/atomicity).

(f) Write the observations: [5]

- Sodium hydroxide is added to calcium nitrate solution.
- Ammonium hydroxide is added to ferrous sulphate solution.
- Sodium hydroxide is added to copper sulphate solution.
- Zinc oxide is heated.
- Ammonia gas is brought near concentrated hydrochloric acid.

(g) Name the following: [5]

- Two metallic oxides reduced by aluminium.
- A gas which has burning sulphur-like smell.
- A gas which gives white precipitate with silver nitrate solution.
- A greenish yellow-coloured gas.
- Metal which exists in the liquid state at room temperature.

(h) [5]

- What kind of particles is formed in a liquid compound which is a non-electrolyte?
- If HX is a weak acid, what particles will be formed in its dilute solution apart from those in water?
- Cations are formed by _____ (loss/gain) of electrons and anions are formed by _____ (loss/gain) of electrons.
- Which ions must be present in a solution used for electroplating a particular metal?
- Explain how electrolysis is an example of a redox reaction.

SECTION II (40 Marks)

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

Question 2

(a) Give reasons for the following with reference to electroplating: [5]

- The metal to be plated on the article is always made the anode.
- The electrolyte must contain the ions of metals with which the article has to be electroplated.
- Low current for longer time should be used.
- DC is always preferred.

(b) Name: [5]

- An efflorescent compound
- A blue-coloured salt
- A deliquescent salt
- A hygroscopic liquid
- Dehydrating agent

Question 3

(a) Name the alloys of zinc. State their composition, properties and uses. [5]

(b) Define the following terms: [5]

- Polymerisation
- Acidity of a base
- Addition reaction
- Dehydration
- Molar volume

Question 4

- (a)** What is the expected pH of the following solutions? [5]
- A solution which turns blue litmus red
 - A solution which liberates ammonia from ammonium salts
 - Pure water
 - A solution which liberates carbon dioxide from metallic carbonate
 - Ferric chloride solution
- (b)** [5]
- Write the equation for the laboratory preparation of ethyne (acetylene) from calcium carbide.
 - What is the special feature of the structure of ethyne?
 - What would you see when ethyne is bubbled through a solution of bromine in carbon tetrachloride?
 - Name the product formed between ethene and water.
 - Name the alkene having a pleasant odour.

Question 5

- (a)** What is the action in the sodium hydroxide test with zinc and aluminium (action of alkalis on metals)? [4]
- (b)** Explain why [4]
- Ethane undergoes a substitution reaction while ethylene undergoes an addition reaction.
 - Alcohols supplied to industry are denatured.
- (c)** Draw the three possible isomers of pentane (C_5H_{12}). [2]

Question 6

- (a)** State two chemical properties of acids giving an equation for each. [2]
- (b)** Electrons are getting added to an element 'y'.
- Is 'y' getting oxidised or reduced?
 - What charge will 'y' have after the addition of electrons?
 - Which electrode will 'y' migrate to during the process of electrolysis? [3]
- (c)** How does electronegativity vary (a) Down the group (b) Across a period? [2]

- (d) The elements of one short period of the periodic table are given in the order from left to right. [3]

Element	Li	Be	B	C		O	F	Ne
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- To which period do these elements belong?
- One element of this period is missing. Which is the missing element and where should it be placed?
- Which one of the above elements belongs to the halogen series?

Question 7

- (a) Show by balanced equations the reaction of dilute H_2SO_4 with [5]

- Alkali
- Basic oxide
- Active metal
- Metal carbonate
- Metal sulphide

- (b) What is the utility of the following chemicals? (any three uses) [3]

- Bleaching powder
- Acetylene gas

- (c) Write balanced chemical equations for the following:

- Chlorine reacts with excess of ammonia.
- Ferric hydroxide reacts with nitric acid. [2]