



**ICSE 2026 EXAMINATION**  
**SPECIMEN QUESTION PAPER**  
**CHEMISTRY**  
**(SCIENCE PAPER – 2)**

***Maximum Marks: 80***

***Time allowed: Two hours***

- Answers to this Paper must be written on the paper provided separately.*
- You will not be allowed to write during 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 A is compulsory. Attempt any four questions from Section B.*
- The intended marks for questions or parts of questions are given in brackets [ ].*

***Instruction for the Supervising Examiner***

*Kindly read aloud the Instructions given above to all the candidates present in the Examination Hall.*

**NOTE:**

*The Specimen Question Paper in the subject provides a realistic format of the Board Examination Question Paper and should be used as a practice tool. The questions for the Board Examination can be set from any part of the syllabus. However, the format of the Board Examination Question Paper will remain the same as that of the Specimen Question Paper.*

## SECTION A

(Attempt **all** questions from this Section.)

## Question 1

Choose the correct answers to the questions from the given options.

[15]

(Do not copy the question, write the correct answers only.)

(i) Which of the following will dissociate in aqueous solution, to give a positive ion other than hydronium ion, and a negative ion other than hydroxyl ion?

- (a) KOH
- (b) dil. HCl
- (c) NaCl
- (d) CH<sub>3</sub>COOH

[Understanding  
& Application]

(ii) A compound **P** is heated in a test tube with sodium hydroxide solution. A red litmus paper held at the mouth of the test tube turns blue.

Which of the following could compound **P** be?

- (a) Zinc sulphate
- (b) Copper sulphate
- (c) Ferrous sulphate
- (d) Ammonium sulphate

[Understanding]

(iii) **Assertion (A):** Aqueous solution of potassium chloride can conduct electricity.

**Reason (B):** Conduction of electric current is due to the presence of free ions.

- (a) (A) is true and (R) is false.
- (b) (A) is false and (R) is true.
- (c) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (d) Both (A) and (R) are true, but (R) is not the correct explanation of (A).

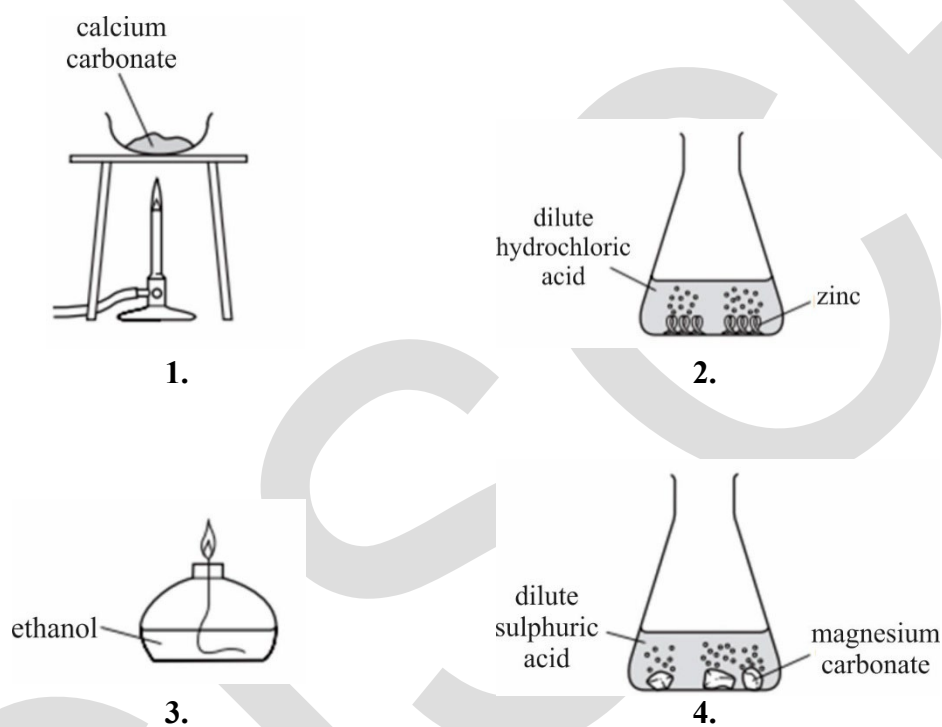
[Understanding]

(iv) Identify the ion that contain one lone pair of electrons.

- (a)  $\text{OH}^{-1}$
- (b)  $\text{H}_3\text{O}^{+}$
- (c)  $\text{NH}_4^{+}$
- (d)  $\text{H}^{+}$

[Understanding  
& Application]

(v) Four reactions are shown below in the diagram:



Which reactions produce water?

- (a) 1 and 2
- (b) 1 and 3
- (c) 3 and 4
- (d) 2 and 3

[Understanding  
& Application]

(vi) When compound X reacts with dilute sulphuric acid, it releases a gas that turns acidified potassium dichromate solution from orange to green. Which of the following could be compound X?

- (a) Lead nitrate
- (b) Copper carbonate
- (c) Sodium chloride
- (d) Potassium sulphite

[Recall &  
Understanding]

(vii) The volume occupied by 2 moles of a gas at STP is:

- (a) 22.4L
- (b) 2.24L
- (c) 44.8L
- (d) 4.48L

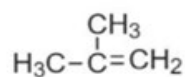
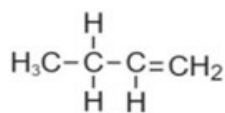
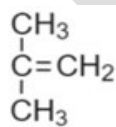
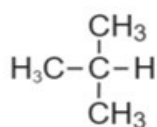
[Understanding]

(viii) Identify from the following metal oxide which can react with an acid as well as an alkali.

- (a) Silver oxide
- (b) Calcium oxide
- (c) Copper(II) oxide
- (d) Aluminium oxide

[Understanding]

(ix) The structures of four hydrocarbons are shown below:



How many isomers of butene are shown in the above structures?

- (a) 1
- (b) 2
- (c) 3
- (d) 4

[Analysis]

- (x) Which element amongst the following has the largest atomic radius?
- (a) Al
  - (b) S
  - (c) Mg
  - (d) Na

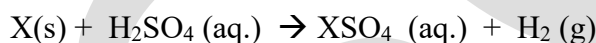
[Understanding  
& Application]

- (xi) For which pH change is there the **maximum increase** in acidity?

	Initial pH	Final pH
(a)	1	3
(b)	2	6
(c)	3	1
(d)	6	2

[Understanding  
& Application]

- (xii) The equation below shows the reaction between element 'X' and dilute sulphuric acid.



Which particles are responsible for conducting electricity in dilute sulphuric acid and compound  $XSO_4$ ?

- (a) Electrons
- (b) Only positive ions
- (c) Only negative ions
- (d) Both positive and negative ions

[Understanding]

- (xiii) Methanol and ethanol belong to the same homologous series.

What does this statement mean?

- (a) Their molecules contain atoms only of carbon and hydrogen.
- (b) Their molecules have the same number of carbon atoms.
- (c) They have the same functional group.
- (d) They have the same relative molecular mass.

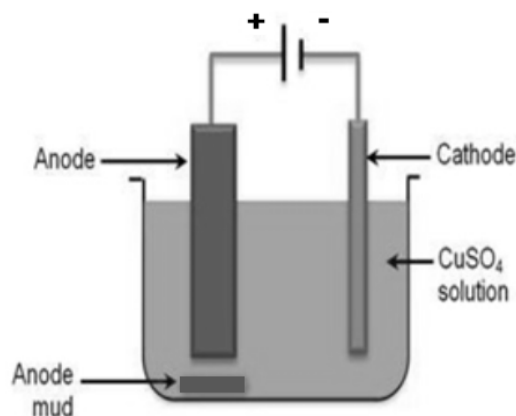
[Understanding]

(xiv) The ratio between the volumes occupied by 22 grams of carbon dioxide and 10 grams of hydrogen gas is:

- (a) 2.2 : 1
- (b) 1 : 2.2
- (c) 1 : 10
- (d) 10 : 1

[Application]

(xv) In the process of Electrorefining of Copper shown in the diagram below, which of the following statements is correct?



**Electrorefining of Copper**

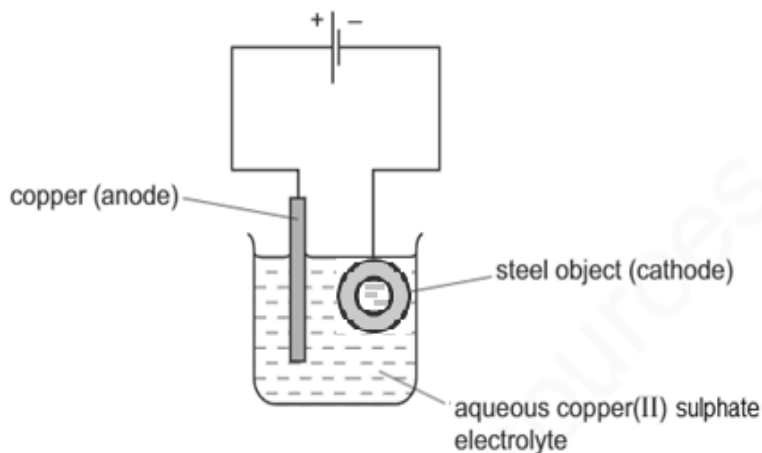
- (a) The anode is made of pure Copper.
- (b) The cathode is made of impure Copper.
- (c) Copper is deposited at the anode.
- (d) Copper ions from the anode move to the cathode and get deposited as pure Copper.

[Understanding]

**Question 2**

(i) Electroplating steel objects with silver involves a three-step process.

[5]



step 1 A coating of copper is applied to the object.

step 2 A coating of nickel is applied to the object.

step 3 The coating of silver is applied to the object.

(a) A diagram of the apparatus used for step 1 is shown.

1. The chemical process taking place on the surface of the object is  $\text{Cu}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Cu}(\text{s})$

What is the observation seen on the surface of the object?

2. Explain why the concentration of copper ions in the electrolyte remains constant throughout step 1.

(b) Give **two** changes which would be needed in order to coat nickel onto the object in step 2.

(c) Write down the reaction taking place at the positive electrode during step 3.

[Understanding  
& Application]

(ii) Identify the following:

[5]

(a) A bond formed between two atoms by sharing of a pair of electrons, with both electrons being provided by the same atom.

(b) A salt formed by the complete neutralisation of an acid by a base.

(c) A reaction in which the hydrogen of an alkane is replaced by a halogen.

- (d) The energy required to remove an electron from a neutral gaseous atom.
- (e) A homogenous mixture of two or more metals or a metal and a non-metal in a definite proportion in their molten state.

[Recall]

(iii) Complete the following by choosing the correct answers from the bracket: [5]

- (a) When dilute sulphuric acid reacts with zinc granules, the gas evolved is \_\_\_\_\_ (*hydrogen / carbon dioxide*), which can be tested using a burning splint.
- (b) A solution of copper(II) sulphate in sodium hydroxide solution forms a \_\_\_\_\_ (*pale blue / green*) precipitate.
- (c) In methane, each hydrogen atom share(s) \_\_\_\_\_ (*one / two*) electron(s) with the central carbon atom to complete its valence shell.
- (d) The electron affinity of element X is greater than that of element Y. The oxidising power of X is likely to be \_\_\_\_\_ (*more / less*) than that of element Y.
- (e) The naturally occurring compound of a metal from which the metal can be extracted is called its \_\_\_\_\_ (*ore / mineral*).

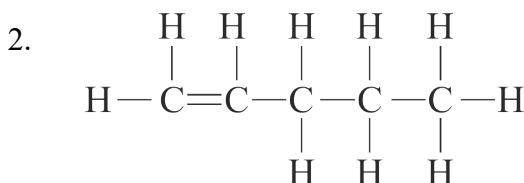
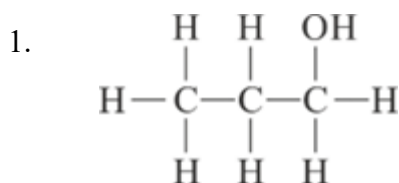
[Recall &  
Understanding]

(iv) Match Column A with Column B. [5]

Column A	Column B
(a) Aluminium	1. Covalent compound
(b) Sulphuric acid	2. Carbonate ore
(c) Calcination	3. Hall Heroult's process
(d) Calcium Chloride	4. Contact Process
(e) Carbon tetrachloride	5. Electrovalent compound

[Recall &  
Understanding]

- (v) (a) Give the IUPAC name of the following organic compounds: [5]



- (b) Draw the structural diagram for the following compounds:

1. but-2-yne
2. 1, 1, 1, trichloro methane
3. pentan -2-ol

[Understanding]

### SECTION B (40 Marks)

(Attempt *any four* questions.)

#### Question 3

- (i) Give one significant observation when: [2]

- (a) Excess of chlorine gas reacts with ammonia.
- (b) Zinc nitrate is strongly heated in a test tube.

[Recall & Understanding]

- (ii) Give reasons: [2]

- (a) When ammonia gas is passed over black copper oxide in a combustion tube a reddish-brown substance is left behind.
- (b) Quick lime is not used to dry hydrogen chloride gas.

[Understanding]

- (iii) The electron affinity of an element X is greater than that of element Y. [3]

- (a) How is the oxidising power of X likely to compare with that of Y?
- (b) How is the electronegativity of X likely to compare with that of Y?
- (c) State whether X is likely to be placed to the left or to the right of Y in the periodic table?

[Application]

- (iv) Write balanced chemical equations for the following reactions: [3]
- (a) Ammonium chloride reacts with calcium hydroxide.
  - (b) Nitric acid reacts with zinc carbonate.
  - (c) Concentrated sulphuric acid is added to hydrated copper sulphate. [Recall]

#### Question 4

- (i) Name the main metal present in the following alloys: [2]
- (a) Duralumin
  - (b) Brass [Recall]
- (ii) Write balanced chemical equations for the following: [2]
- (a) Laboratory preparation of hydrochloric acid from a less volatile acid. [Recall & Understanding]
  - (b) Bromine gas is passed over ethene in the presence of carbon tetrachloride.
- (iii) Abhishek was given a salt 'X' for analysis which was white in colour. On strong heating it produced a yellow residue, a colourless gas, and also a reddish-brown gas. The solution of the salt 'X' when tested with excess of ammonium hydroxide produced a chalky white insoluble precipitate. [3]
- (a) Name the coloured gas evolved when Abhishek heated the salt strongly.
  - (b) Which cation was present in the sample given to Abhishek?
  - (c) Identify the salt given to Abhishek for analysis. [Understanding]
- (iv) In a round bottom flask, a mixture of ethanol, acetic acid and concentrated sulphuric acid was heated: [3]
- (a) Name the type of reaction occurring in the above set up.
  - (b) What is the role of sulphuric acid in this reaction?
  - (c) State one observation that takes place during the reaction. [Understanding]

**Question 5**

- (i) Identify the **reactant** and write the balanced **equation** for the following: [2]

Nitric acid reacts with compound **Q** to give a salt Calcium nitrate, water and carbon dioxide.

[Understanding]

- (ii) What will be the mass of carbon dioxide that will contain the same number of molecules as present in 3.2g of oxygen gas? [2]

[At. Wt: O=16, C=12]

[Understanding  
& Application]

- (iii) State the property exhibited by sulphuric acid in each of the following reactions: [3]

- (a) Sulphur with concentrated sulphuric acid.  
(b) Conversion of ferrous sulphide to hydrogen sulphide gas using sulphuric acid.  
(c) Ethanol with concentrated sulphuric acid.

[Recall &  
Understanding]

- (iv) Give balanced equations for the following: [3]

- (a) Laboratory preparation of ethyne from calcium carbide.  
(b) Conversion of acetic acid to ethyl acetate.  
(c) Laboratory preparation of nitric acid.

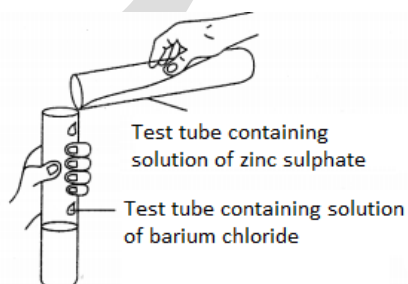
[Recall]

**Question 6**

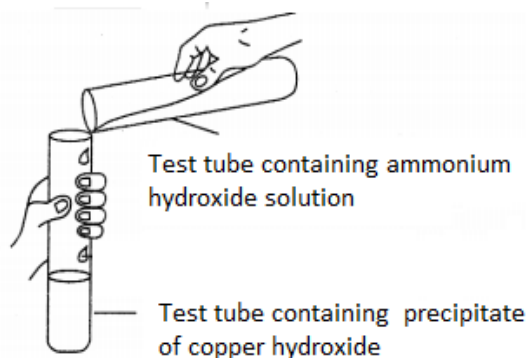
- (i) A student was asked to perform two experiments in the laboratory based on the instructions given: [2]

Observe the picture given below and state one observation for each of the Experiments 1 and 2 that you would notice on mixing the given solutions.

- (a) Experiment 1



(b) Experiment 2



[Understanding]

- (ii) You are provided with the list of chemicals mentioned below in the box: [2]

*Sodium hydroxide solution, copper carbonate, zinc, hydrochloric acid, copper, dilute sulphuric acid*

Using suitable chemicals from the list given, write balanced chemical equation for the preparation of the salts mentioned below:

- (a) copper sulphate  
(b) sodium zincate

[Understanding  
& Application]

- (iii) Solid ammonium dichromate decomposes as under: [3]



If 126 g of ammonium dichromate decomposes, calculate:

- (a) the number of moles of ammonium dichromate that undergoes decomposition.  
(b) the mass of chromic oxide formed at the same time.  
(c) the volume of nitrogen gas evolved at STP.

[At. Wt: N=14, Cr =52, O=16, H=1]

[Understanding  
& Application]

- (iv) Identify the reactants P, Q and R in the following reactions: [3]

- (a) Copper oxide + P  $\rightarrow$  Copper + water  
(b) Iron pyrite + Q  $\rightarrow$  Iron oxide + Sulphur dioxide  
(c) Sodium chloride + R  $\rightarrow$  Sodium nitrate + Silver chloride

[Application]

**Question 7**

- (i) Give reasons for the following: [2]
- (a) Nitric acid does not normally liberate hydrogen gas when it reacts with active metals.
- (b) Silver-plated cutlery is not considered as pure silver. [Understanding]
- (ii) The following questions relate to the extraction of Aluminium by electrolysis. [2]
- (a) Name the other compound which contains aluminium added to alumina.
- (b) Give a balanced equation for the reaction that takes place at the cathode. [Recall]
- (iii) Give balanced equations for each of the following: [3]
- (a) Action of warm water on aluminium nitride.
- (b) Oxidation of carbon with conc. nitric acid.
- (c) Laboratory preparation of ethanol by using chloroethane and aqueous sodium hydroxide. [Recall & Understanding]
- (iv) Rohit has solution X, Y and Z that has pH 2, 7 and 13 respectively. [3]  
Which solution:
- (a) will liberate sulphur dioxide gas when heated with sodium sulphite?
- (b) will liberate ammonia gas when reacted with ammonium chloride?
- (c) will not have any effect on litmus paper? [Application]

**Question 8**

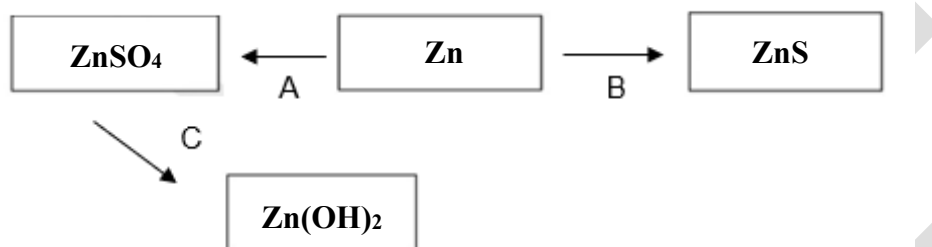
- (i) State giving reasons if: [2]
- (a) zinc metal and aluminium metal can be distinguished by heating the metal powders separately in two different test tubes with concentrated sodium hydroxide solution.
- (b) calcium nitrate and lead nitrate can be distinguished by adding ammonium hydroxide solution to the salt solution. [Understanding]

(ii) Draw the electron dot diagram of ammonium ion. [2]

[Atomic No.: N = 7, H = 1]

[Recall &  
Understanding]

(iii) Write balanced chemical equation for the following conversions (A to C): [3]



[Understanding  
& Application]

(iv) L, M and N are three elements with atomic numbers 13, 7 and 10 respectively. Answer the following questions using only the alphabets given. Do not identify the elements. [3]

Which element:

- can combine with hydrogen to form a gas which produces dense white fumes with concentrated HCl?
- has zero electron affinity?
- can form an ionic compound with oxygen?

[Understanding]

**ICSE 2026 SPECIMEN**

**DRAFT MARKING SCHEME – CHEMISTRY (SCIENCE PAPER 2)**

<b>Question 1</b>		[15x1]			
(i)	(c) NaCl				
(ii)	(d) ammonium sulphate				
(iii)	(c) Both (A) and (R) are the true and (R) is the correct explanation of (A).				
(iv)	(b) $\text{H}_3\text{O}^+$				
(v)	(c) 3 and 4				
(vi)	(d) Potassium sulphite				
(vii)	(c) 44.8L				
(viii)	(d) Aluminium oxide				
(ix)	(b) 2				
(x)	(d) Na				
(xi)	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>(d)</td> <td>6</td> <td>2</td> </tr> </table>	(d)	6	2	
(d)	6	2			
(xii)	(d) Both positive and negative ions				
(xiii)	(c) They have the same functional group.				
(xiv)	(c) 1:10				
(xv)	(d) Copper ions from the anode move to the cathode and get deposited as pure Copper.				
<b>Question 2</b>					
(i)	(a) (1) reddish brown deposit/ pink deposit/ mass increases (2) As anode released Copper ions the concentration of copper ions does not decrease (b) Anode should be made up of Nickel and the electrolyte should be aq. Nickel sulphate or any salt solution of Nickel (c) $\text{Ag} \rightarrow \text{Ag}^+ + \text{e}^-$	[2+2+1]			
(ii)	(a) Coordinate bond (b) Normal salt (c) Substitution	[5x1]			

	(d) ionisation potential (e) alloy	
(iii)	(a) Hydrogen (b) pale blue (c) one (d) more (e) ore	[5x1]
(iv)	(a) 3 (b) 4 (c) 2 (d) 5 (e) 1	[5x1]
(v)	(a) 1. propanol 2. pentene (b) 1. but-2-yne $\begin{array}{ccccccc} & \text{H} & & & & \text{H} & \\ &   & & & &   & \\ \text{H} & - \text{C} & - & \text{C} \equiv \text{C} & - & \text{C} & - \text{H} \\ &   & & & &   & \\ & \text{H} & & & & \text{H} & \end{array}$ 2. 1,1,1, trichloro methane $\begin{array}{ccc} & \text{Cl} & \\ &   & \\ \text{H} & - \text{C} & - \text{Cl} \\ &   & \\ & \text{Cl} & \end{array}$ 3. pentan -2-ol $\begin{array}{cccccc} & \text{H} & \text{H} & \text{H} & \text{OH} & \text{H} \\ &   &   &   &   &   \\ \text{H} & - \text{C} & - \text{C} & - \text{C} & - \text{C} & - \text{C} & - \text{H} \\ &   &   &   &   &   \\ & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} \end{array}$	[3+2]
<b>Question 3</b>		
(i)	(a) Yellow oily explosive liquid (b) reddish-brown gas/ a gas which rekindles a glowing splinter/ a residue which is yellow when hot and white when cold is formed	[2]

(ii)	(a) Because copper oxide is reduced to copper (b) because quick lime reacts with hydrogen chloride gas	[2]
(iii)	(a) X has more oxidising power than Y (b) X will be more electronegative than Y (c) X will be placed to the right of Y	[3]
(iv)	(a) $2\text{NH}_4\text{Cl} + \text{Ca}(\text{OH})_2 \rightarrow \text{CaCl}_2 + 2\text{H}_2\text{O} + 2\text{NH}_3$ (b) $2\text{HNO}_3 + \text{ZnCO}_3 \rightarrow \text{Zn}(\text{NO}_3)_2 + \text{H}_2\text{O} + \text{CO}_2$ (c) $\text{H}_2\text{SO}_4 + \text{CuSO}_4 \cdot 5\text{H}_2\text{O} \rightarrow \text{CuSO}_4 + 5\text{H}_2\text{O} + \text{H}_2\text{SO}_4$	[3]
<b>Question 4</b>		
(i)	(a) Aluminium (b) Copper	[2]
(ii)	(a) $\text{NaCl} + \text{conc. H}_2\text{SO}_4 \rightarrow \text{NaHSO}_4 + \text{HCl}$ (b) $\text{C}_2\text{H}_4 + \text{Br}_2 \rightarrow \text{C}_2\text{H}_4\text{Br}_2$	[2]
(iii)	(a) Nitrogen dioxide (b) lead ion (c) Lead nitrate	[3]
(iv)	(a) Esterification (b) dehydrating agent (c) Fruity smell is obtained	[3]
<b>Question 5</b>		
(i)	Q is Calcium carbonate or Calcium bicarbonate $\text{CaCO}_3 + 2\text{HNO}_3 \rightarrow \text{Ca}(\text{NO}_3)_2 + \text{H}_2\text{O} + \text{CO}_2$ OR $\text{Ca}(\text{HCO}_3)_2 + 2\text{HNO}_3 \rightarrow \text{Ca}(\text{NO}_3)_2 + 2\text{H}_2\text{O} + 2\text{CO}_2$	[2]
(ii)	3.2 g of oxygen contains $6.023 \times 10^{22}$ molecules so 4.4g of $\text{CO}_2$ will contain $6.023 \times 10^{22}$ molecules Answer 4.4g of $\text{CO}_2$	[2]

(iii)	(a) Oxidizing property (b) Acidic property (c) dehydrating property	[3]
(iv)	(a) $\text{CaC}_2 + 2\text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{C}_2\text{H}_2$ (b) $\text{CH}_3\text{COOH} + \text{C}_2\text{H}_5\text{OH} \rightarrow \text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O}$ (c) $\text{NaNO}_3 + \text{conc. H}_2\text{SO}_4 \rightarrow \text{NaHSO}_4 + 2\text{HNO}_3$	[3]
<b>Question 6</b>		
(i)	(a) White precipitate is formed. (b) blue precipitate dissolves to form an inky blue solution.	[2]
(ii)	(a) $\text{CuCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{H}_2\text{O} + \text{CO}_2$ (b) $\text{Zn} + 2\text{NaOH} \rightarrow \text{Na}_2\text{ZnO}_2 + \text{H}_2$	[2]
(iii)	(a) 252 g of Ammonium dichromate = 1 mole 126 g of Ammonium dichromate = 0.5 moles (b) 252 g of ammonium dichromate gives 152 g of chromic oxide 126 g of ammonium dichromate provides $152 \times 126 / 252 = 76$ g of chromic oxide (c) 252 g of ammonium dichromate produces 22.4 l of nitrogen 126 g of ammonium dichromate produces $22.4 \times 126 / 252 = 11.2$ l of nitrogen	[3]
(iv)	(a) Hydrogen (b) Oxygen (c) Silver Nitrate	[3]
<b>Question 7</b>		
(i)	(a) Nitric Acid is a very strong oxidising agent and hence oxidises hydrogen to water. So, it is not used for obtaining hydrogen from metals. (b) because it is not made fully of silver only its top coating is of silver	[2]
(ii)	(a) Cryolite (b) $\text{Al}^{3+} + 3\text{e}^- \rightarrow \text{Al}$	[2]

(iii)	(a) $\text{AlN} + 3\text{H}_2\text{O} \rightarrow \text{Al(OH)}_3 + \text{NH}_3$ (b) $\text{C} + 4\text{HNO}_3 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O} + 4\text{NO}_2$ (c) $\text{C}_2\text{H}_5\text{Cl} + \text{aq. NaOH} \rightarrow \text{C}_2\text{H}_5\text{OH} + \text{NaCl}$	[3]
(iv)	(a) X (b) Z (c) Y	[3]
<b>Question 8</b>		
(i)	(a) No, both will liberate hydrogen gas which burns with a pop sound (b) Yes, white ppt. will be formed with lead nitrate but no ppt. is formed with calcium nitrate/ or no visible reaction	[2]
(ii)	$\left[ \begin{array}{c} \text{H} \\ \cdot \times \\ \cdot \times \\ \text{H} \times \cdot \text{N} \cdot \times \text{H} \\ \cdot \times \\ \cdot \times \\ \text{H} \end{array} \right]^+$	[2]
(iii)	A = $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$ B = $\text{Zn} + \text{S} \rightarrow \text{ZnS}$ C = $\text{ZnSO}_4 + 2\text{NaOH} \rightarrow \text{Zn(OH)}_2 + \text{Na}_2\text{SO}_4$ or with $\text{NH}_4\text{OH}$	[3]
(iv)	(a) M (b) N (c) L	[3]