ICSE SEMESTER 2 EXAMINATION
SPECIMEN QUESTION PAPER-1
CHEMISTRY
(PAPER 2)

Maximum Marks: 40
Time allowed: One and a half hours
Answers to this Paper must be written on the paper provided separately.
You will not be allowed to write during the first 10 minutes.
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Attempt all questions from Section A and any three questions from Section B.

The intended marks for questions or parts of questions are given in brackets [ ].

Section A

*(Attempt **all** questions)*

1. Choose the correct answer from the options given below : [10]

(i) The acid which leaves a black spongy mass upon reaction with cane sugar is :
(a) Conc. HCl (b) Conc. HNO_3 (c) Conc. H_2SO_4 (d) Conc. CH_3COOH

(ii) The nitrate salt which does not give a mixture of NO_2 and O_2 on heating is :
(a) $AgNO_3$ (b) KNO_3 (c) $Cu(NO_3)_2$ (d) $Zn(NO_3)_2$

(iii) Methane gas is also known as :
(a) Phosgene (b) Synthetic gas (c) Marsh gas (d) Water gas

(iv) The IUPAC name for the following is :

$$CH_3CHCH_2CH_2CH_3$$
$$\quad\quad|$$
$$\quad\quad CH_3$$

(a) 2-methyl pentane (b) Hexane (c) 4-methyl pentane (d) Pentane

(v) The main ore used for the extraction of aluminium is :
(a) haematite (b) calamite (c) bauxite (d) cryolite

(vi) The pair of compounds representing isomers is :
(a) methane and ethane (b) ethane and propane
(c) but-1-ene and but-2-ene (d) propene and butane

(vii) What will be the product formed for the following reaction?

$$C_2H_6 + O_2 \text{ ------}\rightarrow$$

(a) acid (b) alcohol (c) carbon dioxide (d) none of these

(viii) If the molecular formula of an organic compound is C_8H_{18}, it is an :
(a) alkane (b) alkyne (c) alkene (d) not a hydrocarbon

(ix) The number of C-H bonds in ethylene is :
(a) one (b) two (c) three (d) four

(x) Which one of the following four metals would be displaced from the solution of its salt by the other three metals?

(a) Ca (b) Ag (c) Zn (d) Cu

Section B

*(Attempt **any three** questions)*

2. (i) Define: [2]

(a) Calcination (b) Amalgam

(ii) Name the compound formed when : [2]

(a) Ethene reacts with excess of oxygen. (b) Methane reacts with excess of chlorine.

(iii) Draw the structural diagrams of : [3]

(a) Hexanol (b) Propanoic acid (c) 3-bromo-4-chlorohexane

(iv) Identify the substance underlined in each of the following. [3]

(a) An <u>alkene</u> that shows both chain and position isomers.

(b) An <u>acid</u> that is used as a drying agent.

(c) A <u>chloride</u> which leaves behind no residue on heating..

3. (i) Identify the following : [2]

(a) The process that is used to obtain pure aluminium oxide from bauxite ore.

(b) The catalyst that is used to oxidise ammonia into nitric oxide.

(ii) Name the following : [2]

(a) A gas used in making fertilizers.

(b) A metal which is the most abundant in earth's crust.

(iii) State one relevant observation for each of the following. [3]

(a) Calcium hydroxide is heated with ammonium chloride crystals

(b) Aluminium hydroxide is heated strongly.

(c) Ethyne is bubbled through bromine dissolved in carbon tetrachloride.

(iv) Write balanced equations for the following conversions : [3]

(a) Methane into chloroform.

(b) Sodium nitrate into nitric acid.

(c) Sulphur into sulphuric acid (in one step).

4. (i) Explain why : [2]

(a) Hydrogen chloride gas cannot be dried over quick lime.

(b) HCl gas is not collected over water.

(ii) Name the following : [2]

(a) A gas with a lone pair acting as a reducing agent .

(b) An unsaturated hydrocarbon with a triple bond.

(iii) Complete and balance the following chemical equations : [3]

(a) $AlN + H_2O \rightarrow$ (b) $NH_3 + CO_2 \rightarrow$

(c) $CuSO_4 + NH_4OH \rightarrow$

(iv) Complete the following table : [3]

Name of the process	Temperature	Catalyst	Equation for the catalysed reaction
Ostwald process			

5. (i) Complete the following paragraph using the options given within brackets. [2]

Silver nitrate forms a thick curdy (a) ..... (yellow/white) precipitate of (b) ..... (silver chloride/silver hydroxide) with HCl.

(ii) A gas 'P' gives dense white fumes with chlorine. Its aqueous solution gives a blue colour with copper (II) hydroxide. Give the name and formula of the gas P.] [2]

(iii) The molecules of alkene family are represented by a general formula C_nH_{2n}. Answer the following questions : [3]

(a) What do n and $2n$ signify?

(b) What is the name of the alkene when $n = 4$?

(c) What is the molecular formula of the alkene when $n = 4$?

(iv) State one relevant reason for each of the following. [3]

(a) Nitric acid shows oxidizing properties.

(b) Metals present at the bottom of the reactivity series are found in free state.

(c) Drying agents like P_2O_5 and $CaCl_2$ cannot be used to dry NH_3.

6. (i) Distinguish between the following pairs based on the information given in the brackets. .[2]

(a) Hydrogen chloride gas and ammonia (collection)

(b) Hydrochloric acid and sulphuric acid (chemical test)

(ii) Name the following : [2]

(a) A gas for which fountain experiment can be used. This gas is covalent in nature but when dissolved in water, forms ions.

(b) The product obtained when hydrochloric acid reacts with silver nitrate.

(iii) Match the following columns. [3]

Catalyst	Compound synthesized
A. Nickel	1. Sulphuric acid
B. Vanadium pentoxide	2. Nitric acid
C. Platinum	3. Ethene

(iv) (i) Name the substance prepared by Haber's process. [3]

(ii) Write the equation for the catalytic oxidation of ammonia.

(iii) Why is the commercial sample of nitric acid pale yellow in colour?

ICSE SEMESTER 2 EXAMINATION
SPECIMEN QUESTION PAPER-2
CHEMISTRY
(PAPER 2)

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Section A

*(Attempt **all** questions)*

1. Choose the correct answer from the options given below : [10]

(i) Brass is an alloy of Cu and which one of the following?
(a) Sn (b) Fe (c)Zn (d) Cr

(ii) Dilute sulphuric acid will produce a white precipitate when added to a solution of :
(a) Copper Sulphate (b) Sodium Nitrate (c) Zinc nitrate (d) Lead Nitrate

(iii) When copper metal is treated with concentrated sulphuric acid, the gas liberated is:
(a) Hydrogen (b) Sulphur dioxide
(c) Hydrogen sulphide (d) Ammonia

(iv) The reaction $KCl + H_2SO_4$ (conc.) $\rightarrow KHSO_4 + HCl$ demonstrates what nature of sulphuric acid?
(a) Acidic (b) Non-volatile (c) Oxidising (d) Dehydrating

(v) Ammonia is manufactured by which process :
(a) Ostwald process (b) Haber process (c) Bayer process (d) Contact process

(vi) The aim of the Fountain experiment is to prove that :
(a) HCl turns blue litmus red (b) HCl is denser than air
(c) HCl is highly soluble in water (d) HCl fumes is moist air

(vii) IUPAC name of acetaldehyde is :
(a) Ethanol (b) Methanol (c) Ethanal (d) Ethanoic acid

(viii) Which one of the following will not decolourize bromine solution ?
(a) C_2H_6 (b) C_2H_4 (c) C_2H_2 (d) C_3H_6

(ix) In which of the following compounds —OH is the functional group?
(a) Propane (b) Propanal (c) Propanol (d) Propanone

(x) Which one of the following is a saturated hydrocarbon?
(a) Propene (b) Propyne (c) Ethene (d) Butane

Section B

*(Attempt **any three** questions)*

2. (i) Define : [2]

(a) Tetravalency (b) Fusible alloys

(ii) Draw the structural formulae for each of the following : [2]

(a) 2, 4-dimethyl heptane (b) Propanal

(iii) State one relevant observation for each of the following : [3]

(a) Lead nitrate solution is mixed with dilute hydrochloric acid and heated.

(b) Aluminium hydroxide is heated strongly.

(c) Ammonia is burnt in atmospheric oxygen in the absence of a catalyst.

(iv) Solution A reacts with an acid B (which gives greenish yellow gas on reacting with oxidising agents like Pb_3O_4) to give white precipitate C which is insoluble in nitric acid but soluble in ammonium hydroxide. Name A, B and C. [3]

3. (i) Give one word or a phrase for the following statements. [2]

(a) The mineral from which metals are extracted economically.

(b) A mineral acid which is not used during the preparation of HCl.

(ii) Name : [2]

(a) The substance prepared by Ostwald process.

(b) The chemical in which silver chloride is dissolved.

(iii) Fill in the blanks from the choices given in the bracket. [3]

(a) Haematite is an ore of …… . (Zn, Al, Fe)

(b) Hydrogen chloride gas is a …….. compound. (polar/non polar/ionic)

(c) Catenation and tetravalency results in the formation of …… bonds. (ionic/multiple/double)

(iv) Complete and balance the following reactions : [3]

(a) $C_2H_6 + O_2 \rightarrow$

(b) $C_2H_2 + I_2 \rightarrow$

(c) $NH_3 + HCl \rightarrow$

4. (i) Differentiate between the following pairs based on the information given in the bracket. [2]

(a) Organic and inorganic compounds (boiling point)

(b) Saturated and unsaturated hydrocarbons (reactivity)

(ii) Complete the following table : [2]

Name of the process	**Temperature**	**Catalyst**	**Equation for the catalysed reaction**
Haber process			

(iii) What is the effect of sulphuric acid on : [3]

(a) Phenolphthalein (b) Blue litmus solution (iii) Methyl orange

(iv) State one relevant obseration, when : [3]

(a) Dilute HCl is added to sodium carbonate crystals.

(b) Ammonium hydroxide is first added in a small quantity and then in excess to a solution of copper sulphate.

(c) Lead nitrate crystals are heated in a hard glass test tube.

5. (i) Name the following : [2]

(a) A non-metal which can form a positive ion.

(b) A compound which is added to lower the fusion temperature of the electrolytic bath in the extraction of aluminium.

(ii) Write the IUPAC names of the following compounds : [2]

(a) Diethyl ether (b) Acetone

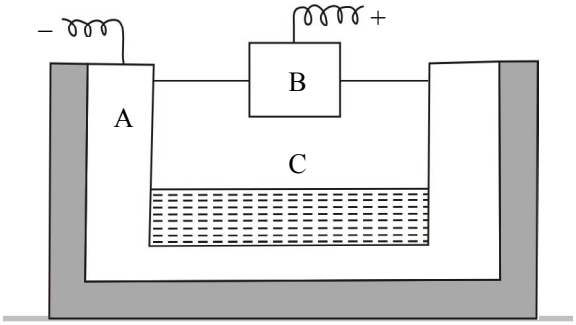
(iii) Give balanced equations with conditions, if any, for the following conversion. [3]

(a) Hydrogen chloride → Iron (II) chloride

(b) Hydrogen chloride → Ammonium chloride

(c) Hydrogen chloride → Lead chloride

(iv) The following is a sketch of an electrolytic cell used in the extraction of aluminium : [3]



(a) What is the substance of which the electrodes A and B are made ?

(b) At which electrode (A or B) is the aluminium formed ?

(c) What are the two aluminium compounds in the electrolyte C ?

6. (i) Complete the following paragraph using the options given in the brackets. [2]

Alkynes forms a ..... (homologous/analogous) with general formula .....($C_n H_{2n-2}$/$C_n H_{2n}$).

(ii) Give reasons : [2]

(a) Hydrocarbons are excellent fuels.

(b) In the lab preparation of ammonia, calcium hydroxide is used in excess.

(iii) Write three balanced reactions to show the acidic properties of HCl. [3]

(iv) State the functions of the following in the extraction of Aluminium : [3]

(a) Sodium hydroxide (b) Cryolite

(c) Carbon

ICSE SEMESTER 2 EXAMINATION
SPECIMEN QUESTION PAPER-3
CHEMISTRY
(PAPER 2)

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The intended marks for questions or parts of questions are given in brackets [ ].

Section A

*(Attempt **all** questions)*

1. Choose the correct answer from the options given below : [10]

(i) The two main metals in bronze are :

(a) copper and zinc (b) copper and lead (c) copper and nickel (d) copper and tin

(ii) Nitric acid is manufactured by :

(a) Catalytic oxidation of ammonia (b) Nitration of hydrogen and oxygen

(c) Contact process (d) Haber process

(iii) A white precipitate is formed when silver nitrate is added to a solution containing chloride ions. This precipitate is soluble in :

(a) Hydrochloric acid (b) Nitric acid

(c) Dilute H_2SO_4 (d) Ammonium hydroxide

(iv) When dilute nitric acid is added to copper turnings, the gas evolved is :

(a) NO (b) N_2O (c) NO_2 (d) H_2

(v) Hydrogen chloride gas is formed when sodium chloride is treated with concentrated :

(a) Hydrochloric acid (c) Sulphuric acid

(c) Nitric acid (d) Acetic acid

(vi) Benzene is an aromatic compound and has a ring structure. Its molecular formula is :

(a) C_6H_4 (b) $C_6H_4(CH_3)_2$ (c) $C_6H_5CH_3$ (d) C_6H_6

(vii) Which of the following statements is wrong about alkanes ?

(a) They are all saturated hydrocarbons.

(b) They can undergo addition as well as substitution reactions.

(c) They are almost non-polar in nature.

(d) They give out carbon dioxide and water on complete combustion.

(viii) Carbon forms a large number of compounds because of its :

(a) catenation property (b) polymerization property

(c) tetravalency (d) functional group

(ix) The common catalyst used for the conversion of ethene to ethane is :

(a) Nickel (b) Iron (c) Cobalt (d) Zinc

(x) The chemical name of Haematite is :

(a) Ferric oxide (b) Triferric tetraoxide

(c) Sodium aluminium fluoride (d) Zinc carbonate

Section B

*(Attempt **any three** questions)*

2. (i) Define: [2]

(a) Alloy (b) Roasting

(ii) Draw the structural formulae for each of the following : [2]

(a) Hexane-2, 3-diol (b) Pentanoic acid.

(iii) State the observation for the following, when : [3]

(a) Cryolite is added to the electrolyte mixture.

(b) Copper reacts with concentrated sulphuric acid.

(c) HCl is added to silver nitrate solution.

(iv) Compound X is bubbled through bromine dissolved in CCl_4 : [3]

$$X \xrightarrow{Br_2/CCl_4} \begin{matrix} CH_2Br \\ | \\ CH_2Br \end{matrix}$$

(a) Identify and name X.

(b) Draw the structure of X.

(c) State your observation during the reaction.

3. (i) Name the compound formed when : [2]

(a) An element with atomic number 16 reacts with concentrated sulphuric acid.

(b) Ammonia reacts with a heated black metallic oxide (CuO).

(ii) Write the IUPAC names of the following compounds : [2]

(a) Neo-pentane (b) Iso-propanol

(iii) How will you prepare the following from nitric acid ? [3]

(a) Sodium nitrate (b) Magnesium nitrate (c) Aqua regia

(iv) Complete and balance the following chemical equations : [3]

(a) $CH \equiv CH + O_2 \rightarrow$ (b) $Fe_2O_3 + HCl \rightarrow$ (c) $NaAlO_2 + H_2O \rightarrow$

4. (i) Write the IUPAC names for the following compounds : [2]

(a) $H_3C—CH_2—\underset{\displaystyle CH_3}{\underset{|}{CH}}—\underset{\displaystyle OH}{\underset{|}{CH}}—CH_3$

(b) $H_3C—CH_2—\underset{\displaystyle C_2H_5}{\underset{|}{CH}}—CH_2—\underset{\displaystyle CH_3}{\underset{|}{CH}}—CH_3$

(ii) Differentiate between the following pairs based on the information given in brackets. [2]

(a) Alkanes and alkenes (general formula) (b) Hydrochloric acid and ammonia (taste)

(iii) Complete the following table : [3]

General Formula	C_nH_{2n}	C_nH_{2n-2}	C_nH_{2n+2}
IUPAC name of the homologous series			
Characteristic bond type			
IUPAC name of the first member of the series			

. (iv) How is nitric acid obtained from ammonia? Write the balanced chemical equations involved. [3]

5. (i) Complete the following using the options given in brackets. [2]

(a) ..... (methane/methanol) is a gaseous hydrocarbon, while

(b) ..... (ethane/ethanol) is liquid hydrocarbon.

(ii) State two differences between saturated and unsaturated hydrocarbons. [2]

(iii) Give one word or phrase for each of the following : [3]

(a) The type of reactions alkenes undergo.

(b) An organic compound containing —CHO functional group.

(c) An arrangement done to dissolve HCl gas in water.

(iv) Name the following : [3]

(a) A saturated hydrocarbon having 10 covalent bonds.

(b) An unsaturated hydrocarbon with 2 double bonds

(c) A molecule in which central atom is linked to three other atoms.

6. (i) Name the following : [2]

(a) A black metallic oxide which reacts with hydrochloric acid to give coloured solution

(b) The element which serves both as the anode and the cathode in the extraction of aluminium.

(ii) Explain why : [2]

(a) Only all-glass apparatus should be used for the preparation of nitric acid by heating concentrated sulphuric acid and potassium nitrate.

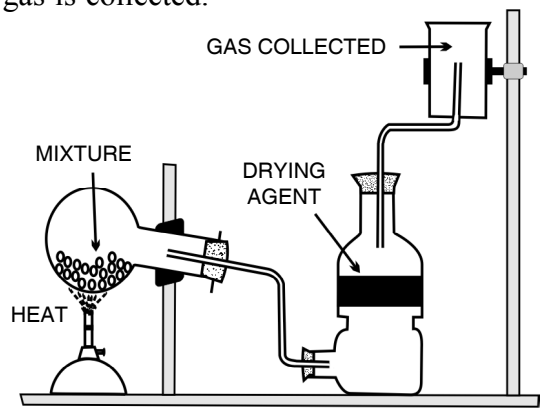
(b) Nitric acid is kept in a reagent bottle for a long time.

(iii) The diagram below shows the set up for the laboratory preparation of a pungent alkaline gas. [3]

(a) Name the gas collected in the jar and state how this gas is collected.

(b) Give a balanced equation for the above preparation.

(c) Name the drying agent used.



(iv) Match the following : [3]

Compound	Use
Ethene	Source of CO_2
Methane	As vinegar
Ethanoic acid	Ripening of fruits

ICSE SEMESTER 2 EXAMINATION
SPECIMEN QUESTION PAPER-4
CHEMISTRY
(PAPER 2)

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Section A

*(Attempt **all** questions)*

1. Choose the correct answer from the options given below : [10]

(i) The IUPAC name of Acetylene is :

(a) Propane (b) Propyne (c) Ethene (d) Ethyne

(ii) —CHO group is the functional group of :

(a) 2-butylene (b) Pentanal (c) Acetic acid (d) Ethyl alcohol

(iii) Ammonia can be obtained by adding water to :

(a) Ammonium chloride (b) Ammonium nitrite,
(c) Magnesium nitride (d) Magnesium nitrate.

(iv) The catalyst preferred in Haber's process is :

(a) Finely divided iron (b) Graphite
(c) Vanadium pentoxide (d) Platinum

(v) Addition reaction is a characteristic property of :

(a) Alcohols (b) Alkanes (c) Alkenes (d) Alkyl Halides

(vi) The gas evolved when concentrated sulphuric acid reacts with Zinc is :

(a) Sulphur dioxide (b) Carbon dioxide (c) Hydrogen sulphide (d) Hydrogen

(vii) Heating an ore in a limited supply of air or in the absence of air at a temperature just below its melting point is known as :

(a) Smelting (b) Ore dressing (c) Calcination (d) Bessemerisation

(viii) The hydroxide soluble in excess of sodium hydroxide is :

(a) Calcium hydroxide (b) Lead hydroxide
(c) Magnesium hydroxide (d) Ferrous hydroxide

(ix) The common name of an ore of aluminium is :

(a) Haemitite (b) Calamine
(c) Cryolite (d) Hydrated aluminium oxide

(x) A hydrocarbon with a triple bond is :

(a) Acetylene (b) Ethylene (c) Ethane (d) Methane

Section B

*(Attempt **any three** questions)*

2. (i) Define : [2]

(a) Isomerism (b) Ore dressing

(ii) Name the compound formed when : [2]

(a) Ethene reacts with bromine in the presence of carbon tetrachloride.

(b) Bauxite reacts with sodium hydroxide

(iii) Draw the structural diagrams of : [3]

(a) Butanal (b) Ethanoic acid (c) 2-ethyl, 4-methylpentan-1-ol

(iv) Write the balanced reactions for the following : [3]

(a) Ethane burns in oxygen.

(b) Acetylene reacts with iodine in presence of alcohol.

(c) Hot water is added to magnesium nitride.

3. (i) Identify the anion present in the following compounds : [2]

(a) Compound Z which on reacting with dilute hydrochloric acid liberates a gas which decolourises acidified potassium dichromate paper.

(b) The solution of Compound L on reacting with freshly prepared ferrous sulphate solution followed by the addition of a few drops of concentrated sulphuric acid to the reactants along the sides of a test tube forms a brown ring at the junction of the two liquids.

(ii) Name : [2]

(a) The drying agent used in the laboratory preparation of ammonia gas.

(b) The gas evolved when the mixture of sodium nitrite and ammonium chloride is heated.

(iii) State the observations for the following, when : [3]

(a) Manganese dioxide reacts with concentrated HCl.

(b) Concentrated nitric acid is added to copper.

(c) Concentrated sulphuric acid is added to sugar.

(iv) Write balanced equations for the following conversions : [3]

(a) Lead sulphate from lead nitrate.

(b) Methane to monochloromethane.

(c) Carbon to carbon dioxide using nitric acid.

4. (i) State the relevant reasons for the following : [2]

(a) Higher ratio of air is used in Ostwald process .

(b) A layer of powered coke is used in electrolytic reduction of alumina.

(ii) Name the alloys for the given composition : [2]

(a) Aluminium and copper. (b) Nickel + Aluminium + Cobalt

(iii) Identify the terms for the following : [3]

(a) The experiment which demonstrates high solubility of ammonia gas.

(b) A method used to purify bauxite.

(c) The electrode where oxidation takes place.

(iv) Write balanced reactions for the large scale manufacture of nitric acid. [3]

5. (i) Select the correct answer from the brackets to complete the following statements : [2]

(a) The catalyst used in the oxidation of ammonia is ..... [palladium/platinum].

(b) The product formed when ammonia burns in oxygen is ..... [nitric oxide/nitrogen]

(ii) Identify the acid : [2]

(a) which is used for the preparation of non-volatile acid.

(b) which is prepared by catalytic oxidation of ammonia.

(iii) Correct the following, if required : [3]

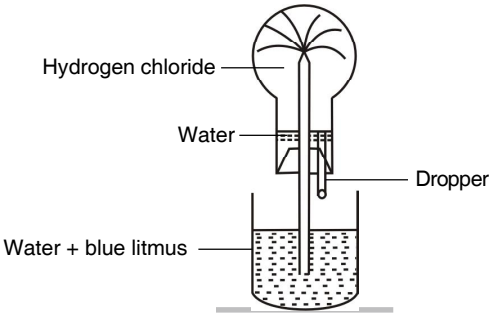
(a) $NaNO_3$ gives NO_2 and O_2 on heating.

(b) Constant boiling nitric acid contains 80% nitric acid by weight.

(c) Nitric acid remains colourless even when exposed to light.

(iv) (a) Name the experiment illustrated below : [3]

(b) State the colour of the water that has entered the round-bottomed flask.



(c) What property of hydrogen chloride is demonstrated when it is collected by downward delivery (upward displacement) ?

6. (i) Give a chemical test to distinguish between saturated and unsaturated compounds. [2]

(ii) A solution of hydrogen chloride in water is prepared. The following substances are added to separate portions of the solution : [2]

S. No.	Substances added	Gas evolved	Odour
1.	Calcium carbonate	.....	.....
2.	Magnesium ribbon	.....	.....

Complete the table by writing the gas evolved in each case and its odour.

(iii) Name the hydrocarbon which : [3]

(a) is a tetrahedral molecule,

(b) forms a red precipitate with ammoniacal solution of copper (I) chloride,

(c) a compound which will give ethyne (acetylene) gas when treated with water.

(iv) Write the equation for the following chemical properties of sulphuric acid : [3]

(a) Oxidizing agent (b) Dehydrating agent (c) Non volatile acid

ICSE SEMESTER 2 EXAMINATION
SPECIMEN QUESTION PAPER-5
CHEMISTRY
(PAPER 2)

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Section A

*(Attempt **all** questions)*

1. (A) Choose the correct answer from the options given below : [4]

(i) The IUPAC name of Acetaldehyde is :
(a) Ethanol (b) Propanal (c) Ethanal (d) Ethyne

(ii) —COOH group is the functional group of :
(a) 2-butylene (b) Pentanal (c) Acetic acid (d) Ethyl alcohol

(iii) The metal other than Aluminium which has a strong affinity for oxygen is :
(a) Copper (b) Magnesium (c) Lead (d) Silver

(iv) The catalyst preferred in contact process is :
(a) Finely divided iron (b) Graphite
(c) Vanadium pentoxide (d) Platinum

(v) Organic compounds which are known as olefins are :
(a) Alcohols (b) Alkanes (c) Alkenes (d) Alkyl Halides

(vi) The gas evolved when sulphuric acid reacts with calcium sulphite is :
(a) Sulphur dioxide (b) Carbon dioxide (c) Hydrogen sulphide (d) Hydrogen

(vii) An acid which is made up of two elements is :
(a) Carbonic acid (b) Sulphuric acid (c) Nitric acid (d) Hydrochloric acid

(viii) The ore soluble in excess of sodium hydroxide is :
(a) haemitite (b) bauxite (c) sederite (d) calamine

(ix) The common name of an ore of zinc is :
(a) Haematite (b) Calamine
(c) Cryolite (d) Hydrated aluminium oxide

(x) A hydrocarbon which can form carbon tetrachloride by substitution is :
(a) Acetylene (b) Ethylene (c) Ethane (d) Methane

Section B

*(Attempt **any three** questions)*

2. (i) Define: [2]

(a) Ore (b) Isomers

(ii) Name the compound formed when : [2]

(a) Ethyne reacts with bromine in the presence of carbontetrachloride.

(b) Aluminium hydroxid is heated strongly

(iii) Draw the structural diagram of : [3]

(a) Butan-2-al (b) 2-methyl heptane (c) 2-ethyl,4-methylpentan-1-ol

(iv) Write the balanced reaction for the following : [3]

(a) Ethene burns in oxygen

(b) Ethyne reacts with iodine in the presence of alcohol .

(c) Excess of Ammonia reacts with chlorine.

3. (i) Identify the anion present in the following compounds : [2]

(a) Compound Z which on reacting with dilute hydrochloric acid gives a white precipitate.

(b) The solution of Compound L on reacting with barium chloride gives a white precipitate.

(ii) Match the following : [2]

Compounds	**Formulae**
A. Acetylene	1. C_2H_4O
B. Acetone	2. C_2H_5OH
C. Acetaldehyde	3. C_2H_2
D. Ethanol	4. C_3H_6O

(iii) State the observation for the following, when : [3]

(a) Sodium sulphide reacts with HCl acid

(b) Dilute nitric acid is added to copper.

(c) Concentrated sulphuric acid is added to Zinc.

(iv) Write balanced equations for the following conversions : [3]

(a) Nitric acid from sodium nitrate .

(b) Ammonia to nitrogen using metallic oxide.

(c) Sulphur to sulphuric acid.

4. (i) State the relevant reason for the following : [2]

(a) Temperature is maintained around 200 degree centigrade in the lab preparation of nitric acid.

(b) Cryolite is used in the electrolytic reduction of alumina.

(ii) Give the composition of the following alloys : [2]

(a) Magnalium (b) Duralumin

(iii) Identify the terms for the following : [3]

(a) The method used to obtain Aluminium from Alumina.

(b) A method used to obtain nitric acid on large scale.

(c) The electrode which is replaced in the extraction of Aluminium.

(iv) Write the balanced reactions for Contact process. [3]

5. (i) Select the correct answer from the brackets to complete the following statements: [2]

(a) The catalyst used in hydrogenation of ethene at room temperature is ..... [nickel / platinum].

(b) The product formed when ammonia burns in oxygen in the presence of catalyst is ..... [nitric oxide/nitrogen].

(ii) Name the following organic compounds : [2]

(a) The second homologue whose general formula is Alkene.

(b) The compound formed by complete bromination of acetylene.

(iii) Write the balanced chemical equations for the purification of bauxite. [3]

(iv) Explain the following : [3]

(a) Dil. HNO_3 is generally considered a typical acid but not so in the reaction with metals.

(b) When it is left standing in a glass bottle concentrated nitric acid appears yellow.

(c) In the laboratory preparation of nitric acid an all glass apparatus is used.

6. (i) Distinguish between the following : [2]

(a) Dilute hydrochloric acid and dilute sulphuric acid (using barium chloride solution).

(b) Ethane and acetylene (using ammoniacal cuprous chloride).

(ii) Write the equation for the aqueous solution of ammonia with : [2]

(a) Iron (III) chloride

(b) Copper sulphate

(iii) Write chemical equations for the following conversions : [3]

(a) Acetylene to ethylene

(b) Ethyne to tetrabromo-ethane

(c) Calcium carbide to ethyne

(iv) The following reactions are carried out : [3]

A : Nitrogen + metal $\rightarrow$ compound X.

B : X + water $\rightarrow$ ammonia + another compound.

C : Ammonia + metal oxide $\rightarrow$ metal + water + N_2.

One metal that can be used for reaction A is magnesium.

(a) Write the formula of the compound X formed.

(b) Write the correctly balanced equation for reaction B where X is the compound formed.

(c) What property of ammonia is demonstrated by reaction C ?