shishuvan

CHEMISTRY (STD X)

SCIENCE 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.
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.

Attempt all questions from Section I and any three questions from Section II.
The intended marks for questions or parts of questions are given in brackets [ ].

Section I

*Attempt **all** questions from this section*

Question 1

Choose the correct answers to the questions from the given options (Do not copy the question, Write the correct answer only) [10]

(i) The other name for sulphuric acid is
- (a) Muriatic acid
- (b) Aqua fortis
- (c) Oil of vitriol
- (d) Oil of sulphur

(ii) Substitution reaction is a characteristic property of
- (a) Alkanes
- (b) Alkenes
- (c) Alkynes
- (d) Both b and c

(iii) This gas gives a white precipitate with silver nitrate solution
- (a) Sulphur dioxide
- (b) Ammonia
- (c) Hydrogen chloride
- (d) Hydrogen sulphide

(iv) One of the following is an ore of iron
- (a) Cryolite
- (b) Bauxite
- (c) Haematite
- (d) Calamine

(v) A nitrate that gives only oxygen on heating
- (a) Lead nitrate
- (b) Potassium nitrate
- (c) Zinc nitrate
- (d) Magnesium nitrate

(vi) An organic compound which has a general formula as $C_nH2_{n+1}X$ where X is a halogen is called as
- (a) Alcohol
- (b) Aldehyde
- (c) Alkyl halide
- (d) Halogen

(vii) Hydrogen chloride which is highly soluble in water is dried by
- (a) Anhydrous calcium hydroxide
- (b) Phosphorous pentaoxide
- (c) Quick lime
- (d) Concentrated sulphuric acid

(ix) The IUPAC name of the compound with the formula CH_3CH_2CHO is
- (a) Propanal
- (b) Propanol
- (c) Ethanol
- (d) Ethanal

(x) When ammonia reacts with excess chlorine the following is one of the final product formed
- (a) Ammonium chloride
- (b) Nitrogen gas
- (c) Nitrogen trichloride
- (d) Nitrogen dioxide gas

Section II (30 Marks)

Attempt any four questions from this section

Question 2

(i) **Define:** [2]
(a) Homologous series
(b) Catenation

(ii) **Name the gas formed when** [2]
(a) Sodium sulphide reacts with hydrochloric acid
(b) Excess of ammonia reacts with chlorine

(iii) **Draw the structural diagram of** [3]
(a) 2-Butanol
(b) 3-Chloro-2-methyl pentane
(c) Ethanoic acid

(iv) **Complete and balance the following equations** [3]
(a) $NH_4OH + FeSO_4 \rightarrow$
(b) $ZnO + HCl \rightarrow$
(c) $Mn + 1\%$ dil $HNO_3 \rightarrow$

Question 3

(i) **Identify the ion/gas present in the following compounds** [2]
(a) Compound A when treated with concentrated HCl releases a greenish yellow gas which bleaches moist litmus papers.
(b) A solution of compound B is treated with lead nitrate and a white precipitate is formed which does not dissolve on heating.

(ii) **State the following:** [2]
(a) The process used for concentration of Bauxite
(b) Industrial process of preparation of oil of vitriol

(iii) **State the observation for the following:** [3]
(a) Ammonium chloride is treated with an alkali
(b) Concentrated sulphuric acid is added to carbon
(c) Lead nitrate is heated

(iv) **Write the balanced chemical equations for the following:** [3]
(a) Preparation of nitric acid from chile salt petre
(b) Preparation of ammonium chloride from ammonia
(c) Formation of ethane from ethene

Question 4

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

(a) Temperature and pressure have to be maintained at a particular level in the preparation of ammonia by Haber's process.

(b) Sulphur trioxide is not added to water directly to form sulphuric acid.

(ii) Name the following: [2]

(a) A ore of Zinc

(b) An alloy used to build aeroplanes

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

(a) An electrode where oxidation takes place

(b) Arrangement used to dissolve HCl gas in water

(c) Method used to collect ammonia gas

(iv) Complete the table given below: [3]

Name the process	Compounds/elements used	Product formed
(a) _____	_____	Ammonia
(b) _____	Cryolite, fluorspar, alumina	Aluminium, carbondioxide

Question 5

(i) Write the balanced chemical equations to show reaction of ammonia with excess of chlorine [2]

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

(a) The salt that will dissolve completely in excess of ammonium hydroxide is _____ [ferric sulphate/copper sulphate]

(b) The gas that gives a greenish yellow colour to a flame is _____ [nitrogen/ammonia]

(iii) Name the following organic compounds: [3]

(a) The third member of the aldehyde series

(b) A compound which is formed by chlorination of methane and which is a solvent for all organic compounds.

(c) A compound with 4 carbon atoms, with a double bond and a chlorine on the second carbon atom.

(iv) Answer the following questions related to the laboratory preparation of Nitric acid in the laboratory [3]

(a) Why is the glass retort kept in a tilted position during the preparation of nitric acid?

(b) There is a yellow tinge in the final solution formed after the reaction. How is it removed?

(c) What will happen if the reaction temperature goes beyond 200 degrees?

Question 6

(i) **Distinguish between the following** [2]

(a) Copper oxide and manganese dioxide (using HCl)

(b) Carbonate ion and sulphite ion (using $K_2Cr_2O_7$ solution)

(ii) **Give one word for the following statements:** [2]

(a) Property of a compound by which water is completely removed from another compound when reacted with it

(b) Isomers in which the double bond is shifted between carbon atoms in the same molecule

(iii) Give three uses of ammonia. [3]

(iv) **Study and complete the following table:** [3]

Homologous series	Alcohol	Aldehyde
General formula	1. _____	$C_nH_{2n}O$
IUPAC name of the compound	2. _____	3. _____
Common name	Methyl alcohol	Formaldehyde

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