ARYA VIDYA MANDIR GROUP OF SCHOOLS

PRELIMINARY REVIEW – FEBRUARY 2022

Date:- 18/02/2022 CHEMISTRY (SCIENCE PAPER 2) Marks :40

Chem(Sci- 2) Time:- 1 ½ hr

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 A and any three questions from Section B. The intended marks for questions or parts of questions are given in brackets [ ].
This paper consists of 6 printed pages.

SECTION A

*(Attempt **all** questions.)*

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) Isomers are those organic compounds that have

(a) Same Molecular formula and same structural formula

(b) Same Molecular formula but different structural formula

(c) Same Structural formula but different Molecular formula

(d) Same Molecular formula but different Condensed formula

(ii) The gas evolved when concentrated Sulphuric acid reacts with Sulphur is:

(a) Sulphur dioxide

(b) Carbon dioxide

(c) Hydrogen sulphide

(d) Nitrogen dioxide

(iii) The functional group present in 1-Propanol is :

(a) Carbonyl

(b) Carboxyl

(c) Oxy

(d) Hydroxyl

(iv) The common ore of Iron with the molecular formula Fe_3O_4 is commonly known as :

(a) Haematite

(b) Magnetite

(c) Iron pyrites

(d) Spathic Iron ore.

(v) Ammonia gas burns in an atmosphere of excess Oxygen with _____ flame.

(a) Pale blue

(b) Green

(c) Yellow

(d) Bluish Green

(vi) The constituent elements of the alloy Duralumin are:

(a) Aluminium, Magnesium, Manganese and Copper

(b) Aluminium, Nickle, Cobalt

(c) Aluminium, Nickle, Cobalt, Iron

(d) Aluminium, Magnesium

(vii) An acid obtained when concentrated Sulphuric acid is added to Sodium nitrate salt:

(a) Nitric acid

(b) Carbonic acid

(c) Sulphuric acid

(d) Hydrochloric acid

(viii) A curdy white precipitate obtained on adding Silver nitrate solution to dilute Hydrochloric acid is of:

(a) Ammonium chloride

(b) Silver chloride

(c) Silver nitrate

(d) Silver sulphate

(ix) During the Fountain experiment using Ammonia solution, the colour of the phenolphthalein solution fountain observed is

(a) Yellow

(b) Blue

(c) Pink

(d) Red

(x) If the molecular formula of an organic compound is C_3H_4 then it belongs to _____ family.

(a) Alkane

(b) Alkene

(c) Alkyne

(d) Alcohol

SECTION B

*(Attempt **any three** questions from this Section.)*

Question 2

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

(a) A special funnel arrangement is used to prepare Hydrochloric acid from Hydrogen chloride gas.

(b) Nitric acid stains the skin yellow.

(ii) Answer the following with respect to Industrial preparation of Ammonia gas: [3]

(a) Name the process.

(b) Give balanced chemical reaction (with appropriate conditions).

(c) State any one method by which Ammonia is separated from the uncombined reactants.

(iii) Write the balanced chemical equations for the reactions given below: [5]

(a) $CH_4 + Cl_2 \rightarrow$

(b) Action of dilute Hydrochloric acid on Sodium sulphide.

(c) $C_2H_4 + H_2 \rightarrow$

(d) Action of Concentrated Nitric acid on Copper metal.

(e) $MgO + H_2SO_4$ (dil.) $\rightarrow$

Question 3

(i) Which property of Sulphuric acid is shown by the reaction of Concentrated Sulphuric acid with [2]

(a) Carbon

(b) Blue vitriol

(ii) Draw the structural formula of the position isomers of C_5H_{10}. [2]

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

(a) Concentrated Sulphuric acid is added to sugar crystals.

(b) Ammonia is added to excess Chlorine.

(c) Lead nitrate solution is added to dilute Hydrochloric acid and then heated.

(iv) Answer the questions with respect to the electrolytic reduction of Alumina. [3]

(a) Fused Alumina is electrolytically reduced. Give reason

(b) Name the compound added to Alumina to lower its fusion temperature.

(c) State the ionic equation taking place at cathode.

Question 4

(i) Draw the structures of the following: [2]

(a) 2-Methyl-1-propanol

(b) Acetic acid

(ii) Identify the terms for the following: [2]

(a) The naturally occurring minerals from which the metals can be extracted profitably and conveniently.

(b) A tendency of an element to form long chain compounds comprising of identical atoms.

(iii) With respect to the laboratory preparation of Hydrogen chloride gas answer the following questions: - [3]

(a) Write the balanced chemical equation for the same.

(b) State the drying agent used.

(c) What is the method of collection of the gas?

(iv) Write the balanced chemical equations to show the concentration of ore in accordance to the Baeyer's process. [3]

Question 5

(i) Complete the following table related to the Industrial preparation. [2]

Name of the Process	Equation for catalysed reaction	Output
i) _____	ii) _____	**Nitric acid**

(ii) State your inferences based on the observation given below: - [3]

a) When a gas jar containing HCl gas is poured in to a lower jar containing a burning candle, it is observed that the burning candle extinguishes.

b) When Ammonium hydroxide is added in excess to the given salt, it forms inky blue colouration.

c) A gas when bubbled in excess through colourless Nessler's reagent forms a brown precipitate.

(iii) Name the following:- [5]

a) The catalyst used during oxidation of Ammonia gas.

b) A mixture of two or more metals fused together in the molten state in a fixed proportion.

c) The coloured gas released when concentrated Nitric acid is treated with Carbon.

d) A saturated organic compound with four carbon atoms in a straight chain.

e) The acid obtained by absorbing Sulphur trioxide in Conc. Sulphuric acid during the Industrial preparation of Sulphuric acid.

Question 6

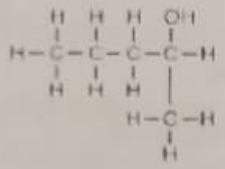
(i) Distinguish between the following: [2]

(a) Dilute HCl and dilute H_2SO_4 [using Barium chloride solution]

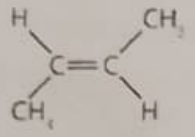
(b) Calcium carbonate and Calcium bisulphite (by naming the gas released after adding dilute Nitric acid)

(ii) Give IUPAC names for the following organic compounds: - [3]

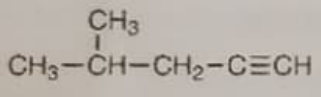
(a)



(b)



(c)



(iii) Rectify the following false statements by changing the underlined words:- [3]

(a) The organic compound C_5H_{12} has <u>five</u> chain isomers.

(b) <u>Hydrogen chloride gas</u> reduces heated (black) Copper oxide to pinkish brown Copper.

(c) Sulphur dioxide is oxidized to Sulphur trioxide in presence of <u>Phosphorous pentoxide</u> catalyst at 450°C and 1-2 atm.

(iv) Give reason [2]

(a) All glass apparatus is used in lab preparation of Nitric acid.

(b) Liquid ammonia is used as a refrigerant in ice plants.

****