SRI SRI RAVISHANKAR VIDYA MANDIR, MULUND
FIRST PRELIMINARY EXAMINATION (2021 – 22)
SUBJECT: CHEMISTRY

STD.: X **Marks: 40**
Date: 16/02/2022 **Time: 1½ 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 reading the Question paper.
The time given at the head of the paper is the time allotted for writing the answers.
*THIS QUESTION PAPER CONSISTS OF **5** PRINTED PAGES.*

SECTION I is compulsory. Attempt any three questions from **SECTION II.**
The intended marks for the questions or parts of the questions are given in [ ].

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) A metalloid with atomic number 14.

(a) Aluminium (c) Silicon

(b) Phosphorus (d) Sodium

(ii) When sulphur reacts with conc. HNO_3 the product formed is

(a) H_2SO_4 (c) SO_2

(b) NO_2 (d) Cl_2

(iii) The gas liberated when metals like copper reacts with cold and dilute nitric acid

(a) Oxygen (c) Nitric oxide

(b) Nitrogen (d) Chlorine

(iv) Carbon to carbon double bond is found in:

(a) 2-butylene (c) Acetic acid

(b) Acetaldehyde (d) Ethyl alcohol

(v) An amphoteric oxide

(a) CO (c) PbO

(b) Na_2O (d) SO_2

(vi) The gas evolved when dilute sulphuric acid reacts with iron sulphide

(a) Sulphur dioxide (c) Hydrogen sulphide

(b) Carbon dioxide (d) Nitrogen dioxide

(vii) The organic compound which undergoes substitution reaction is

(a) C_2H_2 (c) C_2H_6

(b) C_2H_4 (d) C_2H_8

(viii) The type of bond present between hydrogen and chlorine in hydrogen chloride is

(a) Ionic bond (c) Metallic bond

(b) Covalent bond (d) Polar covalent bond

(ix) Drying agent used to dry HCl gas

(a) H_2SO_4 (c) conc. H_2SO_4

(b) HNO_3 (d) conc. HNO_3

(x) Ionisation potential of Alkali metals across a period is

(a) High (c) Zero

(b) Low (d) moderate

SECTION B

(Attempt any three questions from this Section)

Question 2

(i) Define [2]

(a) Metallurgy

(b) Isomerism

(ii) State one observation for the following [5]

(a) Concentrated sulphuric acid is reacted with sulphur

(b) Conc. sulphuric acid is added to sugar crystals

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

(d) Ammonia burns in atmosphere of oxygen

(e) Barium chloride solution is added to sodium sulphate solution

(iii) Give balanced chemical equation for the following [3]

(a) Action of hydrochloric acid on sodium bicarbonate
(b) Catalytic oxidation of ammonia
(c) Reaction of carbon powder and concentrated nitric acid

Question 3

(i) Draw the structure for the following organic compounds [4]

(a) Propanol

(b) 1,2-dichloro ethene

(c) Ehanoic acid

(d) Butanal

(ii) Give reasons for the following [4]

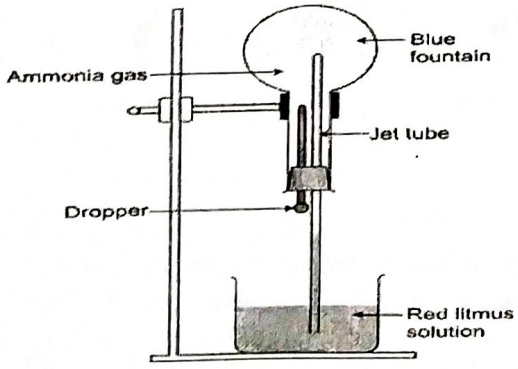
(a) Catalyst used in contact process is heated initially only

(b) A layer of powdered coke is sprinkled over the electrolytic mixture during electrolytic reduction of alumina

(c) Alkanes do not undergo addition reaction

(d) Ammonium nitrate is not used in laboratory preparation of ammonia

(iii) Observe the given figure and answer the questions that follows [2]



(a)Name the experiment shown

(b)Which property of ammonia gas is demonstrated by this experiment?

Question 4

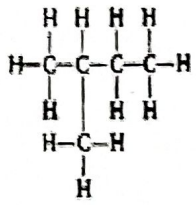
(i) The following questions are relevant to the extraction of Aluminium: [3]

(a) State the reason for addition of caustic alkali to bauxite ore during purification of bauxite.
(b) Give a balanced chemical equation for the above reaction.
(c) Along with cryolite and alumina, another substance is added to the electrolyte mixture. Name the substance and give one reason for the addition.

[4]

(ii) Give IUPAC name for the following

(a)



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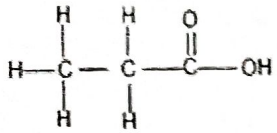

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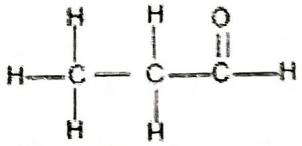

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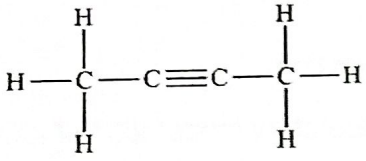


(iii) Distinguish between: [3]

(a) Dilute HCl and dilute H_2SO_4
(b) Dilute HCl and dilute HNO_3
(c) Alkanes and Alkenes

Question 5

(i) Hydrogen chloride gas is prepared in the laboratory using conc. H_2SO_4 and NaCl. Answer the questions that follows based on the reaction: [4]

(a) Give a balanced chemical equation for the reaction with suitable condition(s) if any.
(b) Why is conc. H_2SO_4 used instead of conc. HNO_3?
(c) How is the gas collected?
(d) Give confirmatory test for the hydrogen chloride gas.

(ii) Name the following [4]

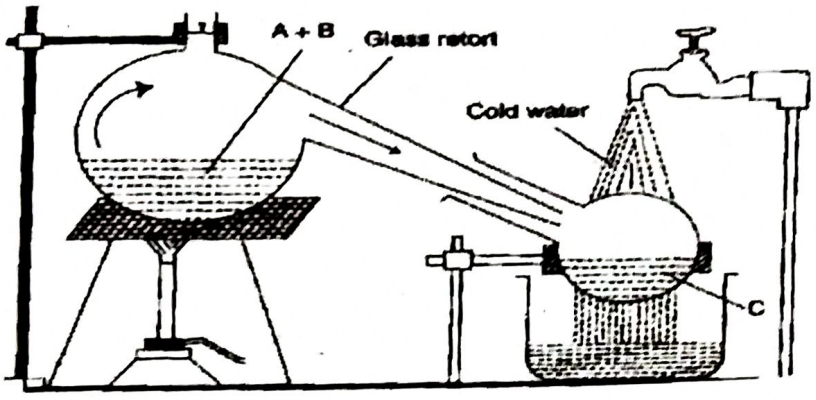
(a) The main ore of aluminium. Give its chemical formula.

(b) The main components of the alloy of Brass and Duralumin.

(iii) Conc. H_2SO_4 is an oxidizing agent and a non volatile acid. Write an equation for each property. [2]

Question 6

(i) Observe the given figure carefully and answer the questions that follows: [4]



(a) Name the reactants being used in laboratory preparation of HNO_3.

(b) Why is the entire apparatus made up of glass?

(c) Why is the temperature maintained below 200^0 C?

(d) Write a balanced chemical equation for the above reaction?

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

(a) $CH_4 + O_2 \longrightarrow CO_2 + \_\_\_\_$

(b) $H_2C = CH_2 + Cl_2 \longrightarrow \_\_\_\_$

(c) $C_2H_6 + Br_2 \longrightarrow \_\_\_\_ + HBr$

(iii) Name the following: [3]

(a) Industrial process of manufacturing of nitric acid.

(b) A white solid compound formed by reaction of two colourless gases.

(c) The catalyst used for conversion of SO_2 to SO_3.