JANKIDEVI PUBLIC SCHOOL

PRELIMNARY EXAMINATION 2018-2019

STD.: X | **CHEMISTRY** | **DATE: 10.01.2019**
TIME: 2 hrs | **SCIENCE Paper 2** | **MARKS: 80**

Answer to this paper must be written on the paper provided separately.
You will not be allowed to write during the 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.

*Attempt **all** the questions from **Section I** and **any four** questions from **Section II.***
The intended marks for questions or parts of questions are given in brackets [].
*This paper consists of **six** printed pages.*
Nothing should be written on the question paper.

Section I (40 marks)

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

Question 1

a) Choose the correct answer from the options A, B, C and D given below. [5]
Write only the correct answer.

i) The element having highest ionization energy is ------.
A. Cs B. He C.F D. Cl

ii) The polar covalent molecule is ------.
A.HF B. NaCl C. CaO D.CH_4

iii) Carboxylic acids are identified by the presence of ------ group.
A.-CHO B. –OH C.-COOH D. -C-O-C-

iv) The number of molecules in 4.25 g of Ammonia is ------. [N=14, H =1]
A. 0.15 $X10^{23}$ B.1.5 $X10^{23}$ C. 0.0015 $X10^{23}$ D. 0.015 $X10^{23}$

v) The main metal in Gun metal is -----.
A. Pb B.Zn C. Al D. Cu

b) Give one word or phrase for the following statements. [5]

i) The ratio between the weights of equal volumes of a gas and the hydrogen employed under the same conditions of temperature and pressure.

ii) The heating of an ore in absence of air to a temperature that is high but insufficient to melt the ore.

iii) The process of simple molecules of the same kind combining to form a much bigger and more complex molecule.

iv) The property of a solid substance to absorb moisture from the atmosphere, to such an extent that it dissolves to make a solution.

v) A mixture of conc. Nitric acid and conc. hydrochloric acid 1:3 by volume, which is capable of dissolving gold and platinum.

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c) Write balanced chemical equations for the following chemical reactions. [5]

i) Dehydration of Ethyl alcohol.

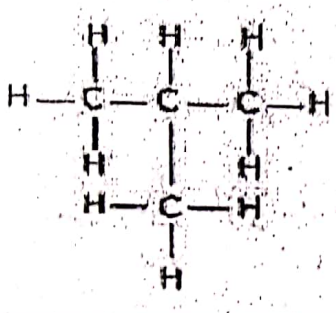
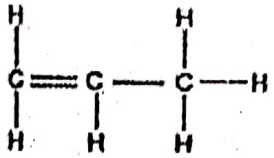
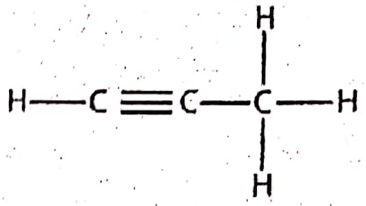
ii) Action of hot alcoholic potassium hydroxide with ethyl bromide.

iii) Action of cold and dilute nitric acid on copper.

iv) Excess of ammonia reacts with chlorine.

v) Catalytic oxidation of Ammonia.

d) (i) Give the IUPAC name for each of the following. [3]

A	B	C
		

ii) Solve. [2]

Find the number of molecules and volume of 6.39 g of chlorine gas
[Atomic mass of Cl =35.5]

e) State one relevant observation for each of the following chemical reactions. [5]

i) Ammonium carbonate is added to dilute alkali solution.

ii) Acetic acid reacts with alcohol in presence of conc. Sulphuric acid.

iii) Conc. Sulphuric acid is added to blue vitriol crystals.

iv) Conc. Hydrochloric acid reacts with Manganese dioxide.

v) At cathode and anode during refining of copper.

f) Give appropriate scientific reasons for the following statements. [5]

i) Aluminium is used in thermit.

ii) Zinc carbonate solution cannot be used to distinguish between sodium hydroxide solution and ammonium hydroxide solution.

iii) Common salt becomes wet during rainy season.

iv) Wine bottle cannot be left open, it has to be corked and even then it has to be finished in a day or two.

v) Alkali metals are good reducing agents.

g) Name the gas that is produced in each of the following cases. [5]

i) Magnesium reacts with acetic acid.

ii) Hydrated sodium carbonate is heated.

iii) Conc. Sulphuric acid reacts with sodium chloride.

iv) Gas evolved at anode when fused magnesium chloride is electrolysed.

v) Copper sulphite reacts with nitric acid.

Continued on page 3. .

h) Fill the blank with the correct choice given in the brackets. **[5]**

i) Ferric chloride gives ------ [dirty green, reddish brown] coloured precipitate with ammonium hydroxide solution.

ii) Potassium nitrate evolves ----- [Nitrogen dioxide, Oxygen] gas on heating.

iii) Calcium sulphate imparts ------- [violet, brick red] colour to the flame.

iv) Yellow coloured powder of sulphur precipitates when ------- [Sodium sulphite, Sodium thiosulphate] reacts with dilute hydrochloric acid.

v) Common ore of zinc is ------- [Cryolite,Calamine]

SECTION II (40 Marks)

*Attempt **any four** questions from this section.*

Question 2

a) Answer the following questions. **[3]**

i) Draw Hydronium ion.

ii) Identify the probable cation and anion present in salt A if it gives deep blue solution with ammonium hydroxide solution and curdy white precipitate with silver nitrate solution.

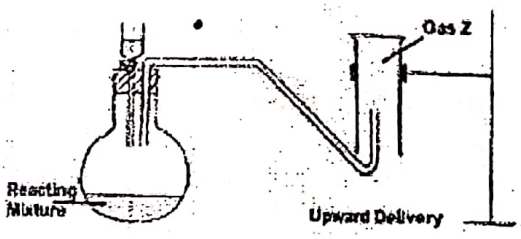
b) In period 3 of the periodic table, element B is placed to the left of element A. On the basis of this information choose the correct word from the brackets to complete the following statements. **[3]**

i) The element B would have [lower/higher] metallic character than A.

ii) The element B would probably have [lesser/higher] electron affinity than A.

iii) The element B would have [greater/smaller] atomic size than A.

c) Observe the diagram of laboratory preparation of Ammonia gas and answer the questions given below. **[4]**



i) Write balanced chemical equation of the chemical reaction.

ii) Why is the gas collected by upward delivery?

iii) Name the chemical which can be used for drying Ammonia gas and give reasons why other drying agents cannot be used.

iv) Write two tests of Ammonia gas where colour change is seen.

Question 3

a) Answer the following questions based on Hall – Heroult's process **[3]**

i) Name the constituents of electrolyte.

ii) Why is powdered coke sprinkled over the electrolyte?

iii) Write the chemical reaction occurring at Cathode.

Continued on page 4..

b) Write structural formula of the following organic compounds. [3]

i) 3- methyl pent- 2-ene

ii) 2 –chloro- 2- methyl propane.

iii) But-2-yne.

c) Solve. [4]

i) An organic compound, whose vapour density is 45 has the following percentage composition, H = 2.22% , O = 71.19% and remaining Carbon. Find its empirical formula

ii) Find molecular formula of the above compound.

Question 4

a) Name the periodic property which relates to the following. [2]

i) Amount of energy required to remove an electron from an isolated gaseous atom.

ii) Tendency of an atom to attract the shared pair of electrons.

b) Name the methods of preparation of following salts. [2]

i) Potassium hydrogen sulphate.

ii) Ferric chloride.

iii) Zinc sulphate.

iv) Copper chloride.

c) Complete the table. [4]

Functional group	General formula	Types of organic compounds	Suffix	Example with common name	Example with IUPAC name
aldehyde	R-CHO	aldehydes	-------	formaldehyde	---------
keto	-------	ketones	one	acetone	---------

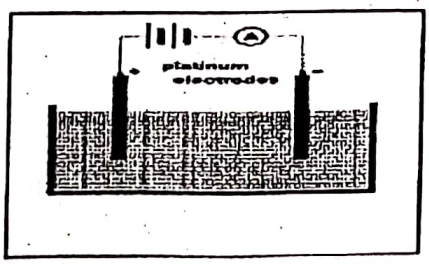
d) State the conditions for the following reactions. [2]

i) Manufacture of Ammonia.

ii) Conversion of Sulphur dioxide to Sulphur trioxide.

Question 5

a) Observe the diagram showing electrolysis of Copper sulphate solution using platinum electrodes and answer the questions given below. [3]



i) Name the ions present in the solution.

ii) What change is seen at cathode?

iii) What is the product at anode?

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b) Give balanced chemical equations for the following chemical reactions. [3]

i) Ethane reacts with oxygen in presence of molybdenum oxide.

ii) Catalytic hydrogenation of ethyne.

iii) Methane is burnt in insufficient supply of air.

c) Give a chemical test to distinguish between the following pairs of compounds. [4]

i) Sodium chloride and Sodium nitrate.

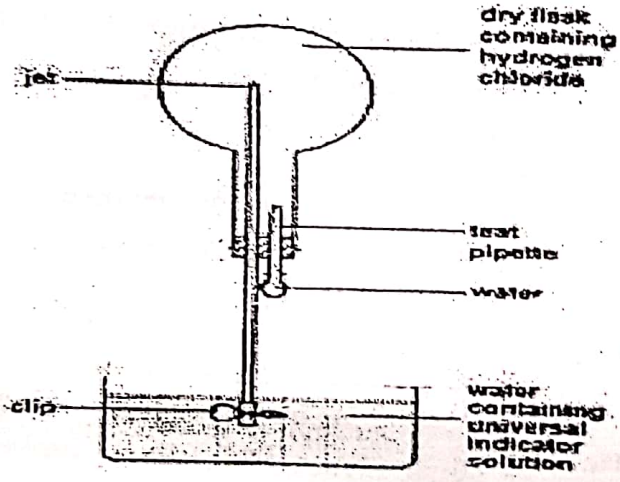
ii) Carbon dioxide and Sulphur dioxide.

iii) Ethene and Ethyne.

iv) Lead nitrate and Zinc nitrate.

Question 6

a) Observe the diagram and answer the questions given below. [2]



i) Which coloured fountain will be seen?

ii) Write the properties of hydrogen chloride gas demonstrated by this experiment.

b) Give balanced chemical equations for the following conversions. [4]

i) Ethyl chloride to ethyl alcohol.

ii) Methyl iodide to ethane.

iii) Sodium propionate to ethane.

iv) Sulphur to sulphuric acid. [one step]

c) State one relevant observation for each of the following. [4]

i) Ethene is bubbled through a solution of bromine.

ii) Ethanol is warmed with vinegar in presence of conc. Sulphuric acid.

iii) Ammonium hydroxide solution is added to copper sulphate solution.

iv) Molten Lead bromide is electrolysed.

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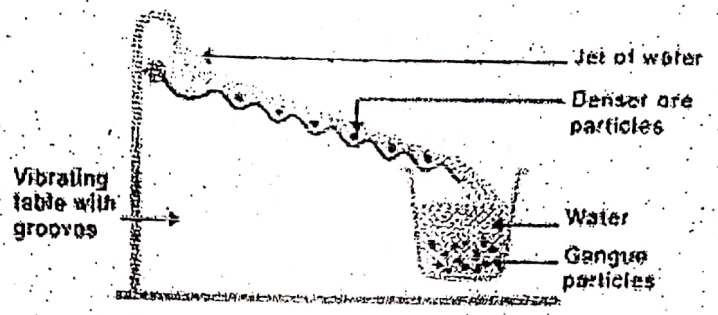
Question 7

a) Observe the diagram and answer the questions given below. [2]



i) Identify the method shown.
ii) Write the principle of this method.

b) Solve. [3]

Calculate the number of moles and the number of molecules present in 1.4 g of ethylene gas. What is the volume occupied by the same amount of ethylene? Find vapour density of ethylene. [Atomic mass of C =12 and H =1]

c) Answer the following questions. [4]

i) A solution has pH 7, how would you increase and decrease its pH?
ii) A solution changes phenolphthalein solution pink .What is its pH?
iii) What is the pH of a solution which liberates Hydrogen gas from active metals?
iv) Will the pH of water change if sugar is added to it?

d) Identify the cations. [1]

i) A greenish blue salt which on heating turns black.
ii) A white solid which on heating becomes yellow and remains yellow on cooling.

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