

CHEMISTRY

Time 2 hrs

STD X

Marks 80

[Section 1 is compulsory. Attempt any four questions from section II]

SECTION 1

Question 1

a. Choose the correct answer from the choices A, B, C and D.

1. An element with electronic configuration 2, 8, 6.
A. Magnesium B. Chlorine C. Aluminium D. Sulphur
2. The compound that has both ionic and covalent bond
A. MgO B. H₂SO₄ C. NH₄NO₃ D. CH₄.
3. The substance which changes the blue colour of copper sulphate crystals to white.
A. conc. HCl B. Water C. conc. H₂SO₄ D. dil. H₂SO₄.
4. The hydroxide of this metal which is soluble in excess NaOH.
A. Lead B. Magnesium C. Iron D. Copper.
5. The Cation discharged at the most readily.
A. Ferrous. B. Plumbous . C. Hydrogen ion. D. Cupric.
6. An alloy of copper, Zinc & Tin.
A. Brass B. Solder. C. Bronze. D. Gun metal.
7. The IUPAC name of Acetaldehyde is
A. Methanal B. Ethanol C. Propanone D. Ethanal.
8. The acid which does not form an acid salt.
A. Sulphuric acid B. Hydrochloric acid C. Carbonic acid D. Phosphoric acid.
9. An Ore which is not amphoteric in nature.

A.Bauxite B.Corundum C.Haematite D.Zincite.

10.The acid which has great affinity to water.

A.Conc .H₂SO₄ B.Conc. HCl C.HNO₃ D.H₂CO₃.

(10)

b.Name the following:

1.An alloy which is hard ,brittle and takes up polish which is used for making statues.

2.A reagent used to distinguish lead and zinc salts.

3.A chemical used to dissolve Au and Pt.

4.A metal which is brittle.

5.The element in period 3 whose electron affinity is zero.

(5)

C.Write a suitable compound for the following observations :

1.The salt on exposure to air turned to a liquid.

2.The salt when heated with an alkali evolved ammonia gas.

3.The salt on heating leaves no residue.

4.An organic compound which has garlic odour if impurities are present.

5.An inorganic compound that produces cooling effect when it evaporates.

(5)

d.Match the description in column X with appropriate substance in column Y.

X	Y
1.A gas whose solution in water is alkaline.	A.Fluorine.
2.Acid on cooling forms ice like mass.	B.Methanol
3.Acid that is not used in the preparation of HCl.	C.Sodium hydroxide.
4.Drying agent used for HCl gas.	D.Acetic acid
5.Illicit liquor used as solvent for paints.	E.Ammonia.
6.Solvent used to dissolve Bauxite.	F.Conc.Sulphuric acid.
7.The most electronegative element.	G.Nitric acid

(7)

e.What do you observe in the following reactions and write its equations:

1.Sodium nitrate is heated.

2.Acetic acid is added to sodium carbonate.

3. Catalytic oxidation of Ammonia.

(6)

f. Answer the following questions:

1. How is Ethanol converted to Ethene.?

2. Why sodium argentocyanide is preferred to silver nitrate as an electrolyte ?

3. Why oxidising power of elements increases from left to right in the periodic table? (3)

g The reaction given below takes place only in the gaseous state:



If all the volumes are measured at same temperature and pressure . Calculate the volume of N_2O required to give 150cm^3 of steam. (2)

h. A 3.0gm sample of $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ is heated to a constant mass. How much anhydrous salt remains and find its percentage?

[Na =23, C=12, O=16, H=1]

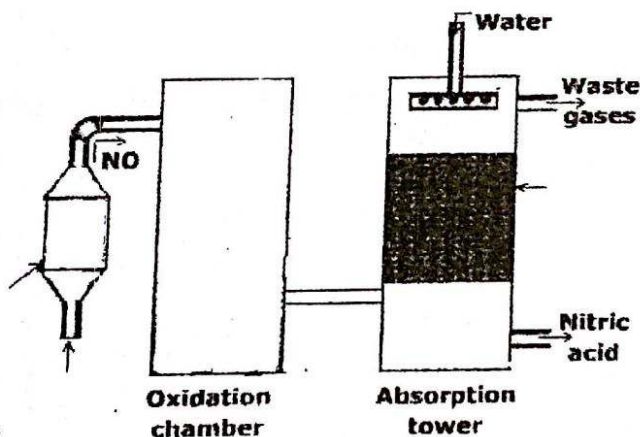
[2]

SECTION II

(Answer any four questions from this section)

Question 2

1)



The above diagram shows industrial preparation of nitric acid.

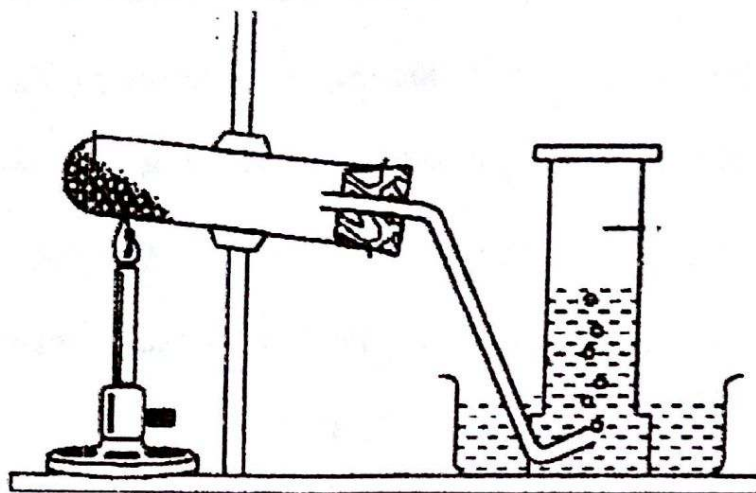
- What is the ratio of the reactants taken.
- Name the catalyst used.
- Why the gas entering the apparatus must be pure.
- Which acid resistant material is packed in the absorption tower.
- Give balanced equations for all the reactions taking place in the three chambers.

[5]

2) State two main groups of aliphatic hydrocarbons and draw the structure of any one compound in each of them. Which type of reactions do they undergo and give its reason?

[5]

Question 3



1. The above diagram shows the laboratory preparation of an alkane. Answer the questions based on the above fact.

- a. Name the reactants used?
- b. Write the chemical reaction?
- c. What is the name of this reaction?

[3]

2. Write balanced equations for the following reactions;

- a. Zinc is heated with sodium hydroxide solution.
- b. Excess chlorine reacting with Ammonia.
- c. Sodium bisulphite reacting with dilute sulphuric acid.

[3]

3. What do you observe at anode and cathode in the electro refining of copper and Write its equations.

[2]

4. Write equations to get lead sulphate from lead monoxide?

[2]

Question 4

1. Study the table and answer the following questions:

Atom	Atomic number
A	12
B	16

- a. Compare the positions of A & B in the periodic table?
- b. What type of bond is formed between them?
- c. Draw the electron dot diagram formed between A & B?

[3]

2. Give reasons:

- a. Sodium chloride has high melting point.
- b. Commercial nitric acid is yellow in colour.
- c. Wood becomes black when conc. H_2SO_4 is poured on it.

3. What do you observe

[3]

- a. when lunar caustic solution is added to dilute HCl acid.
 b. Copper nitrate is heated.

[2]

4. Give a chemical test to distinguish between

- a. Sodium chloride and Sodium sulphate.
 b. Dilute nitric acid and Dilute HCl.

[2]

Question 5

1. Write the three balanced equations for the purification of Bauxite?

[3]

2. What happens when washing soda is exposed to air for a long time? Define that property.

[2]

3. A compound contains 92.3% by mass of carbon and 7.7% by mass of Hydrogen. Calculate the empirical formula of the compound? If the Relative molecular mass of the compound is 78, What is its molecular Formula?

{At.wt of C=12, H=1 }

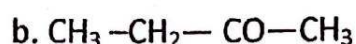
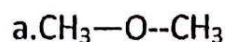
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4. What happens when excess NH_4OH is added to CuSO_4 solution. Name the salt formed?

[2]

Question 6

1. Write the IUPAC names of



[2]

2. What is denatured alcohol? Give an example for Dehydrohalogenation ?

[2]

3. Draw the formation of ammonium ion? Define the bond present in it?

[2]

4. Name the method of preparation of a. Zinc Sulphate b. Potassium sulphate.

Write its equations :

[3]

5. Define vapour density?

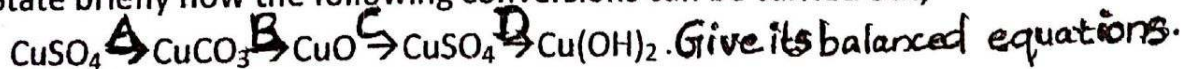
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Question 7

1. Define acidity of a base?

[1]

2. State briefly how the following conversions can be carried out;



[2]

3. What do you observe at anode when molten lead bromide is electrolysed? Write its equation?

[2]

4. An organic compound "A" is a constituent of wine and beer. This compound on heating with acidified $\text{K}_2\text{Cr}_2\text{O}_7$ or oxygen form another organic compound "B". Identify the compound A. Name the compound B.

[2]

5. Write balanced chemical equation for the reaction of water with the following Compounds.

a. Magnesium nitride

b. Calcium carbide.

[2]

6. Draw the structure of butan-2-ol.

[1]-