

[Section 1 is compulsory. Attempt any four questions from section 11.]

SECTION – 1

QUESTION 1

(a) Name the following:

1. The drying agent for Ammonia.
2. The liquid Halogen.
3. A basic solution which does not contain a metallic element.
4. A triacidic base.
5. An alloy used in aircraft construction.

(5)

(b) State one observation for each of the following:

1. Concentrated nitric acid is added to sulphur.
2. Concentrated HCl is added to lead (IV) oxide with warming.
3. Copper oxide is heated with Ammonia gas.
4. Glauber's salt is exposed to air.
5. Excess NaOH is added to a solution of zinc salt.

(5)

(c) Give one word for the following:

1. Compounds which conduct electricity in the molten state.
2. Compounds having same molecular formula but different properties.
3. Compound which burns with yellowish green flame producing N_2 & H_2O vapour.
4. Compound which decrepitates on heating form a yellow residue which fuses with the glass.
5. Compound used in thermometers and as preservative due to its low

Freezing point.

(5)

(D) Fill in the blanks:

1. Members of alkane series have general formula -----.
2. Replacing one hydrogen from ethane by one chlorine will form -----.
3. Passing H_2S in conc. H_2SO_4 precipitates -----.
4. ----- on reaction with hot water liberates Ammonia.
5. The process used to convert ammonia to nitric acid is called -----.
6. ----- volume of each gas is 22.4 l at s.t.p.
7. Copper hydroxide is a base but not an -----.
8. The phenomenon of absorbing moisture when salts are exposed to air is called -----.

(8)

(E) Give one chemical test to distinguish the following pairs

Of compounds:

1. calcium nitrate solution	Lead nitrate solution

2. Iron (II) chloride	Iron (III) chloride

(4)

(F) Draw a simple diagram of electroplating a spoon with nickel and answer the following questions:

1. Name the anode and the electrolyte used.
2. Write equation at anode?

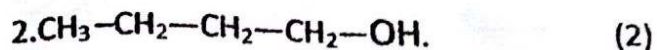
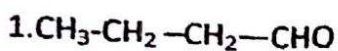
(3)

(G) Calculate the percentage of sodium in sodium aluminium fluoride. $[Na_3 Al F_6]$

$[Na=23, F=19, Al=27]$

(2)

(H) Write the IUPAC name of the following :



(I) How are the following conversions brought about, write briefly in words and give chemical equations involved:



(J) Give one point of difference in the condition of formation of polar and non polar covalent compounds? (2)

SECTION II

[Answer any four questions from this section]

QUESTION 2

1. Give balanced equation for the following;

a. Preparation of ethane from sodium propionate.

b. Zinc bisulphite reacting with dilute HCl acid.

c. Complete combustion of ethane. (3)

2. What do you observe when dilute HCl is added to lead nitrate solution and the mixture is then heated? (1)

3. Give reasons for the following:

a. HCl acid is used to purify bone black.

b. HCl acid cannot be concentrated beyond 22.2% by boiling.

c. Alkanes are called paraffins. (3)

4. What volume of oxygen is required to burn completely 45 dm^3 of Butane and find the number of moles of CO_2 evolved under the same conditions of temperature and pressure? The balanced equation is $2\text{C}_4\text{H}_{10} + 13\text{O}_2 \rightarrow 8\text{CO}_2 + 10\text{H}_2\text{O}$. (3)

QUESTION 3

1. Which property of sulphuric acid is shown in the following reactions:

a. Mg is added to dilute sulphuric acid.

b. Carbon is heated with concentrated H_2SO_4 .

c. Laboratory preparation of nitric acid.

(3)

2. Arrange the following as per instructions given in the brackets.

1. F, I, Cl, Br (decreasing electronegativity)

2. Na, Li, K, Rb (increasing ionisation energy)

(2)

3. Write the catalysed reaction in contact process with all other conditions required? Name the catalyst used?

(2)

4. What happens to atomic size and metallic character across a period?

Give the reason for that?

(3)

QUESTION 4

1. Draw the electron dot diagram of Hydronium ion.

(1)

2. Write equation for the conversion of potassium atom to

Potassium ion ($K=19$). Which process is this?

(2)

3. Why molten NaCl conduct electricity but solid NaCl does not conduct?

(2)

4. What do you observe when bromine in CCl_4 is added to ethene?

Write its equation?

(2)

5. Write equation for the reaction between ethyl chloride and hot

Concentrated alcoholic KOH. Name the type of reaction?

(2)

6. What is the mass of 5.6 litres of Propene? [$C=12, H=1$]

(1)

QUESTION 5

1. Write two steps to change lead carbonate to lead chloride? Why this

Conversion is carried out in two steps?

(3)

2. Name the method for the preparation of the following salts? Write its equation?

a. Zinc carbonate. (3)
B. Sodium bisulphate.

3. Write equation to get N_2 using

a. Ammonia and a black metallic oxide.

b. Ammonia and Chlorine. (2)

4. Write the equation for the first step in the manufacture of nitric acid?

Name the catalyst used? (2)

QUESTION 6

1. Write equations for the following;

a. Ethanoic acid reacting with sodium carbonate.

b. Preparation of ethyne using 1,2-dibromo ethane. (2)

2. What do you observe at cathode when molten lead bromide is electrolysed? Write equation at anode? (2)

3. What do you observe when NaOH is added to lead hydroxide? Write its equation? (2)

4. What do you observe when copper sulphate solution is electrolysed using copper anode? Write the equation at cathode? (2)

5. What do you observe when sodium hydroxide solution is added to any Copper salt in excess? (1)

6. Define vapour density? (1)

QUESTION 7

1. Along with cryolite and alumina another substance is added to the Electrolytic mixture. Name the substance and give one reason for its addition? (2)

2. What is bronze? Write its property and one use? (2)

3. What is Electron affinity? Why electron affinity decrease down the group? (2)

4. Draw the structure of the position isomers of butene? Write its IUPAC name? (2)

5. Name the cathode used in the ^{electrolytic} reduction of Alumina. Write equation at anode? (2)