Nayak's Tutorials

Way to Excellence

Year: 2024-25 | **Practice Paper - 2** | **Marks - 80**

Std:- X ICSE | **Chemistry** | **Duration :- 2 Hrs**

*Attempt **all** questions from **Section A** and **any four** questions from **Section B.***

The intended marks for question or parts of questions are given in brackets [ ].

Section A (40 marks)

Q.1.Multiple Choice Questions 15

1. What is the colour of ppt. formed when sodium hydroxide solution is added to calcium salt ?

   a) Green b) White c) Brown d) Red

2. An aqueous solution of HCl gas is named as:

   a) Aqua fortis b) Aqua regia c) Oil of vitriol d) Muriatic acid

3. An example of hydracids is .....

   a) Hydrochloric acid b) Sulphuric acid c) Nitric acid d) Acetic acid

4. How the ionization energy of the elements changes on moving top to bottom in the group?

   a) Increase b) Decrease c) Remains same d) Zero

5. Which of the following is true for alkali metals?

   a) Strong oxidizing agent b) Weak reducing agent

   c) Strong reducing agent d) Weak oxidizing agent

6. The reactants for laboratory preparation of nitric acid are:

   a) Ammonium hydroxide and sulphuric acid b) Sodium nitrate and sulphuric acid

   c) Sodium nitrate and water d) Ammonium nitrate and water

7. NaCl conducts electricity due to the presence of:

   a) Molecules b) Ions c) Group of atoms d) All of these

8. Sodium carbonate is a basic salt because it is a salt of a:

   a) Strong acid and strong base b) Weak acid and weak base

   c) Strong acid and weak base d) Weak acid and strong base

9. Which of the following statement is true?

   a) The rate of dissolution of ammonia in water is low.

   b) Aqueous ammonia can also be written as NH_3 (aq).

   c) Ammonia has high vapour density than air.

   d) All statements are true.

10. An alkyne has 75 carbon atoms in its molecule. The number of hydrogen atoms in its molecule will be:

    a) 148 b) 150 c) 147 d) 152

11. When HCl gas reacts with a gas X (having a pungent choking smell), it produces white fumes. The gas X is :

    a) H_2 b) Cl_2 c) N_2 d) NH_3

12. An example of salt formed by a base and an acid is...

a) Sodium chloride b) Calcium sulphate

c) Lithium chloride d) Sodium chlorate

13. In the contact process, platinum is replaced by the catalyst V_2O_5 because:

a) Platinum has highly reactive in nature b) Platinum is costly and can be easily poisoned

c) Platinum is cheap d) Platinum does not act as a catalyst

14. The IUPAC name of dimethyl ether is :

a) Ethoxy methane b) Methoxy methane c) Methoxy ethane d) Ethoxy ethane

15. In which period of the periodic table, an element with atomic number 14 is placed?

a) 4 b) 3 c) 2 d) 1

Q2 A. Select the correct answer from the choices A, B, C and D which are given **5**

1. Give one word or a phrase for the following statements :

(a) The formula that represents the simplest ratio of the various elements present in one molecule of the compound.

(b) The substance that release hydronium ion as the only positive ion when dissolved in water.

(c) The tendency of an atom to attract electrons towards itself when combined in a covalent compound.

(d) The ratio of the mass of a certain volume of gas to the mass of an equal volume of hydrogen under the same conditions of temperature and pressure.

(e) (a) Draw the structural diagram of :

(1) Ethyne 2) 2-Methyl propane 3) 2, 3-Dimethyl butane

(b) Define : (1) Isomerism 2) Ore

B. Fill in blanks with the choices given in brackets: **5**

1. Conversion of ethanol to ethene by the action of concentrated sulphuric acid is an example of ..... (dehydration/dehydrogenation/dehydrohalogenation)
2. When sodium chloride is heated with concentrated sulphuric acid below 200C, one of the products formed is ..... (sodium bisulphate/sodium sulphate/chlorine)
3. Ammonia reacts with excess chlorine to form ..... (nitrogen/nitrogen trichloride/ ammonium chloride)
4. Substitution reaction are characteristic reactions of ..... (alkynes/alkenes/alkanes)
5. In period 3, the most metallic element is ..... (Sodium/magnesium/aluminium)

C. Identify the substance underlined, in each of the following cases : **5**

1. <u>Cation</u> that does not form a precipitate with ammonium hydroxide but forms one with sodium hydroxide.
2. The <u>electrolyte</u> used for electroplating an article with silver.
3. The <u>particles</u> present in a liquid such as kerosene, that is a non-electrolyte.
4. An <u>organic compound</u> containing - COOH functional group.
5. A <u>solid</u> formed by reaction of two gases, one of which is acidic and the other basic in nature.

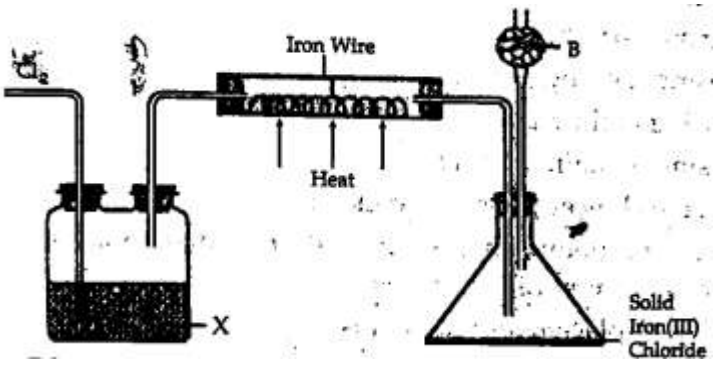
D. (a) Give the formula of the next higher homologue of: **5**

(1) Pentane (2) Butene (3) Ethyne

(b) Define:

(1) Saturated hydrocarbons (2) Unsaturated hydrocarbons

E. The diagram given below is to prepare iron (III) chloride in the laboratory : 5



1. What is substance B ?
2. What is the purpose of B ?
3. Why is iron (III) chloride to be stored in a closed container ?
4. Write the equation for the reaction between iron and chlorine.
5. What is substance X ?

Section B (40 marks) (Attempt any 4 out of 6 main questions)

Q3. 2

A. (a) Give one precaution observed during the preparation of HCl.

(b) Give the balanced chemical equation for the preparation of NH_3.

B. State your observation when ammonium hydroxide solution is added drop by drop and then in excess to each of the following solutions : 2

(a) Copper sulphate solution. (b) Zinc sulphate solution.

C. Name the following organic compound. 3

(a) A hydrocarbon which on catalytic hydrogenation gives a saturated hydrocarbon

(b) The first homologue whose general formula is C_nH_{2n+2}.

(c) The product formed when mixture of acetylene and hydrogen is heated at 200°C temperature.

D. State two relevant observations for each of the following. 3

(a) Ammonium hydroxide solution is added to copper (II) Nitrate solution in small quantities and then in excess.

(b) Ammonium hydroxide solution is added to zinc nitrate solution in minimum quantities and then in excess.

(c) Lead nitrate crystals are heated in a hard glass test tube.

Q4. A. State the following: 2

(a) The catalysts used in contact process.

(b) The product formed when glass rod dipped in NH4OH is brought near the mouth of the a bottle full of HCl gas.

B. State the observation for the following, when: 2

(a) Concentrated sulphuric acid is added to a lump of blue vitriol.

(b) Copper turnings are heated with concentrated nitric acid.

C. Study the table and answer the following question: 3

Atom	Atom No.
A	11
B	17

(a) Compare the position of A and B in the periodic table

(b) Write equations for the formation of ions of A and B.

(c) What type of bond is formed between A and B ? Mention its physical state and solubility in water.

D. Arrange the following as per the instruction given in the brackets: 3

(a) He, Ar, Ne (Increasing order of the number of electron shells)

(b) Na, Li, K (Increasing Ionisation Energy

(c) F, Cl, Br (Increasing electronegativity)

Q.5 A. State one relevant reason for the following: 2

(a) Upward displacement method is applied to collect hydrogen chloride gas during laboratory preparation of HCl gas.

(b) Ammonium nitrate is not used in the preparation of ammonia.

B. (a) Give two properties of ionic bonds. 2

(b) Give the structure of the following compounds:

1. Ammonium ion 2. Calcium oxide

C. Write the structural formula of the following: 3

(a) 1, 2-Dichloroethane. (b) 2-Methyl propane (c) 2-Propanol.

D. Distinguish between the following pairs of compound using the reagent given in the bracket. 3

(a) Manganese dioxide and copper (II) oxide. (using concentrated HCl)

(b) Ferrous sulphate solution and ferric sulphate solution. (using sodium hydroxide solution)

(c) Dilute hydrochloride acid and dilute sulphuric acid. (using lead nitrate solution)

Q.6 A. An element L consists of molecules: 2

(a) What type of bonding is present in the particles that make up L?

(b) When L is heated with iron metal, it forms a compound FeI. What chemical term would you use in describe the change undergone by L?

B. Three solutions P, Q and R have pH value of 3.5, 5.2 and 12.2 respectively. Which one of these is a: (a) Weak acid? (b) Strong alkali? 2

C. Differentiate between the following pairs based on the information given in the brackets: 3

(a) Conductor and electrolyte (conducting particles)

(b) Cations and anions (formation from an atom)

(c) Acid and Alkali (formation of type of ions)

D. Six elements have the atomic number as shown. Answer the questions that follow: 3

Elements	A	B	C	D	E	F

Atomic number	12	17	18	7	9	11

(a) The element with lowest electron affinity.

(b) The element with the largest atomic size.

(c) The element that belongs to the third period and has the highest ionization potential.

Q.7 A. A gaseous hydrocarbon contains 82.76% of carbon. Given that its vapour density is 29, find its molecular formula. [C = 12, H = 1] **2**

B. The percentage composition of a gas is: **2**

Nitrogen 82.35%, Hydrogen 17.64%. Find the

C. Give balanced chemical equations for each of the following: **3**

(a) Lab preparation of ammonia using an ammonium salt.

(b) Reaction of ammonia with excess chlorine.

(c) Reaction of ammonia with sulphuric acid.

D. Distinguish between the following pairs of compounds using the reagent given in the bracket. **3**

(a) Manganese dioxide and copper (II) oxide. (using concentrated HCl)

(b) Ferrous sulphate solution and ferric sulphate solution. (using sodium hydroxide solution)

(c) Dilute hydrochloric acid and dilute sulphuric acid. (using lead nitrate solution)

Q.8 A. Identify the anion present in the following compounds: **2**

(a) Compound X on heating, with copper turnings and concentrated sulphuric acid liberates a reddish brown gas.

(b) Compound L on reacting with barium chloride solution gives a white precipitate insoluble in dilute hydrochloric acid or dilute nitric acid.

B. Identify the gas evolved in each of the following cases: **2**

(a) A colourless gas liberated on decomposition of nitric acid.

(b) The gas released when sodium carbonate is added to a solution of sulphur dioxide.

C. Arrange the following as instructed: **3**

(a) Li, Na, K (decreasing melting point)

(b) F, Cl, Br, I (increasing boiling point)

(c) Li, K, Rb (decreasing metallic character)

D. Fill in the blanks from the choices given in brackets: **3**

(a) The polar covalent compound in gaseous state that does not conduct electricity is ..... (carbon tetra chloride, ammonia, methane)

(b) A salt prepared by displacement reaction is ..... . (ferric, chloride, ferrous chloride, silver chloride)

(c) A slat which absorbs moisture from the air, but does not change in physical state in called ..... salt

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