

CHEMISTRY

SECTION I

[Attempt all questions]

Question 1.

a) Fill in the blanks:

- i. _____ is the acid formed when sulphur dioxide is dissolved in water.
- ii. Sulphuric acid forms constant boiling mixture at _____ temperature.
- iii. The type of bond present in Magnesium oxide is _____.
- iv. _____ is a triacidic base.
- v. _____ is used to remove grease stains from clothes.

(5)

b. What would you observe when

- i. Washing soda is exposed to air.
- ii. Conc. Sulphuric acid is added to sugar crystals.
- iii. Nitric acid is stored in a colourless bottle.

Also give reasons for the above changes.

(6)

c. Write a test for the following with its equations,

- i. Nitrate ion .
- ii. Sulphate ion.
- iii. Water.

(6)

d. Match the following:

- | | |
|------------------------|--------------------------|
| 1. Quartz | - Hygroscopic |
| 2. Dil. HNO_3 | - Ethene |
| 3. CaO | - Solvent for NO |
| 4. FeSO_4 | - Aqua fortis |
| 5. Non polar | - NO_2 in water |

(5)

e. Write equations;

i. Heating of a divalent metal nitride.

ii. Amphoteric hydroxide reacting with excess NaOH.

iii. Lead Sulphide heated with Oxygen.

iv. Lab preparation of Nitric acid.

v. Preparation of CaCO_3 . (5)

f. Draw Ammonium ion. What is the role of lone pair in ammonia molecule? (2)

g. What are the conditions required in the formation of

a. Ionic compound b. Covalent compound. (4)

h. Define the following terms:

a. p^{H} b. Acid salt c. Avogadro's law (3)

i. Differentiate between

1. Strong base & Weak base.

2. Drying agent & Dehydrating agent. (give examples of each.) (4)

SECTION II {Attempt all questions}

QUESTION II.

1) Give electron dot diagram of

a. Magnesium oxide b. Hydroxyl ion. [$\text{Mg}=12, \text{O}=8, \text{H}=1$] (2)

2) What do you understand by a Dipole molecule. Give examples. (2)

3) Electrovalent compounds are electrolytes but covalent compounds are non electrolytes. Why? (2)

4) Define Gay-Lussac's law? Illustrate the law. (2)

5) 560 ml of CO_2 is mixed with 500 ml of Oxygen and ignited. Calculate the volume of Oxygen required and CO_2 formed in the reaction $2\text{CO} + \text{O}_2 \rightarrow 2\text{CO}_2$. (2)

QUESTION III

1. What is a tribasic acid? Write an equation to get a tribasic acid by dissolving its

anhydride in water ?

2. How is an acid prepared from a) Nonmetal b) salt. Give the property of the Acid used in the methods used. (Write only equation of the method.) (2)

3. What do you observe when potassium nitrate crystals are heated? Write its equation? (2)

4. Preparation of lead chloride using lead carbonate is an impractical method. Then how is it prepared ? Write its equations? (3)

QUESTION IV

1. Write equations ;

1. When a metal nitrate is heated it forms a metal and other products which are gases.

2. A non metal reacting with conc. HNO_3 to produce brisk effervescence.

3. Cupric sulphite reacting with dilute nitric acid. (3)

2. The temperature of the reaction while HNO_3 is prepared should not exceed above 200°C . Why? (2)

3. How will you remove the yellow colour of HNO_3 ? (2)

4. What is Deliquescence ? when is it minimised and maximised. Why ? (3)

QUESTION V

1. Give reasons and write its equation.

a. Red brown vapours are produced when conc. H_2SO_4 is added to HBr .

b. Brisk effervescence is seen when conc. H_2SO_4 is added to potassium bicarbonate. (3)

2. Write equations for the manufacture of Sulphuric acid ? Name the process? (2)

3. What do you observe when Conc. H_2SO_4 is added to
(1). Oxalic acid. (2). Blue vitriol. (2)

4. What is Hygroscopy ? write one use of it? (2)

5. Draw electron- dot diagram of Methane [Z of C=6, H=1] (1)