

# St. MARTIN'S HIGH SCHOOL

Ferozguda, Hyderabad

CLASS X (A&B)

Sub: Chemistry

Quarterly Examination 2008-09

Max. Marks: 80

Time: One & half hr.

## SECTION: I [40 Marks]

Attempt all the questions from this section.

### Question 1:

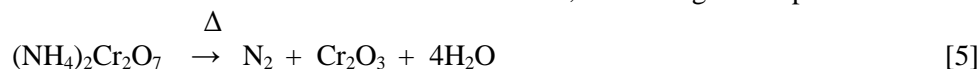
- a) Name the following: [5]
1. A complex salt.
  2. A tri-basic acid.
  3. An element having highest electro-negativity
  4. A polar covalent neutral compound.
  5. An acidic solution in which there is only partial ionization of the solute
- b) Mention the terms defined by the following sentences: [5]
1. The mass of a given volume of gas compared to the mass of an equal volume of hydrogen.
  2. A soluble base.
  3. The insoluble solid formed when two solutions are mixed together.
  4. Compounds containing carbon and hydrogen only.
  5. An oxide, which forms salts when it reacts with both acids & alkalis.
- c) Copy and complete the following table : [15]

	Sodium	Magnesium	Phosphorus	Carbon	Hydrogen
Formula of chloride					
Physical state of chloride at room temperature					
Nature of bonding					

- d) Add word or words to each of the sentences given below to make a correct statement [5]
1. Electrolysis of lead bromide liberates lead and bromine.
  2. Sulphuric acid dehydrates crystals of copper sulphate.
  3. Zinc reacts with sulphuric acid to give hydrogen gas.
  4. Ionic compounds are good conductor of electricity.
  5. Lead chloride is soluble in water.
- e) Parts (1) to (5) refer to changes in the properties of elements on moving left to right across a period of the Periodic Table. For each property, choose the letter corresponding to the correct answer from the choices A, B, C and D. [5]
1. The non-metallic character of the elements :  
A) decreases  
B) increases  
C) remains the same  
D) depends on the period.
  2. The electronegativity :  
A) depends on the number of valence electrons  
B) increases  
C) remains the same  
D) decreases.
  3. The ionization potential :  
A) goes up and down  
B) decreases  
C) increases  
D) remains the same.
  4. The atomic size :  
A) sometimes increases and sometimes decreases  
B) increases  
C) remains the same  
D) decreases

5. The electron affinity of the elements in groups I to VII:
- |                                 |              |
|---------------------------------|--------------|
| A) goes up and then down        | B) decreases |
| C) decreases and then increases | D) increases |

f) Solid ammonium dichromate of relative molecular mass 252, on heating decomposes as follows:



Calculate the volume and mass of nitrogen at STP that will be evolved when 31.5 g of ammonium dichromate is heated, The mass of chromium [III] oxide formed at the same time. [H = 1; N = 14; O = 16; Cr = 52].

### SECTION II [ 40Marks ]

Attempt ANY FOUR questions from this section.

#### Question 2

- Name one ore of aluminium which is found in abundance in India . [1]
- The alumina is purified by Bayer's process. Write three fully balanced equations. [3]
- It has been found the pure alumina cannot be reduced to aluminium metal easily by electric current. Give two reasons. [2]
- Name two substances that are added to alumina, so as to reduce it electrically. [2]
- How does these substances help in the extraction of aluminium? [2]

#### Question 3

- You are given a mixture of precipitated copper hydroxide and zinc hydroxide. Name a solvent in each case which will dissolve [2]
  - Zinc hydroxide only
  - Copper hydroxide and Zinc hydroxide both.
- What is the special feature of structure of Ethene and Ethyne? [1]
- What type of reaction is common to these compounds? [1]
- Give two tests by which you can distinguish Alkane, Alkene and Alkyne. [2]
- Name two raw materials from which ethyl alcohol is manufactured industrially. Write the equation. [3]
- Write the name of the products formed by oxidation of ethyl alcohol. [1]

#### Question 4

- The electron arrangement of atoms of three elements, E, F and G is as under:  
E (2, 8, 8, 1); F(2, 6); G (2, 8, 7).
  - Represent the molecule of G by a dot diagram. [2]
  - What type of bonding is in the molecule of F? [1]
  - Write down the formula of the compound formed between  
i)E and G; and ii) E and F [2]
  - What type of bonding is between E and G? [1]
  - Classify the elements E, F and G as metals and non-metals with reasons. [3]
  - Which amongst E, F and G is likely to be a good conductor of electricity. [1]

#### Question 5

- 1) Name a liquid which is a non-electrolyte. [4]
- 2) What kind of particles will be found in a liquid compound which is a non-electrolyte?
- 3) Name a solid which undergoes electrolysis when molten.

- b) Explain why solid compound does not allow electricity to pass through. [2]  
 1. What is electroplating? What is its purpose?  
 2. During electroplating of a spoon by silver
- c) Name: [4]  
 1. Electrolyte,  
 2. Anode,  
 3. Cathode,  
 4. Write the electrode reactions.

### Question 6

- a) An acid of phosphorus has the following percent composition: H = 2.47%, P = 38.27%; O = 59.26% Find the empirical formula of acid and its molecular formula. Given that its relative molecular mass is 162. (H = 1, P = 31, O = 16). [4]
- b) Calculate the percentage of phosphorus in the fertilizer superphosphate,  $\text{Ca}(\text{H}_2\text{PO}_4)_2$ . (Correct up to 1 decimal place) (given that H = 1; P = 31; Ca = 40; O = 16). [2]
- c) Write IUPAC names for the following: [4]
- 1)  $\text{CH}_3-\text{CH}_2-\underset{\text{Cl}}{\text{CH}}-\text{CH}_3$                       2)  $\text{CH}_3-\text{CH}_2-\underset{\text{OH}}{\text{C}}=\text{O}$
- 3)  $\text{CH}\equiv\text{C}-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_3$                       4)  $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{OH}$

### Question 7

- a) You are provided with the following chemicals: Ammonium hydroxide, chlorine, copper oxide, iron, lead nitrate and dil. Sulphuric acid. Using only the chemicals given in the list above, write the balanced chemical equations for the following salt preparations: [5]
- A soluble salt by neutralization of an alkali
  - A salt by double decomposition
  - A soluble salt from a metal
  - A soluble salt from an insoluble base
  - A salt by direct combination
- b) Using sodium hydroxide solution, how would you distinguish the following? [5]
- Magnesium sulphate from sodium sulphate
  - Zinc nitrate solution from calcium nitrate solution
  - Iron(II) chloride solution from iron(III) chloride solution
  - Lead hydroxide from magnesium hydroxide
  - Copper sulphate from lead sulphate.