

# City International School

## FIRST TERMINAL EXAMINATION – 2013 - 2014

Date : 07/08/2013

Marks : 80

Std : VIII

Subject : Chemistry (Paper II)

Time : 2hrs

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper, the time given at the head of this paper is the time allowed for writing the answer.

Section I is compulsory. Attempt any four questions from section II.

The intended marks for questions or parts of questions are given in brackets ( )

### SECTION I [40 MARKS]

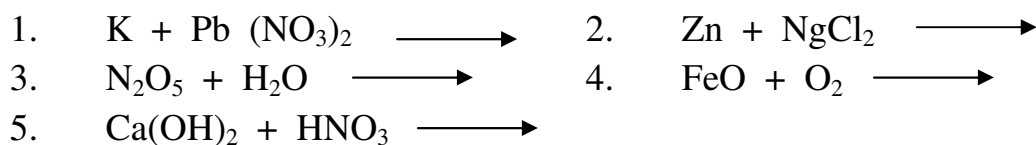
Attempt all questions from this section.

#### Question 1

- a. i. Write down the electronic configuration of the following atoms. (5)
- |                          |                               |                           |
|--------------------------|-------------------------------|---------------------------|
| 1. $^{14}_7\text{N}$     | 2. $^{27}_{13}\text{Al}^{3+}$ | 3. $^{19}_9\text{F}^{1-}$ |
| 4. $^{40}_{20}\text{Ca}$ | 5. $^1_1\text{H}^{1+}$        |                           |
- ii.  $^{35}_{17}\text{A}$ ,  $^{23}_{11}\text{B}$  and  $^4_2\text{C}$  represent atoms of three different elements. (3)
- |                                     |                    |
|-------------------------------------|--------------------|
| 1. Which atom has tendency to       |                    |
| a. Lose electrons?                  | b. Gain electrons? |
| c. Neither lose nor gain electrons? |                    |
| 2. Which atom represents            | (2)                |
| a. metal                            | b. Inert gas       |
- b. i. Write the chemical formula of the following compounds. (6)
- |                       |                      |
|-----------------------|----------------------|
| 1. Zinc phosphate     | 2. Aluminium nitride |
| 3. Potassium chloride | 4. Plumbous nitrate  |
| 5. Nitric oxide       | 6. Sulphurous acid   |
- ii. State the colour of the following non metals when burn in air. (4)
- |             |               |
|-------------|---------------|
| 1. Carbon   | 2. Phosphorus |
| 3. Hydrogen | 4. Sulphur    |
- c. i. Calculate the molecular weights of the following compounds. (4)
- |                    |                  |                 |                            |
|--------------------|------------------|-----------------|----------------------------|
| 1. $\text{CaCO}_3$ | 2. $\text{NaOH}$ | 3. $\text{MgO}$ | 4. $\text{H}_2\text{SO}_4$ |
|--------------------|------------------|-----------------|----------------------------|
- [H = 1, C = 12, O = 16, Na = 23, Mg = 24, S = 32, Ca = 40]
- ii. Name the following ionic compounds using Roman numerals. (3)
- |                   |                  |                 |
|-------------------|------------------|-----------------|
| 1. $\text{MnO}_2$ | 2. $\text{CuBr}$ | 3. $\text{FeO}$ |
|-------------------|------------------|-----------------|

iii. Write the number of protons, neutrons and electrons in  $^{28}_{14}\text{Si}$  (3)

d. i. Complete the balance the following chemical equations. (5)



ii. State the term defined. (3)

1. It is the number of electrons lost by an atom or gained by the other atom.
2. A reaction in which the constituents of two compounds naturedly exchange their radicals to form two different compounds.
3. The property of certain elements of spontaneously emitting highly penetrating radiations.

iii. State the valencies of (2)

1. Mg in  $\text{Mg}_3(\text{PO}_4)_2$
2. Hg in  $\text{Hg}_2\text{O}$

## SECTION II [40 MARKS]

Attempt any four questions from this section.

### Question 2

a. What happens when hydrogen reacts with chlorine in (3)

- i. Direct sunlight      ii. Diffused light      iii. The dark

b. Give balanced equations for the actions of heat on (3)

- i. Aluminium nitrate      ii. Calcium hydroxide      iii. Silver carbonate

c. State the valencies of (4)

- i. Auric      ii. Thiosulphate      iii. Magninnic      iv. Bisulphite

### Question 3

a. Give reason. Isotopes differ in physical constants and weights. (2)

b. Define – Acid anhydride      Give acid anhydrides of the following (3)

- i. Sulphuric acid      ii. Phosphoric acid

c. State your observation when (2)

- i. Copper is heated strongly      ii. Copper is prolonged heated

d. What is neutralization. Support your answer the help of two examples. (3)

#### Question 4

- a. Balance the following equations. (5)
- $\text{Mg} + \text{CO}_2 \longrightarrow \text{MgO} + \text{C}$
  - $\text{Al}(\text{OH})_3 \longrightarrow \text{Al}_2\text{O}_3 + \text{H}_2\text{O}$
  - $\text{Fe} + \text{H}_2\text{O} \longrightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$
  - $(\text{NH}_4)_2\text{Cr}_2\text{O}_7 \longrightarrow \text{Cr}_2\text{O}_3 + \text{H}_2\text{O} + \text{N}_2$
  - $\text{Ag}_2\text{O} \longrightarrow \text{Ag} + \text{O}_2$
- b. Name an atom which displaces hydrogen from hot concentrated acids only. (2)  
Support your answer with a chemical reaction.
- c. Write the formulas. (3)
- $\text{Al}^3$ ,  $\text{S}^{2-}$
  - $\text{Ba}^{2+}$ ,  $\text{PO}_4^{3-}$
  - $\text{Ni}^{2+}$ ,  $\text{O}^{2-}$

#### Question 5

- a. Identify whether the following reactions are oxidation or reduction. (4)
- $\text{K} - \text{le}^- \longrightarrow \text{K}^+$
  - $\text{CO}_3^{2-} + 2\text{e}^- \longrightarrow \text{CO}_3$
  - $\text{Mg} - 2\text{e}^- \longrightarrow \text{Mg}^{2+}$
  - $\text{S}^{2-} - 2\text{e}^- \longrightarrow \text{S}$
- b. Draw orbital diagrams of the following. (4)
- ${}^7_3\text{Li}$
  - ${}^{32}_{16}\text{S}^{2-}$
  - ${}^{39}_{19}\text{K}$
  - ${}^{12}_6\text{C}$
- c. Define. (2)
- Nuclear fusion
  - Mass number

#### Question 6

- a. Give balanced equations to carry out the following conversions. (4)
- Copper to copper sulphate
  - Nitrogen to ammonium hydroxide
- b. Write the chemical formula of (3)
- Caustic potash
  - Nitrous oxide
  - Red lead
- c. Calculate the weight of calcium oxide formed when 450g of calcium carbonate undergoes decomposition. (1)  
[ Ca = 40, O = 16, H = 1, C = 12 ]