Grade- IX
Time: 2 Hours

ASSESSMENT- I

CHEMISTRY
M.M. 80

Answers to this Paper must be written on the paper provided separately. 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 answers.

Section A is compulsory. Attempt any five questions from Section B. The intended marks for questions or parts of questions are given in brackets.

SECTION A (40 Marks)

(Attempt **all** questions from this section)

I. Choose the correct answers from the given options: **[15]**

1. In the periodic, the elements of a same group have the same:
   (a) Mass number (b) Atomic number
   (c) Number of electrons (d) Number of valence electrons
2. Which of the following is a deliquescent salt?
   (a) $CuSO_4$ (b) $FeCl_3$
   (c) KCl (d) $ZnSO_4$
3. Thermal decomposition of sodium carbonate will produce
   (a) oxygen (b) sodium hydroxide
   (c) carbon dioxide (d) no other product
4. Rutherford's alpha-particle scattering experiment discovered
   (a) proton (b) electron
   (c) neutron (d) atomic nucleus
5. The most reactive non-metal is :
   (a) Iodine b) Oxygen
   (c) Fluorine (d) Chlorine
6. In the formation of CCl_4 molecule the nearest noble gas configuration attained by carbon and chlorine respectively are :
   (a) argon and neon (b) helium and neon
   (c) neon and argon (d) helium and argon
7. A brown substance A on heating in air turns black forming another substance B. Substances A and B are:
   (a) A = Fe and B = FeO (b) A = Zn and B = ZnO
   (c) A = Cu and B = CuO (d) A = Pb and B = PbO
8. Atoms combine to attain an electronic configuration similar to their nearest :
   (a) metal (b) noble gas
   (c) non-metal (d) semi metal
9. If a salt on heating gives water vapour, then that salt is :
   (a) hygroscpic (b) deliquescent
   (c) hydrated (d) anhydrous
10. Solid solutions are called :
    (a) allotropes (b) isotopes
    (c) alloys (d) isotones
11. With rise in temperature, the solubility of sodium chloride will :
    (a) increase rapidly (b) decrease
    (c) remains same (d) increase slightly
12. Water acts as a universal solvent because :
    (a) it is an organic compound (b) it is polar and has a high dielectric constant

(c) it is liquid at room temperature (d) it boils at 100°C

13. The salt which is the cause of hardness in water is:
    (a) sodium sulphate (b) magnesium bicarbonate
    (c) sodium chloride (d) calcium nitrate
14. There are 3 electrons in M shell of an atom. Its atomic number is :
    (a) 11 (b) 15
    (c) 13 (d) 3
15. The number of elements in the largest period of the periodic table is :
    (a) 18 (b) 8 (c) 32 (d) 42

II. Fill in the blanks: [5]

1. The horizontal rows in a periodic table are called _____.
2. _____ orbital is the nearest to the nucleus of an atom.
3. _____ reactions occurs with absorption of electrical energy.
4. Aquatic plants make use of dissolved _____ for photosynthesis.
5. Total number of atoms present in CCl_4 is _____.

III. Name or state the following: - [5]

1. Group whose valency is zero.
2. Bond formed by transfer of electron.
3. An element with valency 3.
4. Ion formed by gain of electrons.
5. Water that contains only hydrogen carbonates of calcium and magnesium is called _____hard water.

IV. Match the following: - [5]

1. Elements short by 1 electron in octet	a) Transition elements
2. Non-reactive elements	b) Noble gases
3. Elements from groups 3 to 12	c) Alkaline earth metals
4. Radioactive elements	d) Halogens
5. Elements with 2 electrons in the outermost shell	e) Actinides

V. The atom of an element A has 5 electrons in its M shell. [5]

1. Write electronic configuration of element A.
2. What is atomic number of element A.
3. Is it a metal or non-metal.
4. What type of ion will be formed by an atom of element A ? Write the symbol of ion formed?
5. Draw orbital structure of A.

VI. Give a reason for each of the following: [5]

1. Molybdenum is used in the manufacture of ammonia.
2. Burns caused by steam are more severe than burns caused by boiling water.
3. Table salt becomes sticky on exposure to humid air during the rainy season.
4. Argon does not react.
5. Which metal did Rutherford select for his alpha particle scattering experiment and why?

SECTION B (40 Marks)

(Attempt **any four** questions from this sections)

VII. 1. What do you observe in the following cases? [2]

i. Lead nitrate is heated.

ii. Hydrogen peroxide is exposed to sunlight. [2]

2. Give an example of-
   i. Double decomposition reaction
   ii. Elcctrochemical rcaction [3]
3. Define neutralization reaction with an example. [3].
4. Write the chemical reaction where gas is evolved and colour change is observed.

VIII. 1. Cl^{35} and Cl^{37} are two different atoms, where would they be placed in the periodic table. [2]
2. An element P has 2 electrons in its fourth shell. State its atomic number and position in the periodic table. [2]
3. Name first three alkaline earth metals and write their reaction with dil hydrochloric acid. [3]
4. Give the merits of mendeleev's periodic table. [3]

IX. 1. Define : (i) Modern periodic law (ii) covalent bond [2]
2. What are nucleons? How many nucleons are present in phosphorus. Draw its structure. [2]
3. Name the isotopes of chlorine. Why isotopes of chlorine do not differ in their chemical reactions. [3]
4. Explain 'Newlands law of octaves'. Why was the law discarded. [3]

X. 1. What do you understand by temporary hard water and permanent hard water. [2]
2. How do fishes and aquatic animals survive in winters when the pond gets covered with thick ice. [2]
3. Name three methods by which hydrous substances can be made anhydrous. [3]
4. Explain with equation, what is noticed when temporary hard water is (a) boiled, (b) treated with slaked lime. [3]

XI. 1. Define effervescence. [2]
2. Why were anode rays also called as 'canal rays' ? [2]
3. What are your observations and conclusion when tap water is boiled and evaporated in watch glass. [3]
4. Draw orbital structure of Magnesium atom and Magnesium ion. Also write their electronic configuration [3]

XII. 1. State the four necessary conditions for a chemical change or reaction to take place. [2]
2. Why does the hardness of water render it unfit for use in a (i) boiler (ii) for washing purposes. [2]
3. Give three applications of neutralisation reaction. [3]
4. Draw the orbital structure for each of the following compounds: [3]
   (i) Water [H = 1, O = 8]
   (ii) Magnesium chloride [Mg = 12, Cl = 17]