Answer key **Standard VIII**

Chemistry Assessment II

PART A

1. a) Valence shell b) Mass number
   c)Protons d) 2 e) James Chadwick

2.a). i) Hg ii) Pb iii) Sn

iv)Ba v) Ar vi) Ag

b). i) NaCl ii) SO_3 iii)SiO_2

3.i) OH^- , valency 1 ii)NH_4^+ valency 1

iii)SO_4^{2-} , valency 2 iv) Cl^- , valency 1

4. a) Li : protons =3 , electrons = 3 , neutrons =7-3 = 4
Na: Protons = 11 ,electrons = 11 ,neutrons =23-11 = 12

b) i) False ii) True iii) False

PART B

5 a) i) Isotopes are the atoms of same element with the same atomic number but different mass number due to the difference in the number of neutrons in their nucleus.

ii) Molecular formula of a compound is the symbolic representation of its molecule. It shows the number of atoms of each element present in it.

iii) Valency is the combining capacity of an atom of an element with the atoms of other elements to form molecules.

b)The positively charged ions are called cations. Na^+

The negatively charged ions are called anions. Cl^-

c) The main features of Rutherford's atomic model:

- **The nucleus is centrally located positively charged mass.**
- **The size of the nucleus is very small compared to the size of the atom as a whole.**
- **Electrons revolve in circular paths called orbits or shells.**
- **An atom is electrically neutral.**

d) Rutherford could not explain the stability of atom.

e)The outermost orbit of an electrically neutral atom cannot have more than 8 electrons. This is called octet rule.

Electronic configuration of Potassium (K) : 2,8,8,1

6 a) Some elements exhibit more than one valency. They are said to have variable valency.

Example 1 : Iron : Ferrous (Fe^{2+}) and Ferric (Fe^{3+})

Example 2 : Copper : Cuprous (Cu^{+}) and Cupric (Cu^{2+})

b) i) Ca O

2 2

1 1

CaO

ii) Zn OH

2 1

$Zn(OH)_2$

c) Radical is a group of atoms of different elements that behave as a single unit with a positive or negative charge on it.

Positively charged radicals are called basic radicals .

Example : Ammonium (NH_4^+)

Negatively charged radicals are called acid radicals.

Example : Nitrate (NO_3^-)

d) Protium , Deuterium and Tritium

e) Electronic configuration of Nitrogen : 2,5

Electronic configuration of Magnesium : 2,8,2

Atomic diagram of $_7N^{14}$ and $_{12}Mg^{24}$: Refer page 47 of text book.