

Chapter 3

METALS AND NON-METALS

Reaction of metals with Non-Metals:

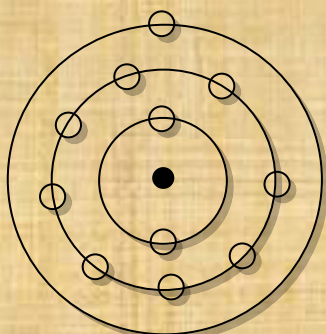
- Metals have a tendency to lose electrons and form cations.
- Non-metals have a tendency to gain electrons and form anions.
- The electrostatic force of attraction developed between the cation and the anion is called as ionic bond.

Example:

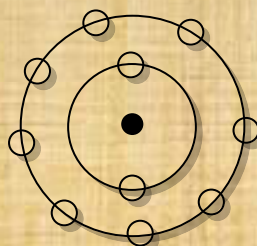
In sodium chloride, ionic bond is present in between

Sodium ion and chloride ion.

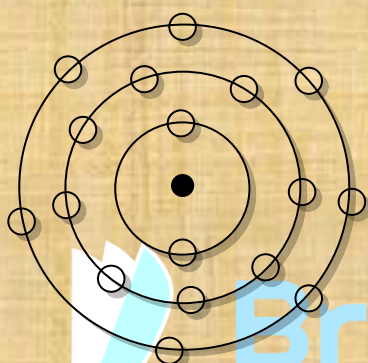
- Sodium atom loses one electron to get stable configuration (octet in outermost shell = 8 electrons). It gets a charge of +1.
- Chlorine atom gains one electron and attains -1 charge as well as stable electronic configuration.



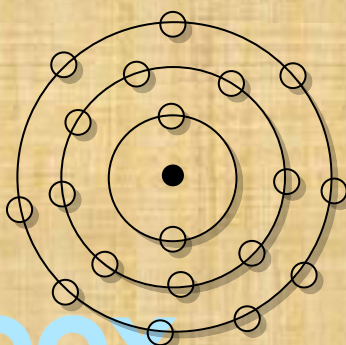
Sodium Atom
Na - 2,8,1



Sodium ion
 Na^+ - 2,8



Chlorine atom
Cl - 2,8,7



Chloride ion
 Cl^- - 2,8,8

- Between these Na^+ and Cl^- ions strong electrostatic force of attraction develops which is called ionic bond.

Properties of Ionic compounds:

- Ionic compounds are crystalline solids with high melting and boiling points.
- These compounds are soluble in polar solvents like water.

- These compounds conduct electricity in their solutions and in molten state.

