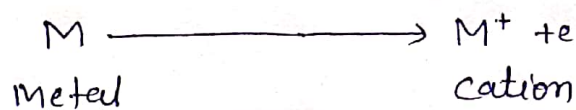


SUBJECT - CHEMISTRY  
CLASS - BSc (SUB/JEN) PART-I  
GROUP - B  
TOPIC - IONIC BONDS OR COMPOUNDS  
Dr Hari Mohan Prasad Singh  
Department of Chemistry  
Dr. L.K.V.D College Tajpur Sarmaestipur

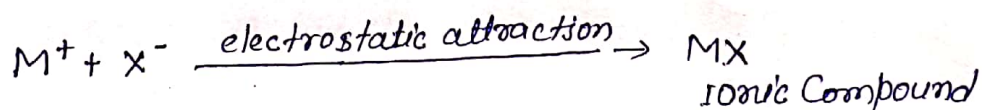
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We know that metals have strong tendency to form cations by losing electrons due to their low I.P. Values and non-metals have the strong tendency to form anions by gaining electrons due to their high EA Values.



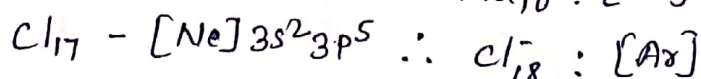
These cations and anions get attracted by the strong electrostatic forces as they carry opposite charges and thus form compounds.

The compounds so formed are called ionic or electrostatic compounds -

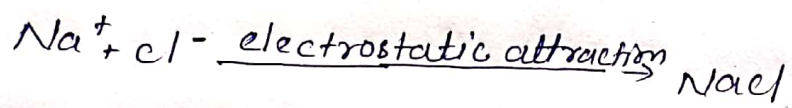


And bonds so formed, are called ionic bonds. During the formation of these cation or anions, elements get their respective noble gas configurations. For example: -

Due to low IP value, Na metal forms  $\text{Na}^+$  cation by losing one electron to get noble gas neon (Ne) configuration and due to high EA value, Cl forms  $\text{Cl}^-$  by gaining one electron to noble gas argon (Ar) configuration



The oppositely charged  $\text{Na}^+$  cation and  $\text{Cl}^-$  anion get attracted under the influence of strong electrostatic forces to form an ionic compound  $\text{NaCl}$ .



Characteristics (or properties) of ionic compounds:

- 1 They exist in solid states.
- 2 They are soluble in water.
- 3 They are insoluble in organic solvents.
- 4 These bonds are non-directional, therefore they do not exhibit space isomerism.
- 5 These compounds are dissociated in aqueous solution into their constituent ions.
- 6 They are non-volatile.
- 7 The ions are rigidly bonded as these are held together by strong electrostatic forces of attraction. Hence they have high m.p and b.p
- 8 They conduct electricity in molten state as ions acquire freedom of movement.
- 9 Crystal of ionic compounds have definite geometrical shapes, known as lattice structures. But their ions do not have any definite geometrical shapes.
10. The formation of ionic compounds is shown by the Born-Haber cycle.