SUBJECT - CHEMISTRY
CLASS - BSc(Sub/GEN) PART-I
GROUP - B
TOPIC - electronegativity of the elements.

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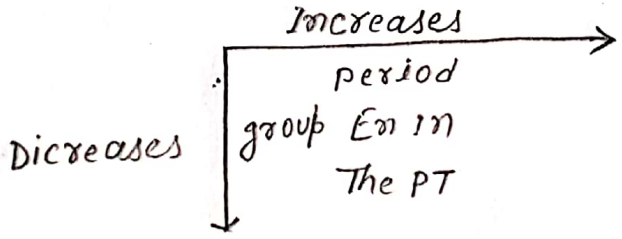
Electronegativity (X (chi) or En): The property by virtue of which a bonded atom can attract bonded electrons towards itself is called electro-negativity of the atom. It is denoted by En or X-(chi). It is given as-

$$X(chi) \quad \frac{IP + EA}{5.6} \text{ eV} = \frac{IP + EA}{544} \text{ KJ}$$

It increases across a period on moving from left to right but decreases in moving down a group of the periodic table. So, we can exhibit the trend of En value in the periodic table as-



Hence element having positions in the right hand top corner of the P.T. have high En values e.g

H (2.1)
Li (1.0) Be (1.5) B (2.0) C (2.5) N (3.0) O (3.5) F (4.0) Cl (3.0)

The Concept of electronegativity is pasticularly very useful in interpreting many chemical phenomena e.g the nature of Chemical bonds, inductive effect, dipole moment, hydrogen bond etc.

Q How does electronegativity value influence the nature of chemical bonds ?

Ans The nature of chemical bonds can be decided with the help of electronegativity difference (ΔEn) of bonded atoms -

En		Nature of bonds
1.0	e.g. N-Cl $\Delta X = 3.0 - 3.0 = 0$	Non-polar covalent
2.0-1.9	e.g H-Cl $\Delta X = 3.0 - 2.1 = 0.9$	polar covalent
3. > 1.9	e.g NaCl $\Delta X = 3.0 - 0.9 = 2.1$	ionic

Q N and Cl have the same of electronegativity. What type of bond do you expect between them ?

Ans The nature of bonds can be decided with the help of electronega-tivity difference (ΔEn) of bonded atoms. If ΔEn value is zero, as it is evident between N and Cl, the bond formed between them will necessarily be non-polar because both the bonded atoms viz N and Cl have the same value of electronegativity.

Electronegativity of elements

H 2.1						
Li 1.0	Be 1.5	B 2.0	C 2.5	N 3.0	O 3.5	F 4.0
Na 0.9	Mg 1.2	Al 1.5	Si 1.8	P 2.1	S 2.5	Cl 3.0
K 0.8	Ca 1.2	Gia 1.6	Ge 1.8	As 2.0	Se 2.4	Br 2.8
Rb 0.8	Sr 1.0	In 1.7	Sn 1.8	Sb 1.9	Te 2.1	I 2.5
Cs 0.7	Ba 0.9	Tl 1.8	Pb 1.8	Bi 1.9	Po 2.5	At 2.7
Fr 0.7	Ra 0.9					