(3) Fajan's Rule

III Size of anion : The larger the size of the anion more easily it will be polarised by the cation, i.e. as the size of anion increases for a given cation, the covalent character increases.

For eg - In case of halides of Ca, the covalent character increases from F^- to I^- anion.

	CaF_2	$CaCl_2$	$CaBr_2$	CaI_2	AlF_3	$AlCl_3$	$AlBr_3$	AlI_3
Cation	Ca^{2+}	Ca^{2+}	Ca^{2+}	Ca^{2+}				
Anion	F^-	Cl^-	Br^-	I^-				
r^-	1.36 Å	1.81 Å	1.95 Å	2.16 Å				
m.p	1932°C	772	730	575°C				

covalent character increases and m.p decreases.

covalent character increases and m.p decreases

IV configuration of cations :- The cation with 18 electrons in outermost shell bring greater polarisation of the anion than those with inert gas config. even if both the cations have about same size and same charge. for ex CuCl is more covalent than NaCl.

CuCl

	Cu^+	Na^+
E.C	2,8,18	2,8
Size	0.96 Å	0.95 Å
mp	442°C	800°C

* All those electrovalent compds. having high value of Polarisation (more covalent character) are found to less soluble in water but more soluble in org. solvents. The following examples support this view

(i) Sulphides are less soluble in water than oxides of the same m
(ii) Lithium salts are soluble in org. solvents.
(iii) Be - salts less soluble in water than other alkaline earth metal compounds.
(iv) The solubility of ~~Halides~~ Aluminium halides decreases fro