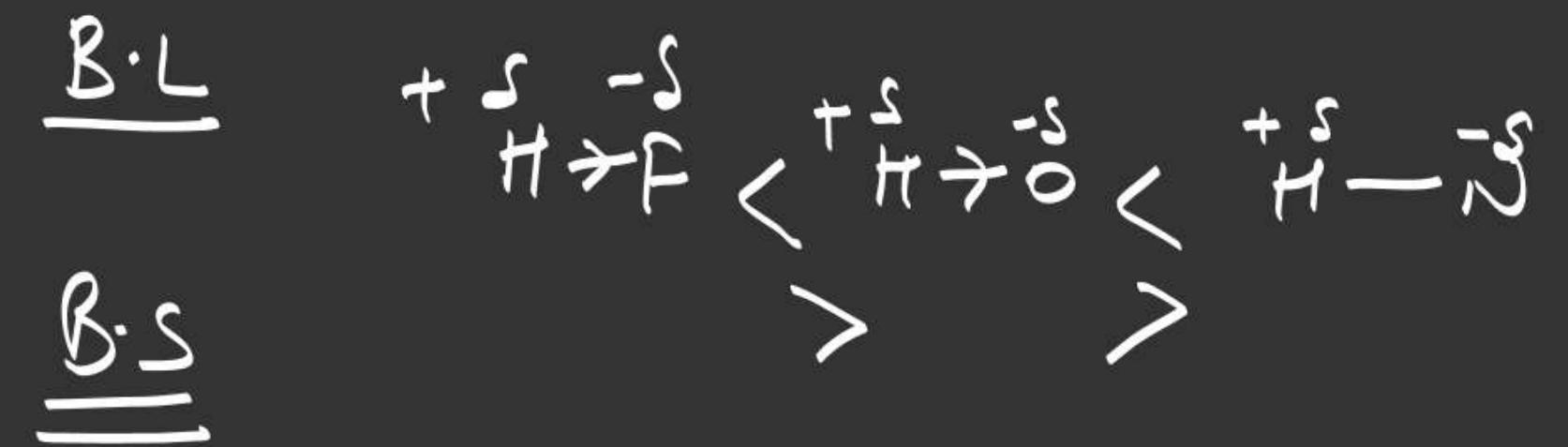


Application of E.N

① Bond length and Bond Strength



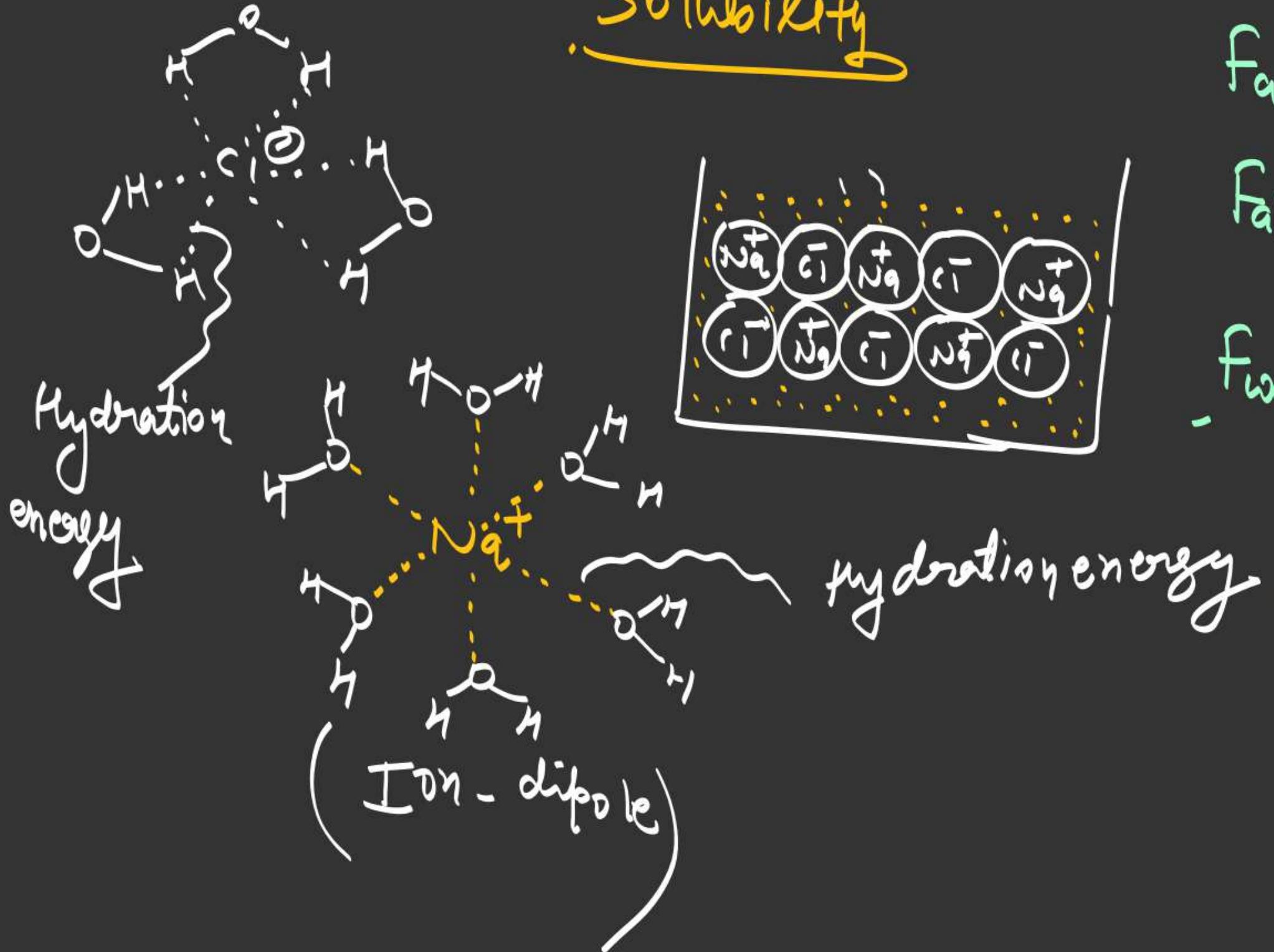
Q) % of Ionic ch.

Henry Smith

$$\% \text{ g Ionic ch.} = 16\Delta + 3.5\Delta^2$$

$$\Delta = \epsilon \cdot N \text{ diff.}$$

Solubility



$$f_{qin} = \frac{K_{q_1 q_2}}{\gamma^2} N_{qci}$$

$$F_{air} = \frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{r^2}$$

$$f_{\text{water}} = \frac{1}{4\pi\epsilon_0 \cdot 80} \frac{q_1 q_2}{r^2}$$

$$f_{\text{water}} = \frac{f_{\text{air}}}{80}$$

If $\frac{H \cdot E}{L \cdot E}$ then Ionic compound
Soluble

$H \cdot E < L \cdot E$ then Ionic compound
Insoluble

$$\frac{H \cdot E}{L \cdot E}$$

Lattice energy $\xrightarrow{L \cdot E} \text{amount of released energy}$
 When one mole of Ionic Compound is formed.

$L \cdot E \propto \text{charge}$

$$L \cdot E = K \frac{q_1 q_2}{r}$$

$L \cdot E \propto \frac{1}{\text{size}}$

q_1 = charge on cation

q_2 = charge on anion

$$r = (r_c + r_a)$$

r_c = radius of cation

r_a = radius of anion

$$S_C = 3d^1 4s^2$$

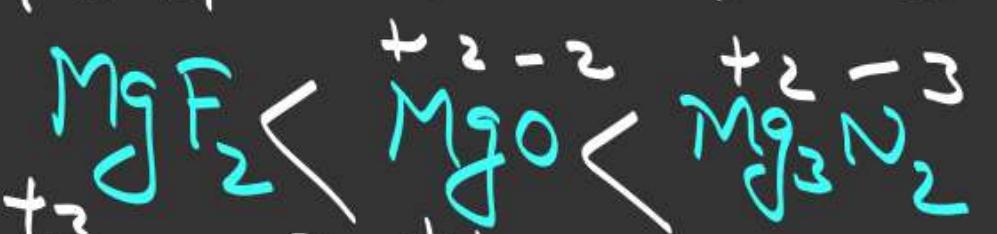
$$T_i = 3d^2 4s^2$$

Order of L.E

L.E \propto Charge



L.E \propto size



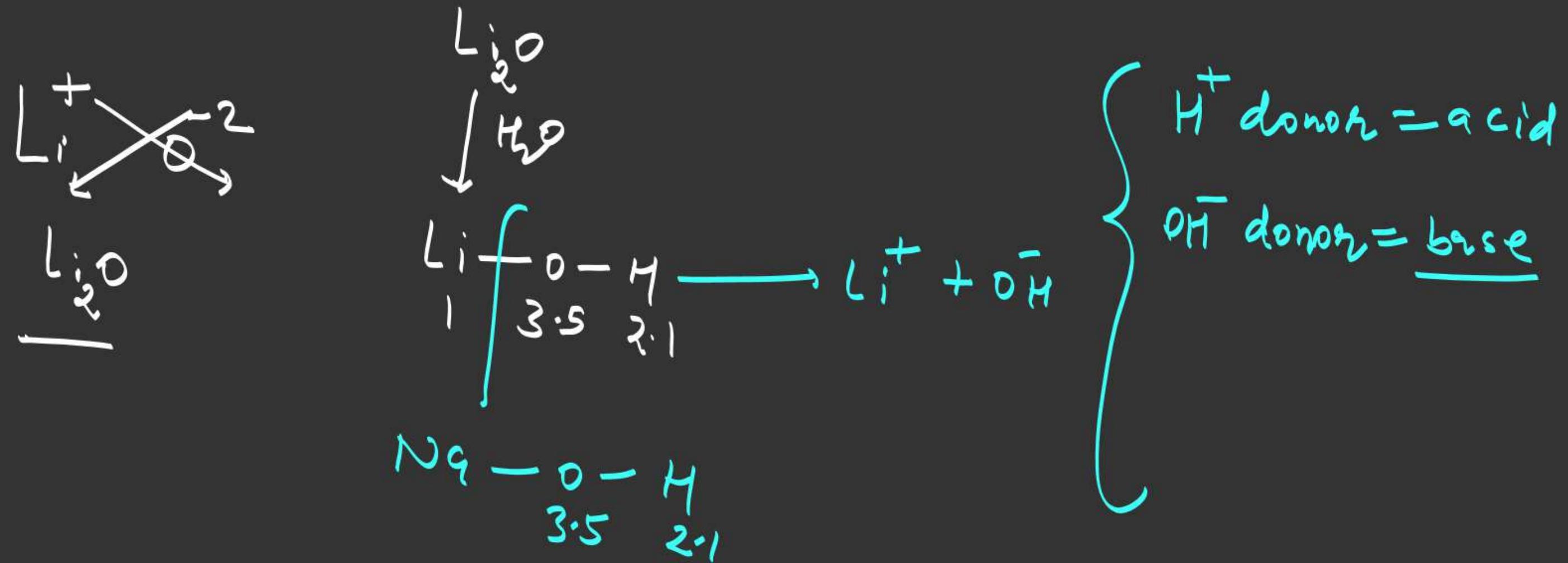
Li
F
Na
K
Rb
Cs

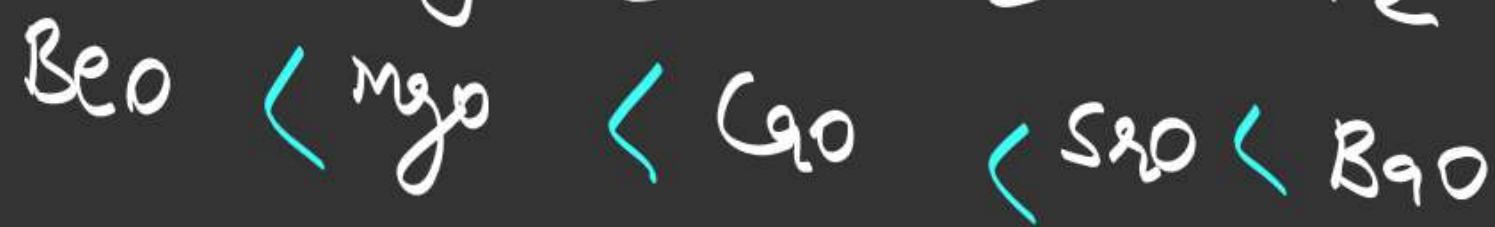
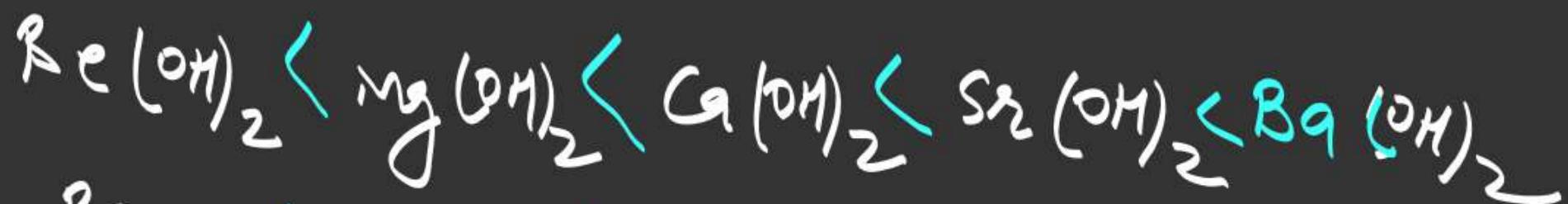
down
the group
size ↑

Hydration energy \Rightarrow amount of released energy
When one of Ionic compound
dissolve in polar solvent
then it is called solvation energy

If water is taken as polar solvent then it is called
Hydration energy

dissolution of ionic compound



Order of basic character

Note \rightarrow S-block oxides are

Basic in nature

except BeO [Amphoteric]

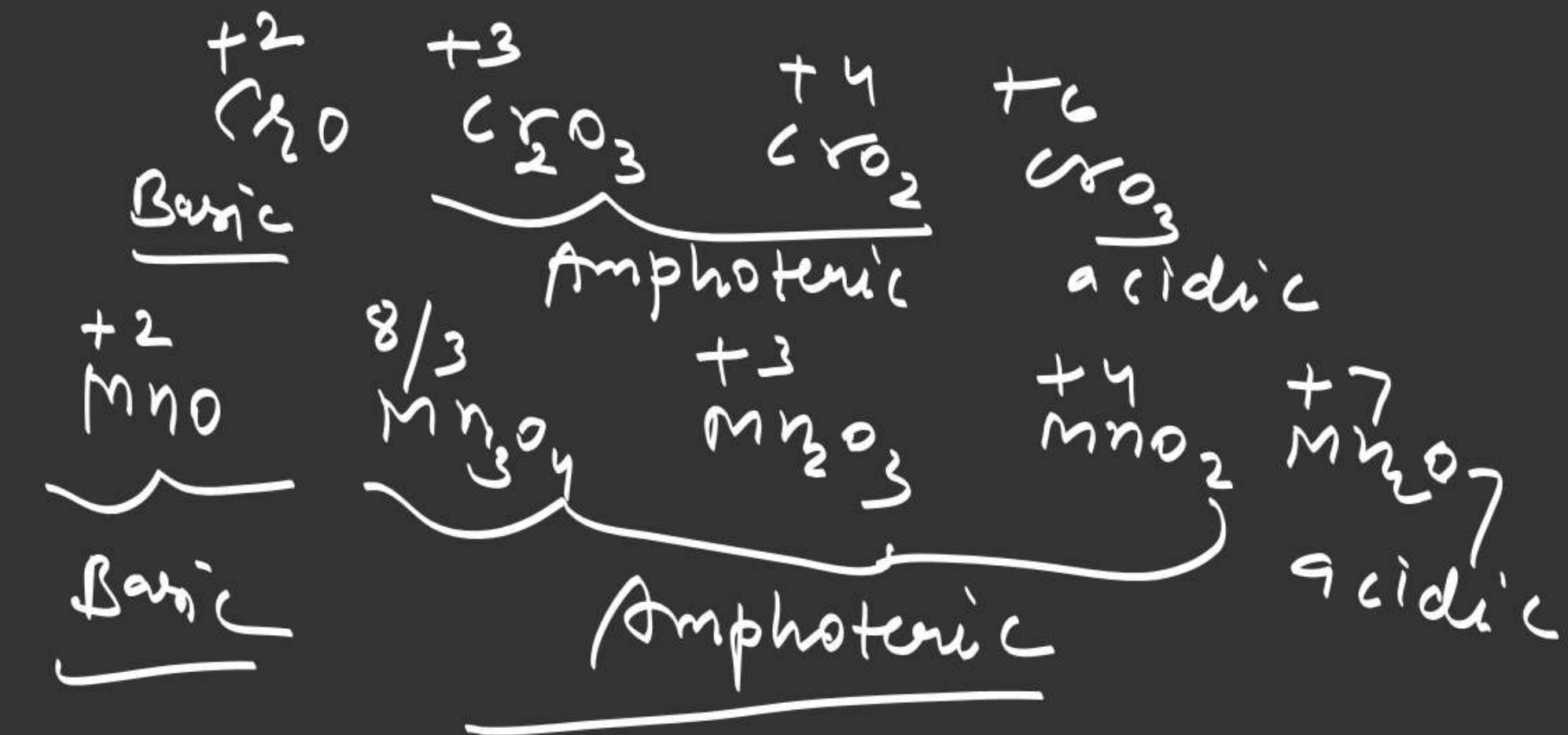
पर्याप्त जटि के अली गाना सुनाउओ रास में
 Pb Zn Be Al Mg Mn Cr⁺³

all the oxides and hydroxides are

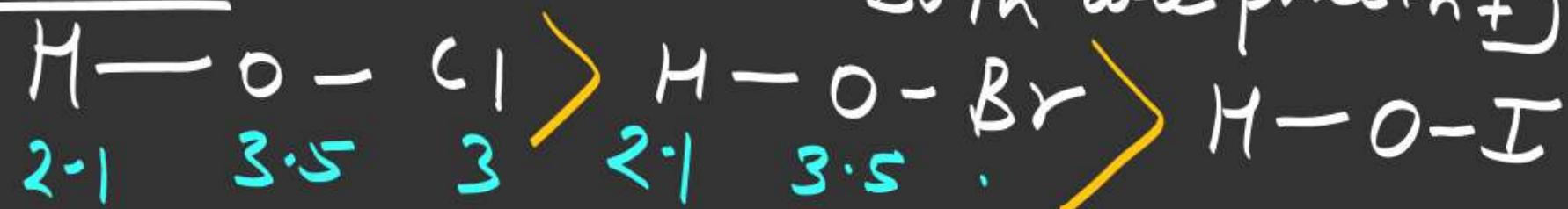
Amphoteric in nature

As₂O₃ Si₂O₅ V₂O₅

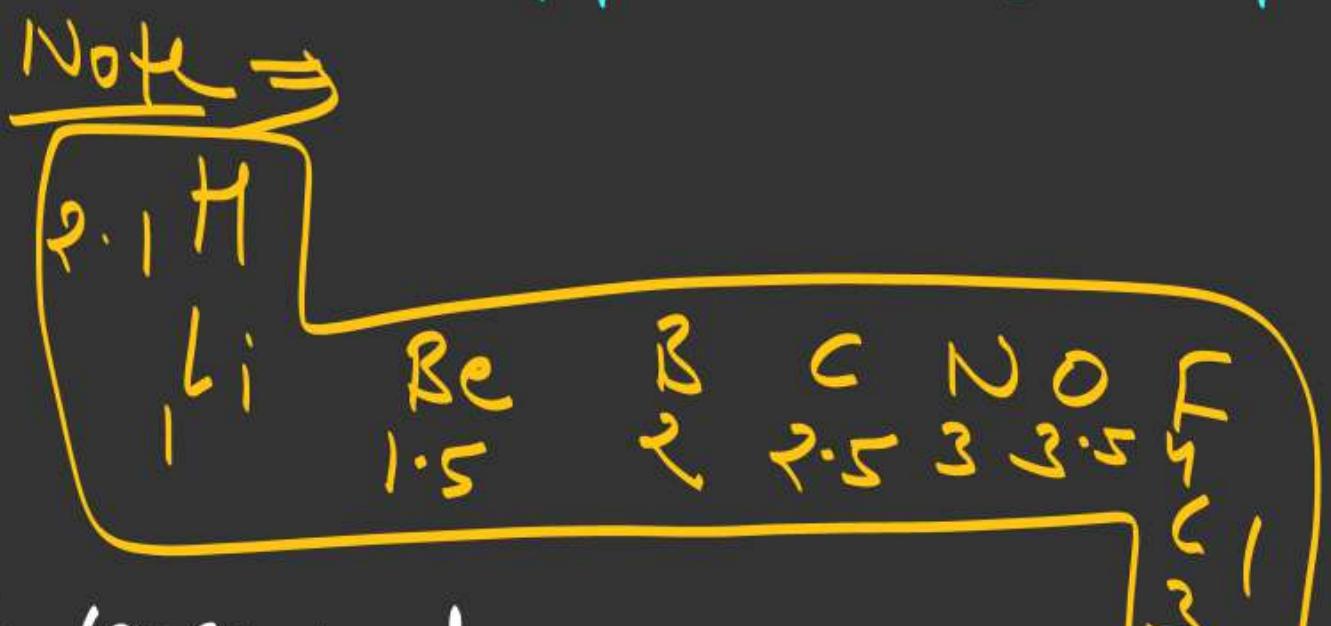
Note \Rightarrow $\text{NO}_1 \text{CO} \text{N}_2\text{O} \text{H}_2\text{O}$
neutral oxide



dissolution
acidic order



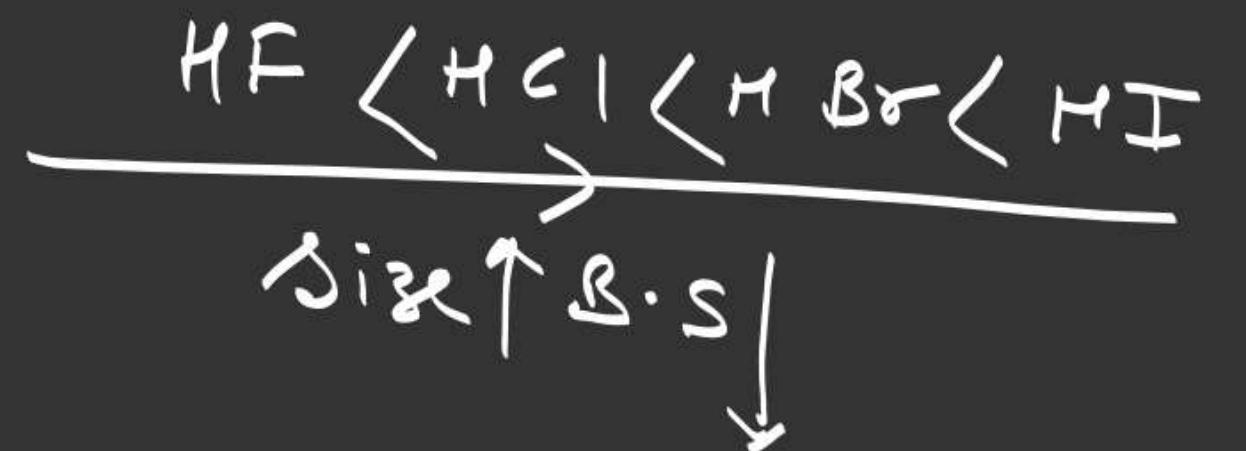
Oxyacid \Rightarrow acid in which
oxygen and hydrogen
both are present



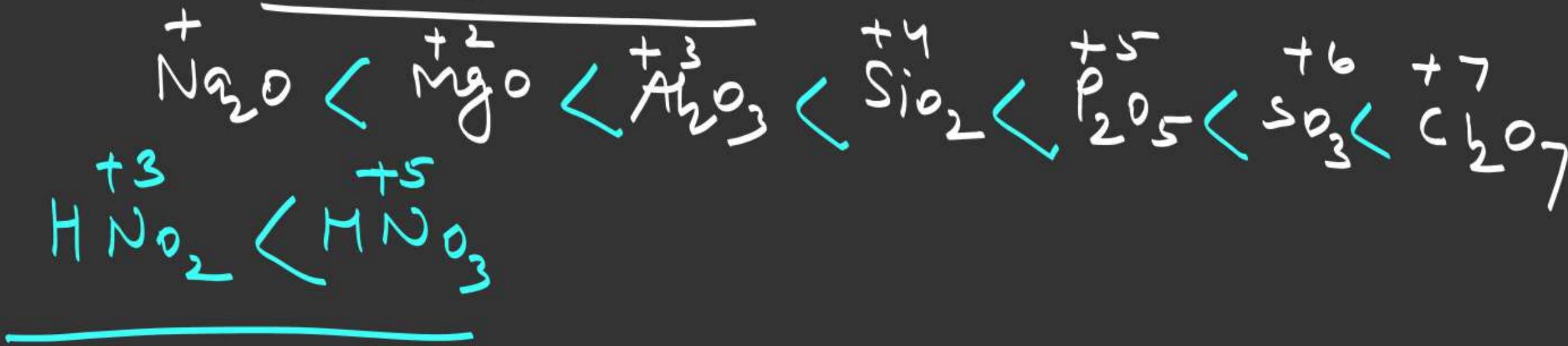
Note \Rightarrow this concept doesn't apply to
Hydrogen acids (HF HCl HBr HI) for

F
Cl
Be
I

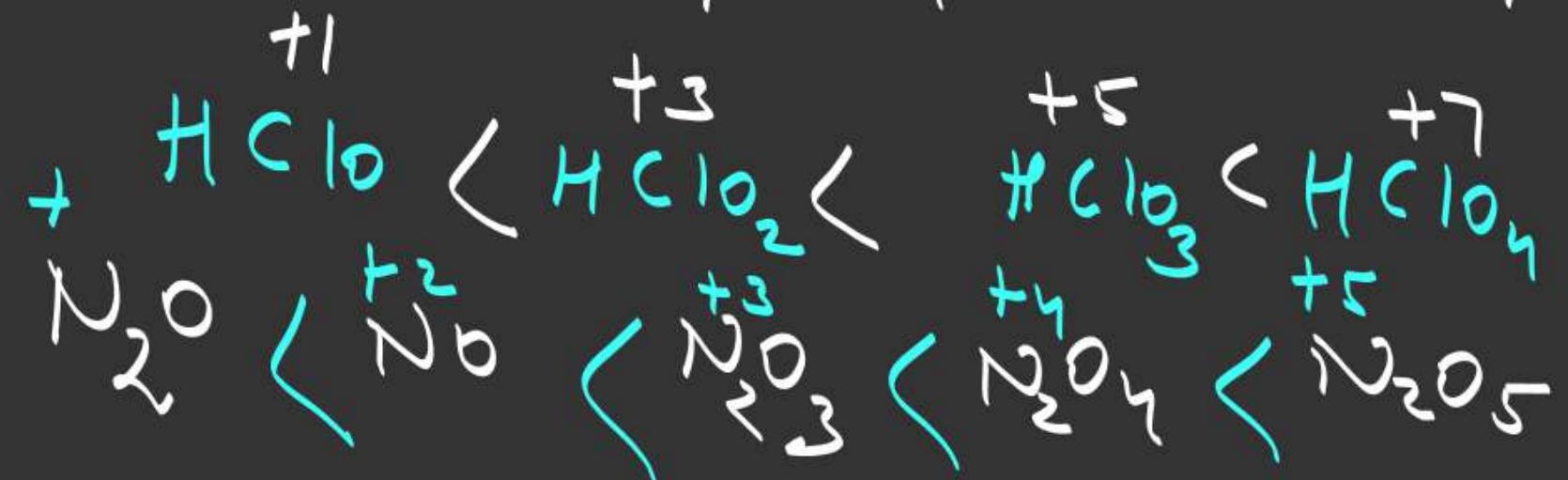
down the group
C-N

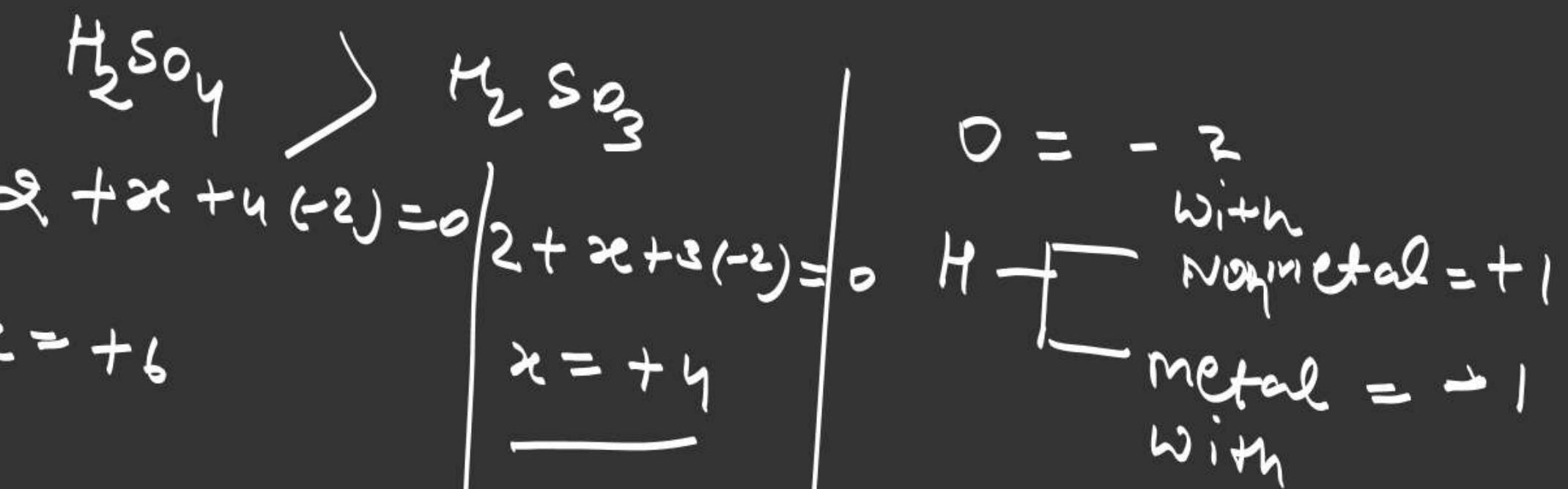


Order of acidic Ch.



+ive charge ↑ & w/↑ acidic ch. ↑





Ques Which of the following
Solvent is better solvent (Ionic compound)
for KI

- (1) $\epsilon_0 = 1$
- (2) $\epsilon_0 = 2$
- (3) $\epsilon_0 = 10$
- (4) $\epsilon_0 = 32$

Key point

if $\epsilon \cdot N$ diff \uparrow Ionic ch. \uparrow bond weak in water

Nishant Jindal

L·E