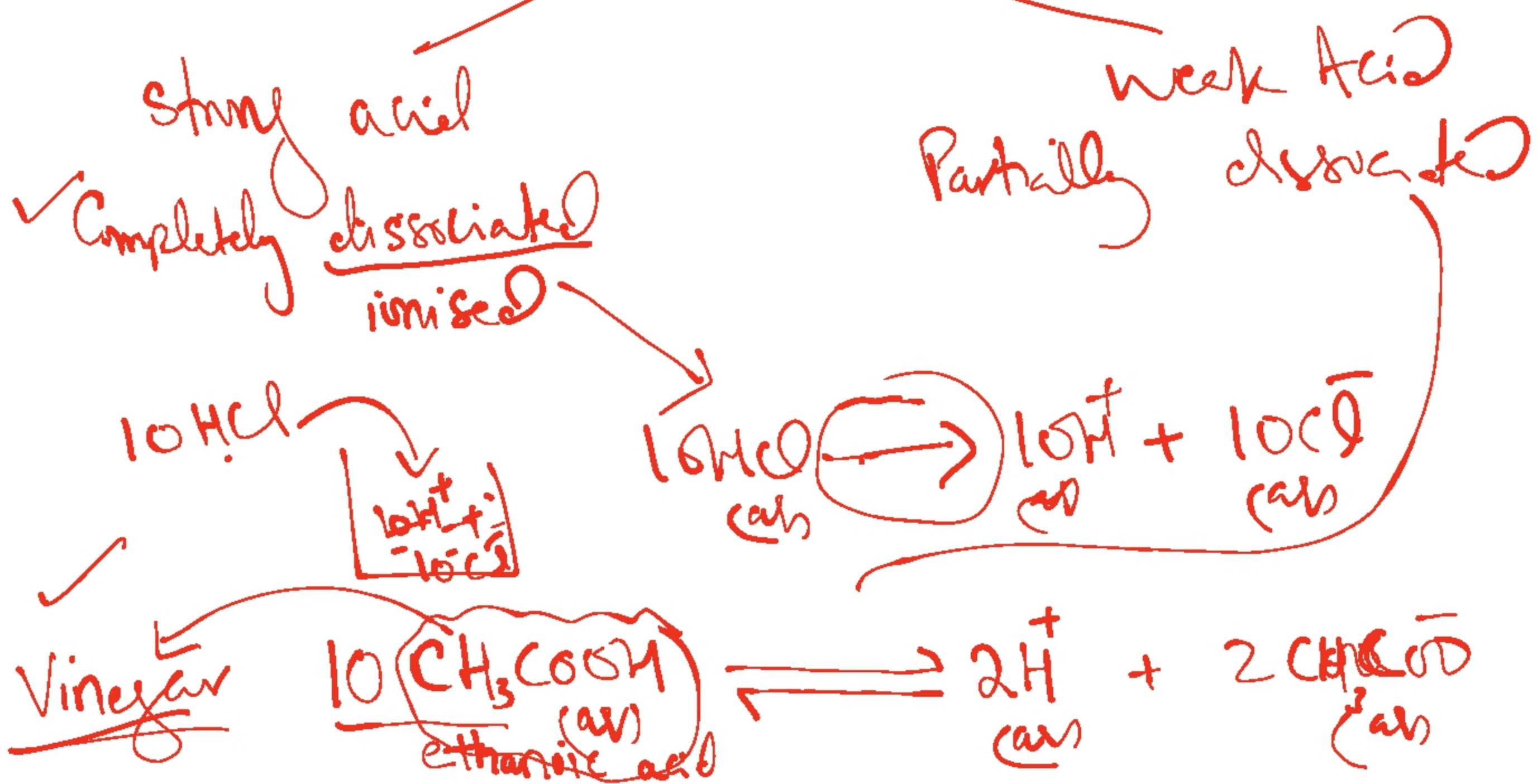
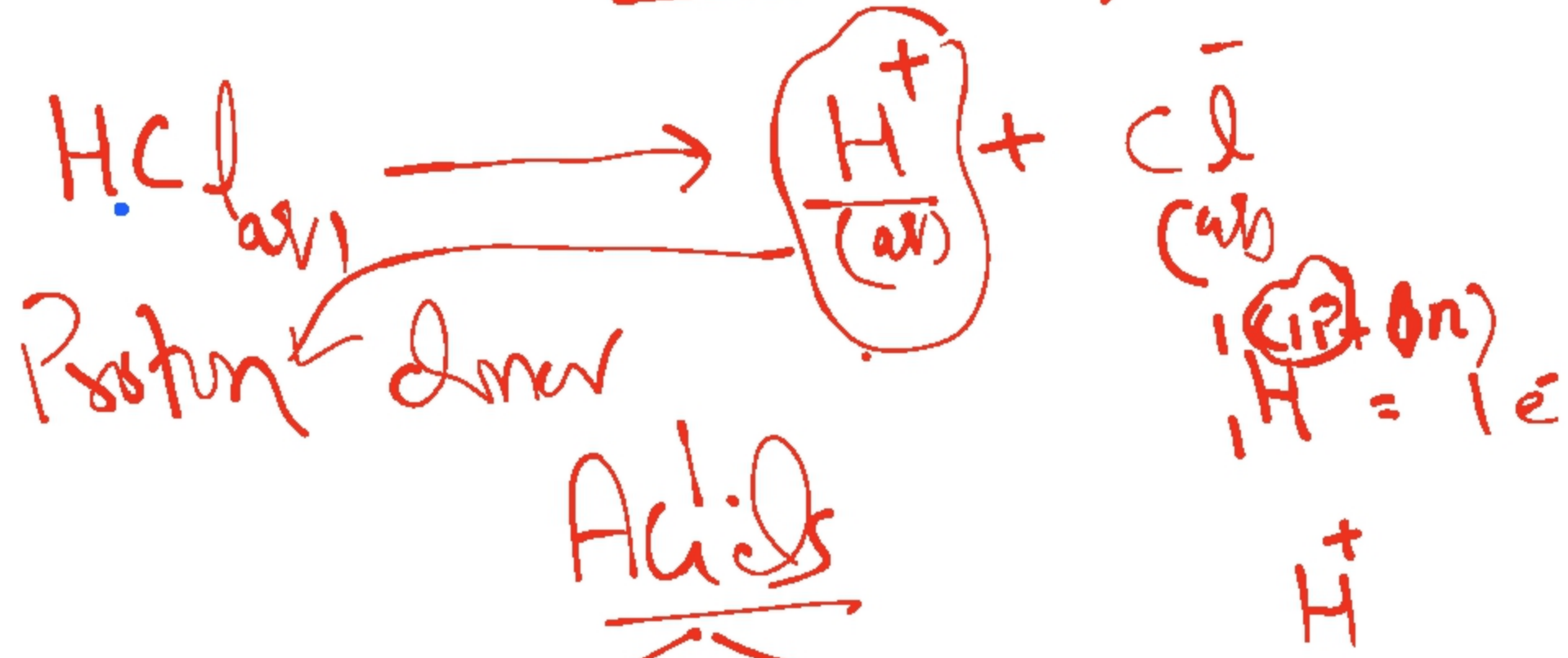


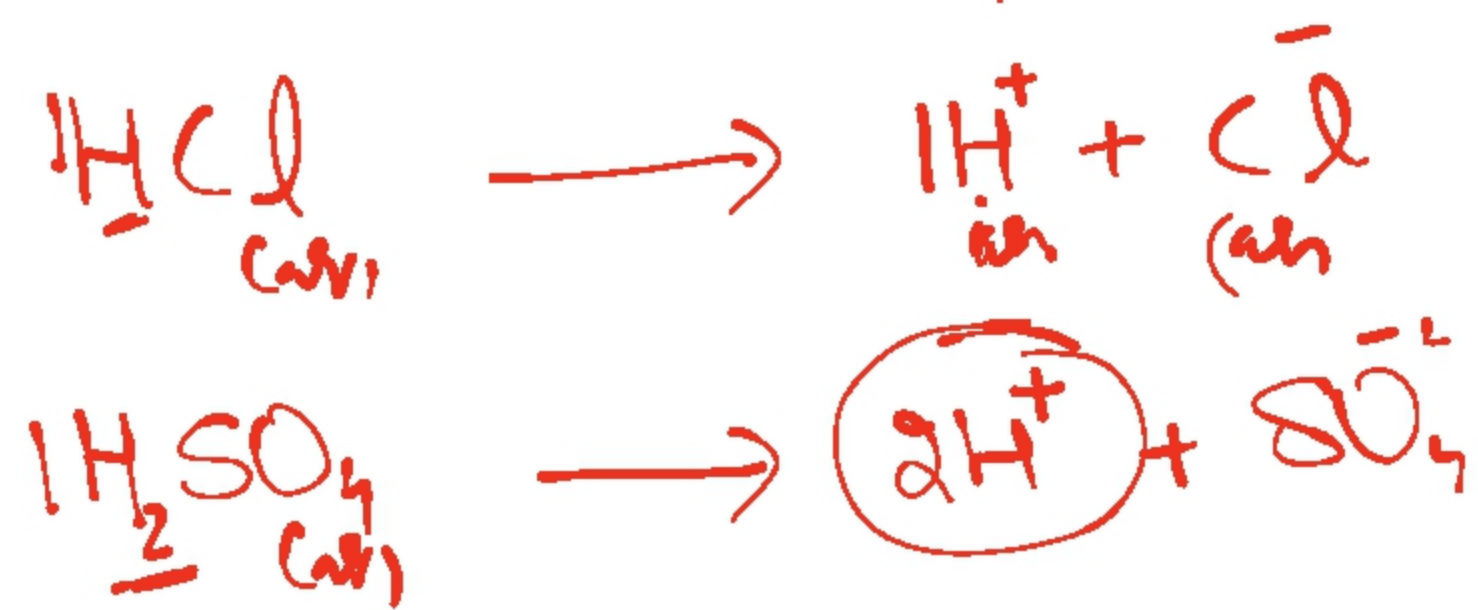
Acid (non metal)

Acid is a substance which gives/donate H^+ when dissolve in H_2O



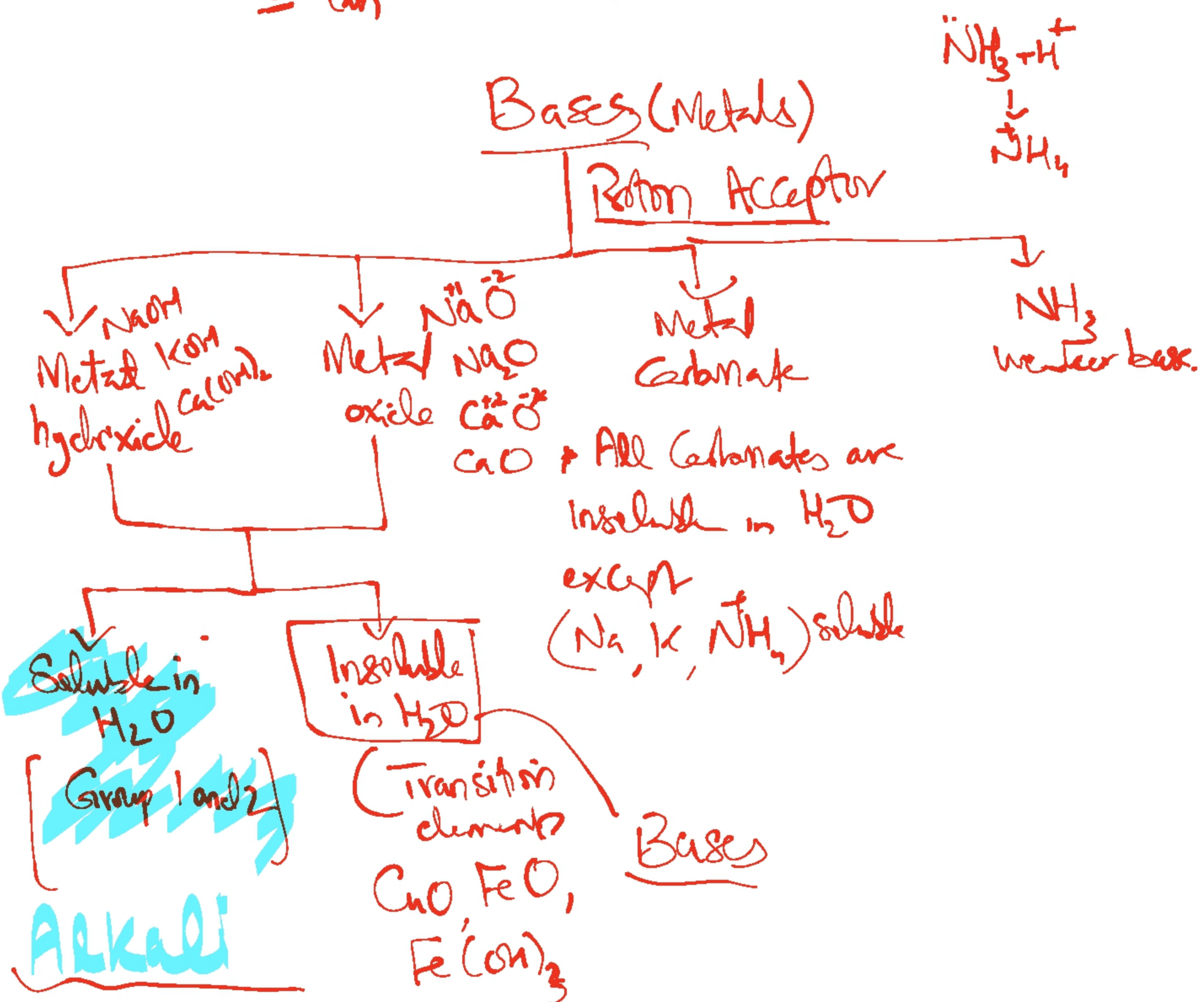
Strong Acids HCl, H_2SO_4, HNO_3
Weak Acid CH_3COOH , Citric acid, $H_2CO_3 \rightleftharpoons CO_2 + H_2O$

Dilute acids less H^+ ion $\leftarrow$ more H_2O
Concentrated Acids More H^+ ions $\rightarrow$ less H_2O

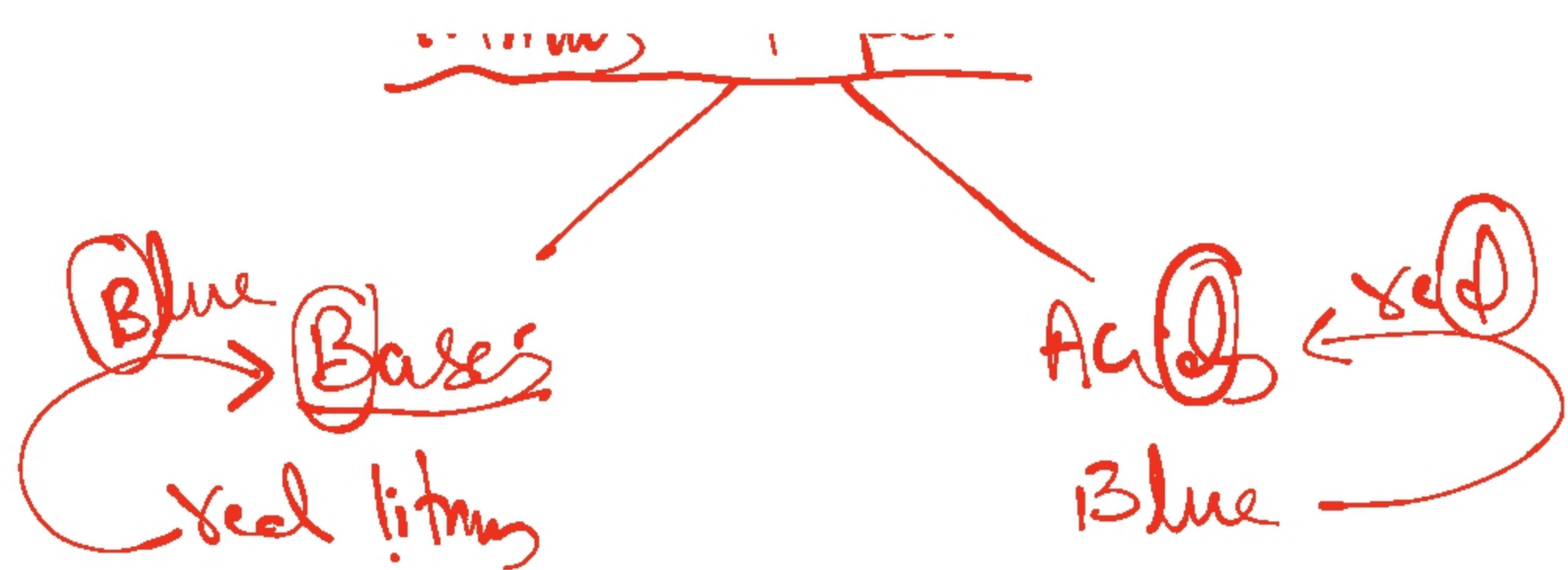


Bases (Metals)

Proton Acceptor



litmus Paper

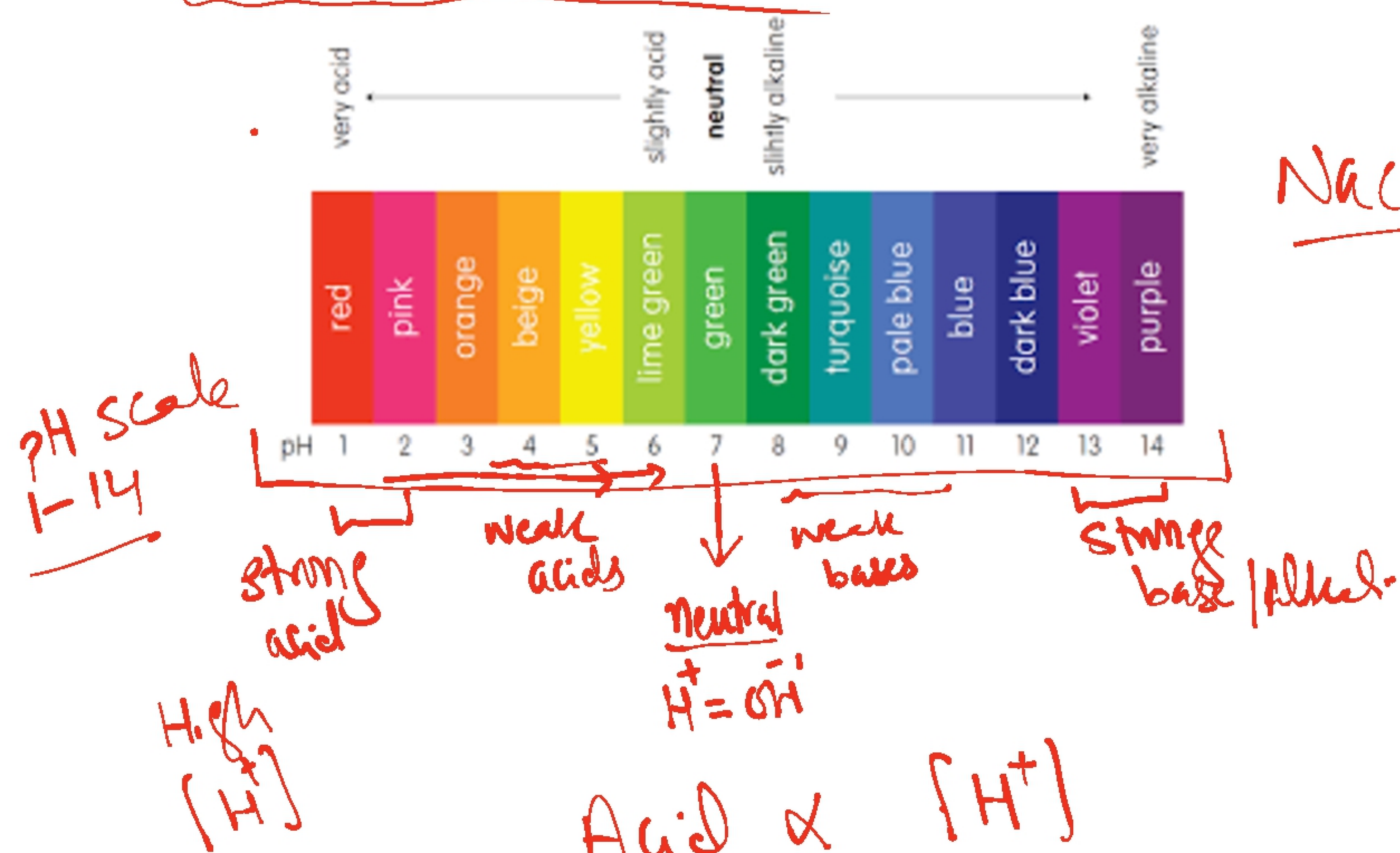


Indicators

are colored compound which can detect acid and bases by changing their colour

- ✓ litmus → Acid: Red, Base: Blue
- ✓ Methyl orange → Acid: Red, Base: Yellow
- ✓ Thymolphthalein → Colourless: Blue.

Universal Indicators (to detect the pH)

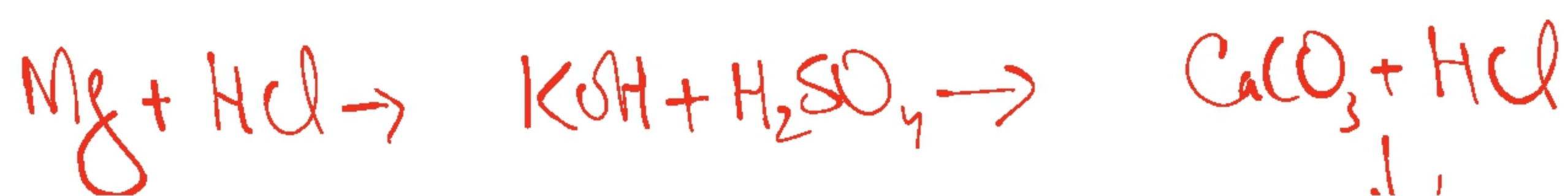
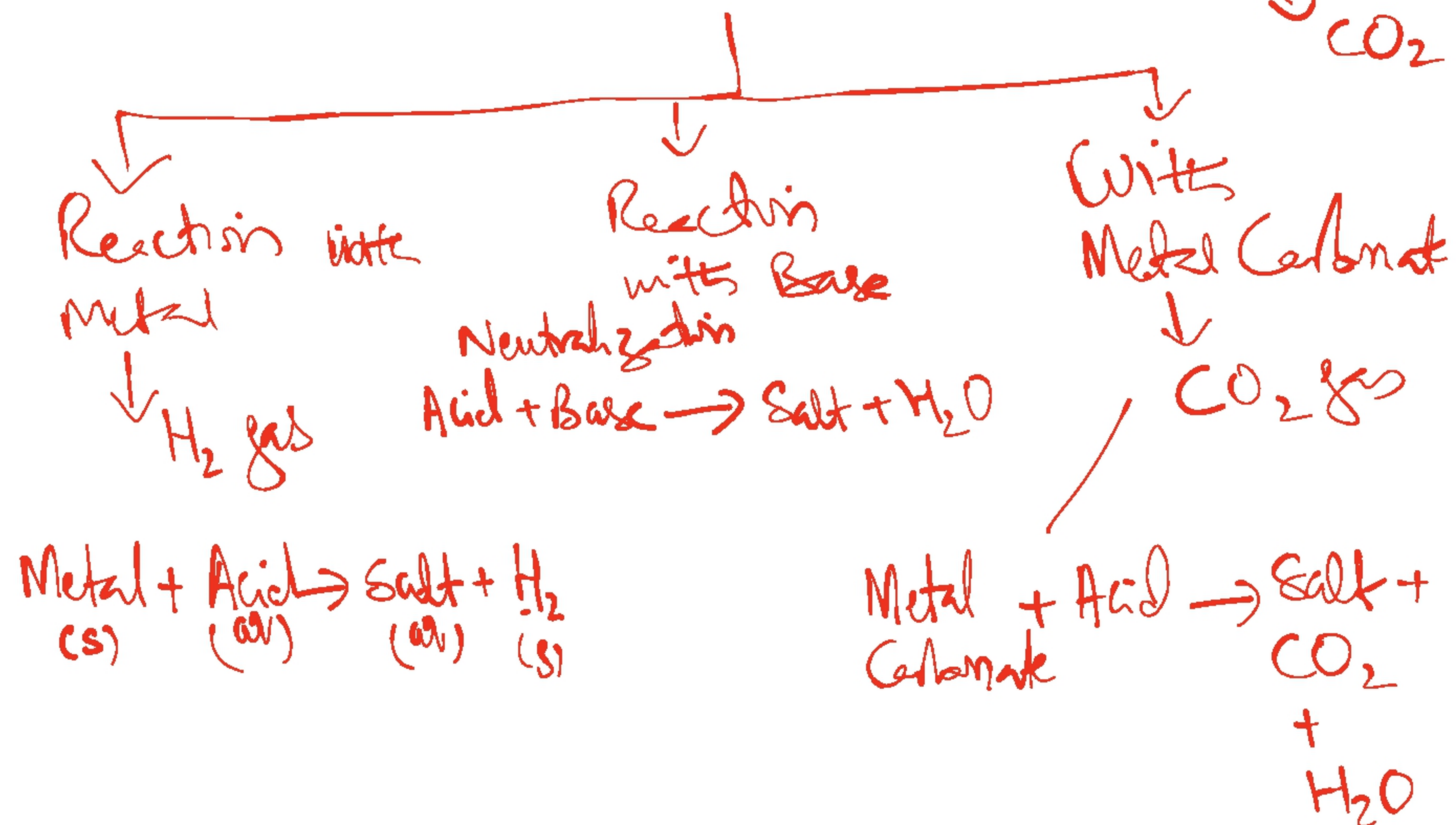


Acid $\propto [H^+]$
 stronger acid $\rightarrow$ more H^+ and low pH
 $pH \propto \frac{1}{[H^+]}$

$\rightarrow$ not a precise method

$\rightarrow$ For precise measurement we use pH Meter.

Acid Reactions $(CO_3^{2-}) \rightarrow CO_2$

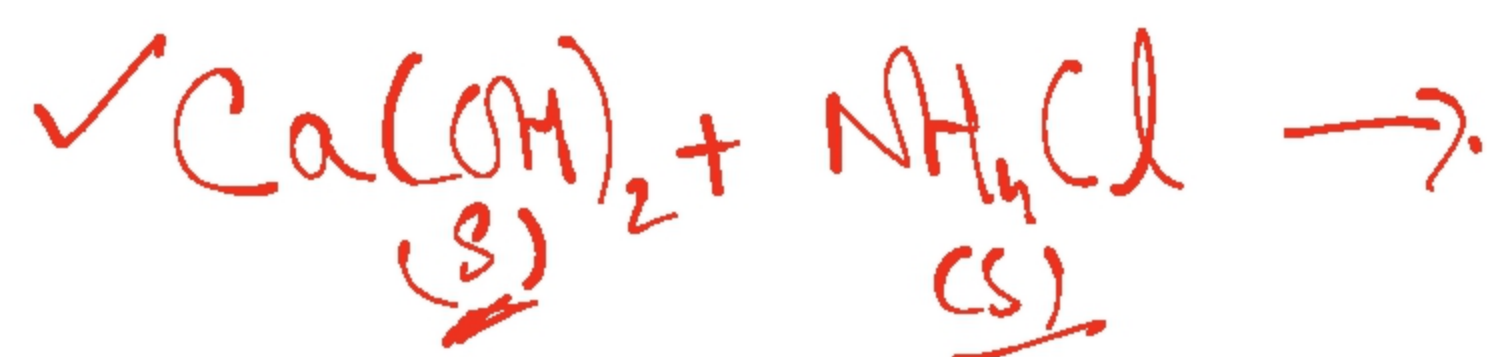
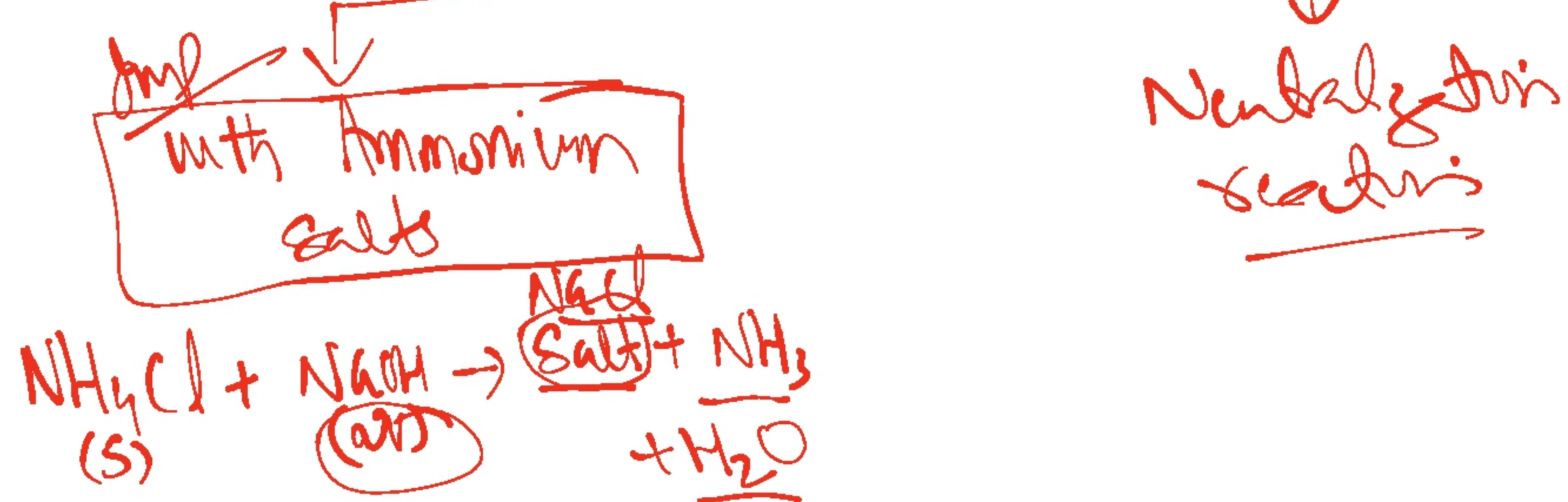


- Must mention state symbol
- must be balanced
- write correct product. SO_4^{2-}

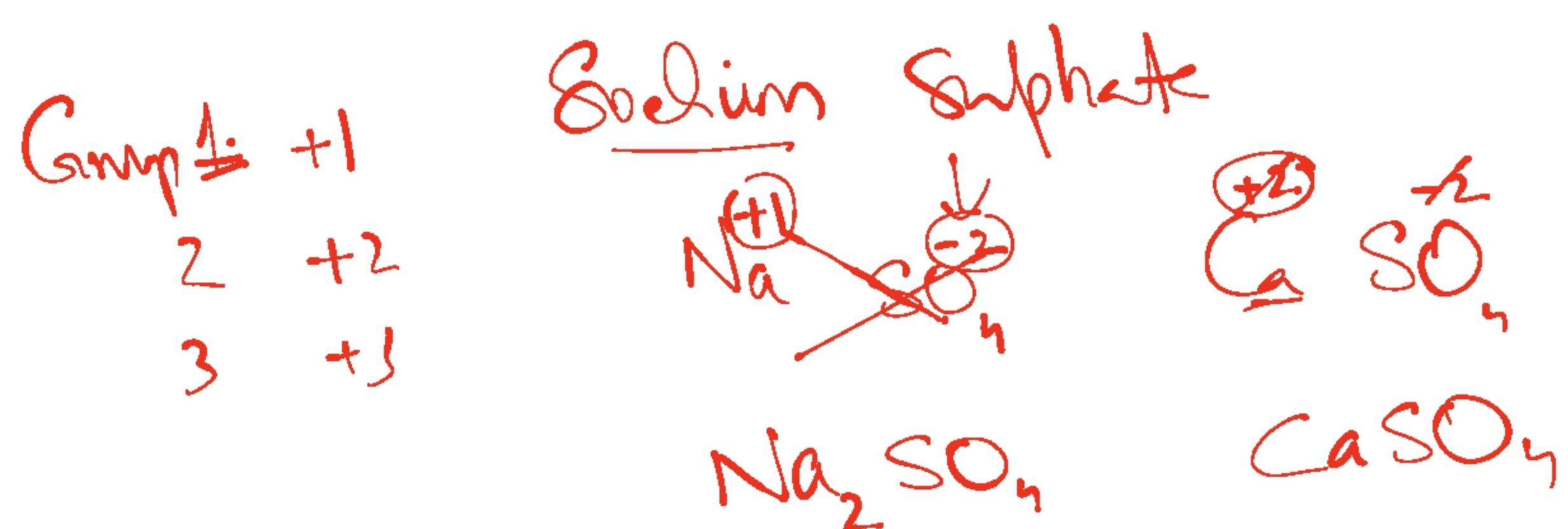


Formula
(1) Amm.

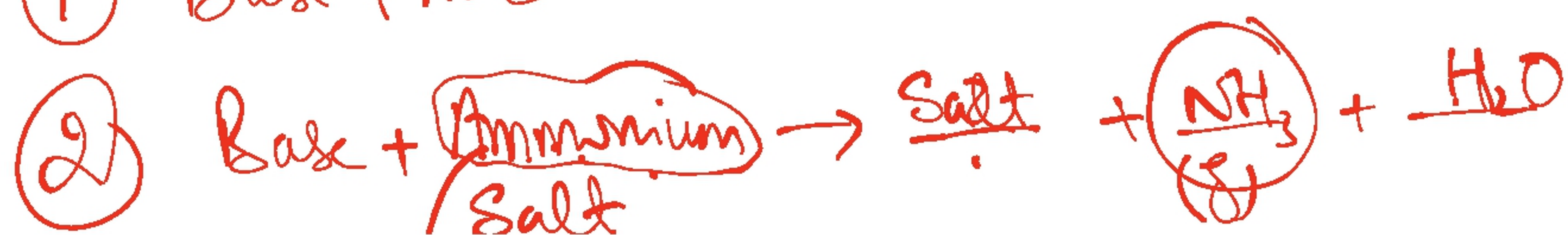
Ammonia NH_3 ^{base}
Ammonium NH_4^+ ^{acid}
Reaction of Bases

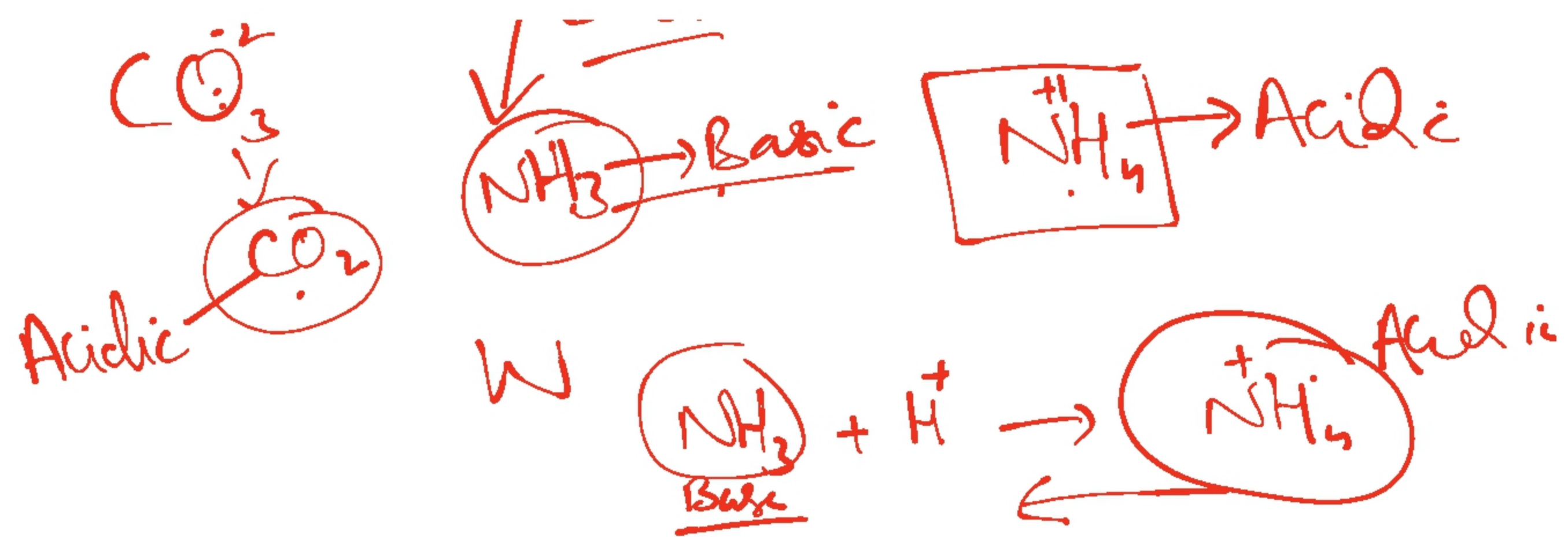


Nitrate NO_3^-	Ammonium NH_4^+
Sulphate SO_4^{2-}	Hydrogen Carbonate HCO_3^-
Phosphate PO_4^{3-}	Silver Ag^+
Hydroxide OH^-	Zinc Zn^{+2}
Carbonate CO_3^{2-}	Copper Cu^{+2}

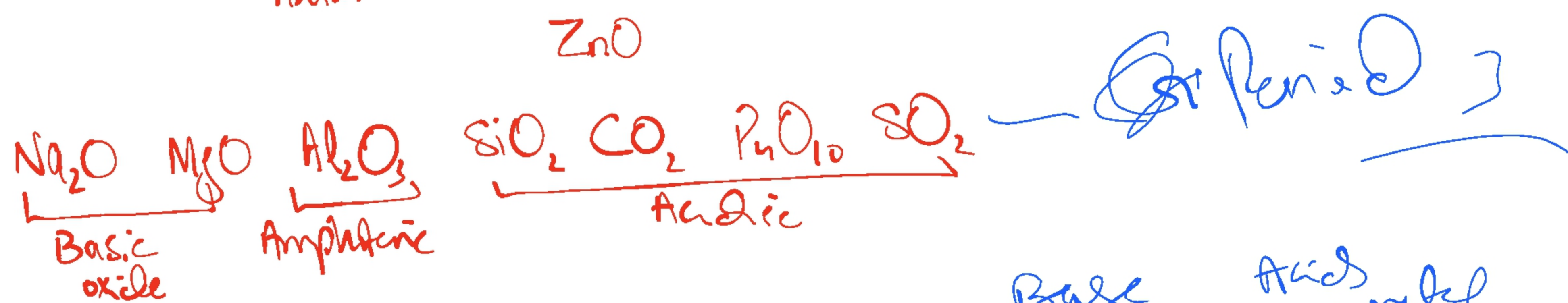
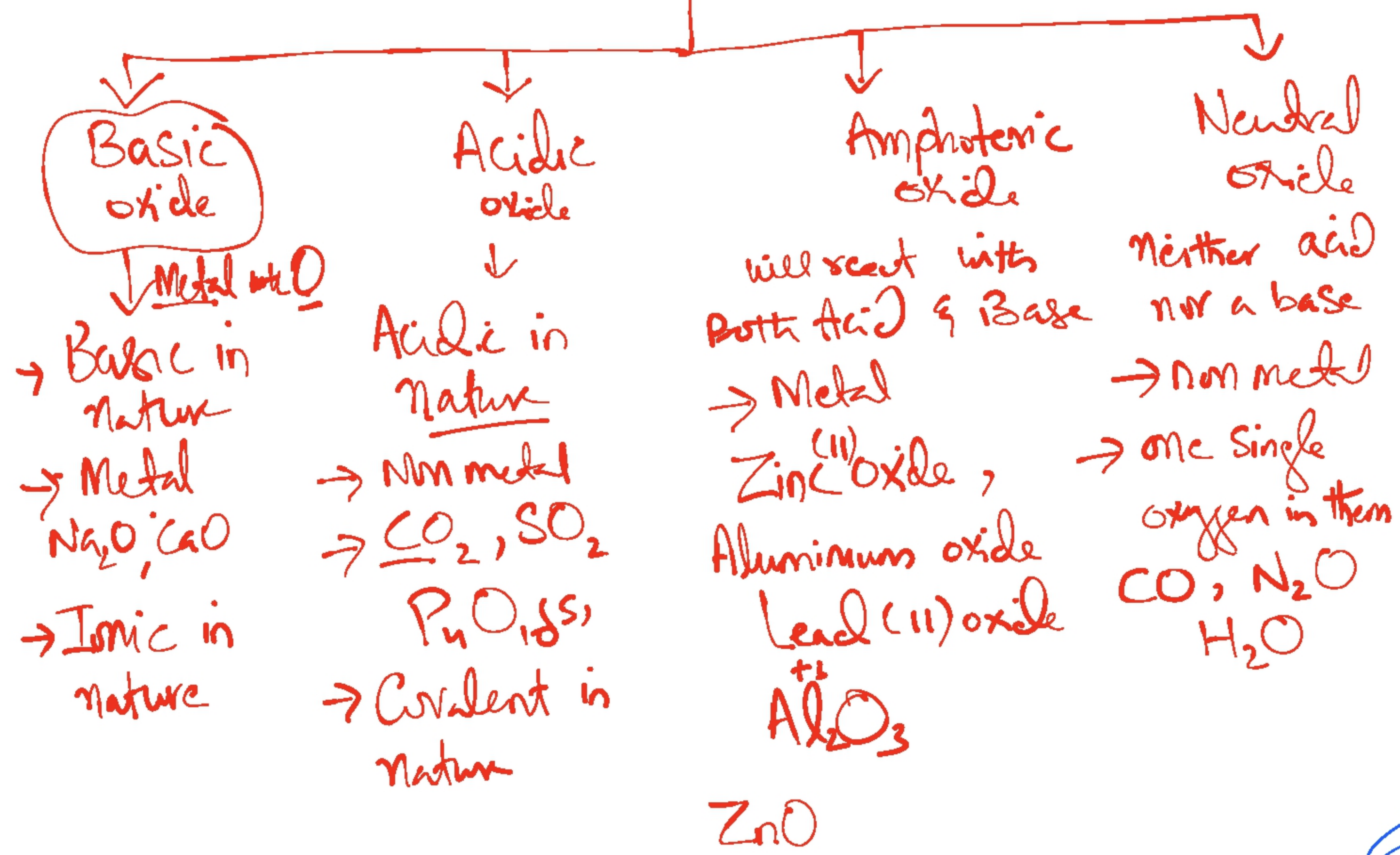


Ammonium phosphate

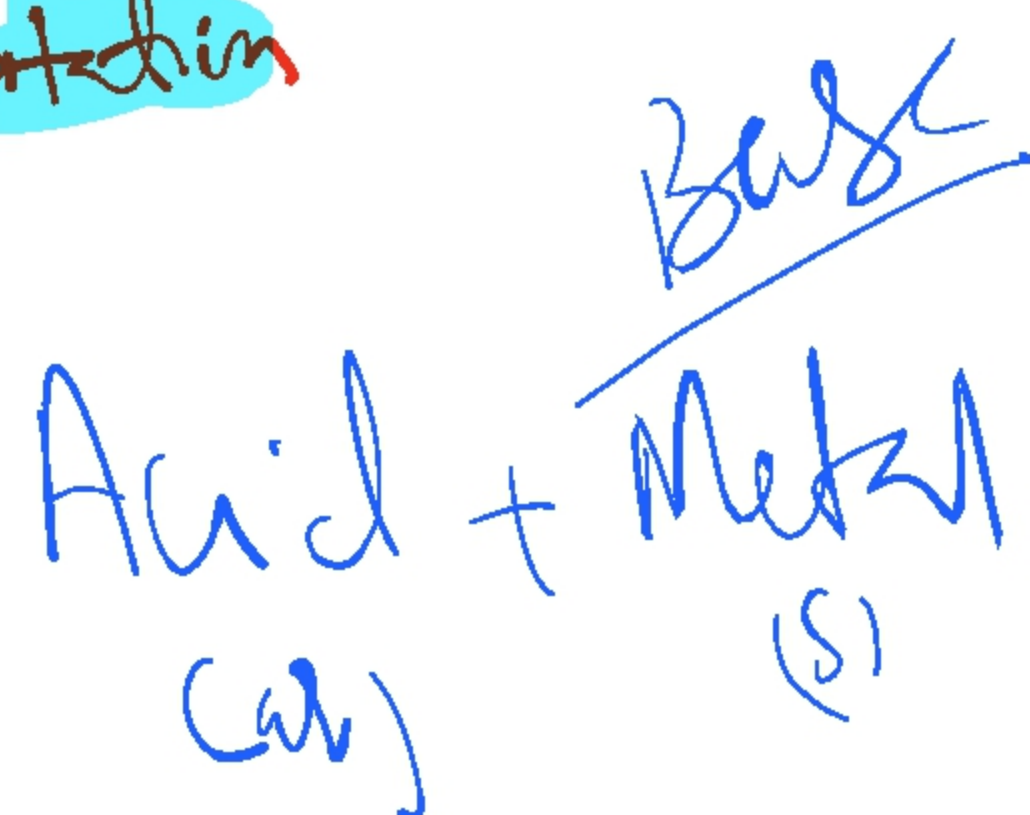
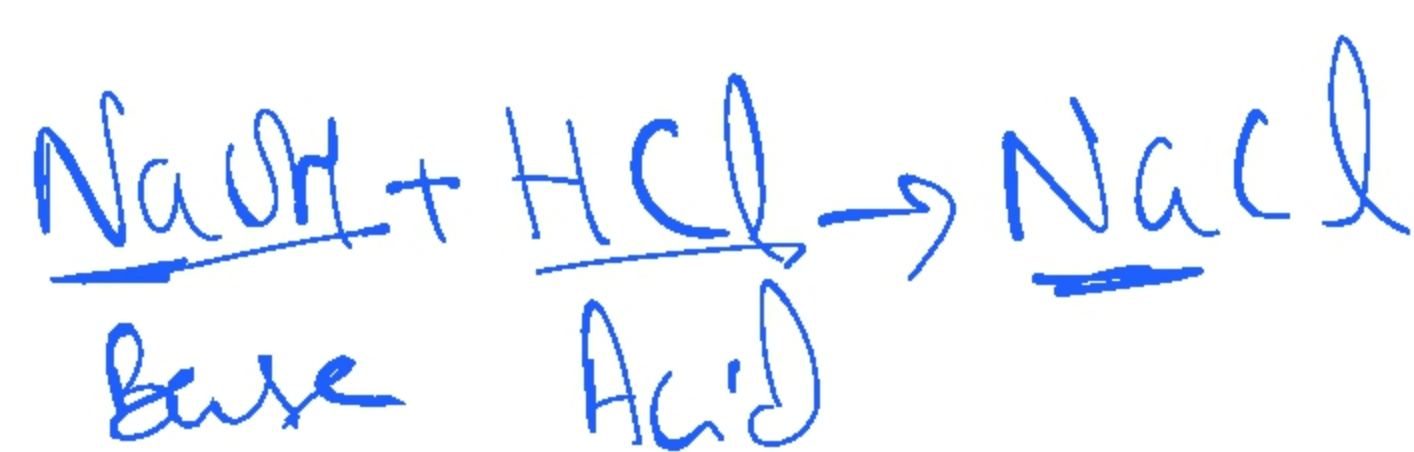
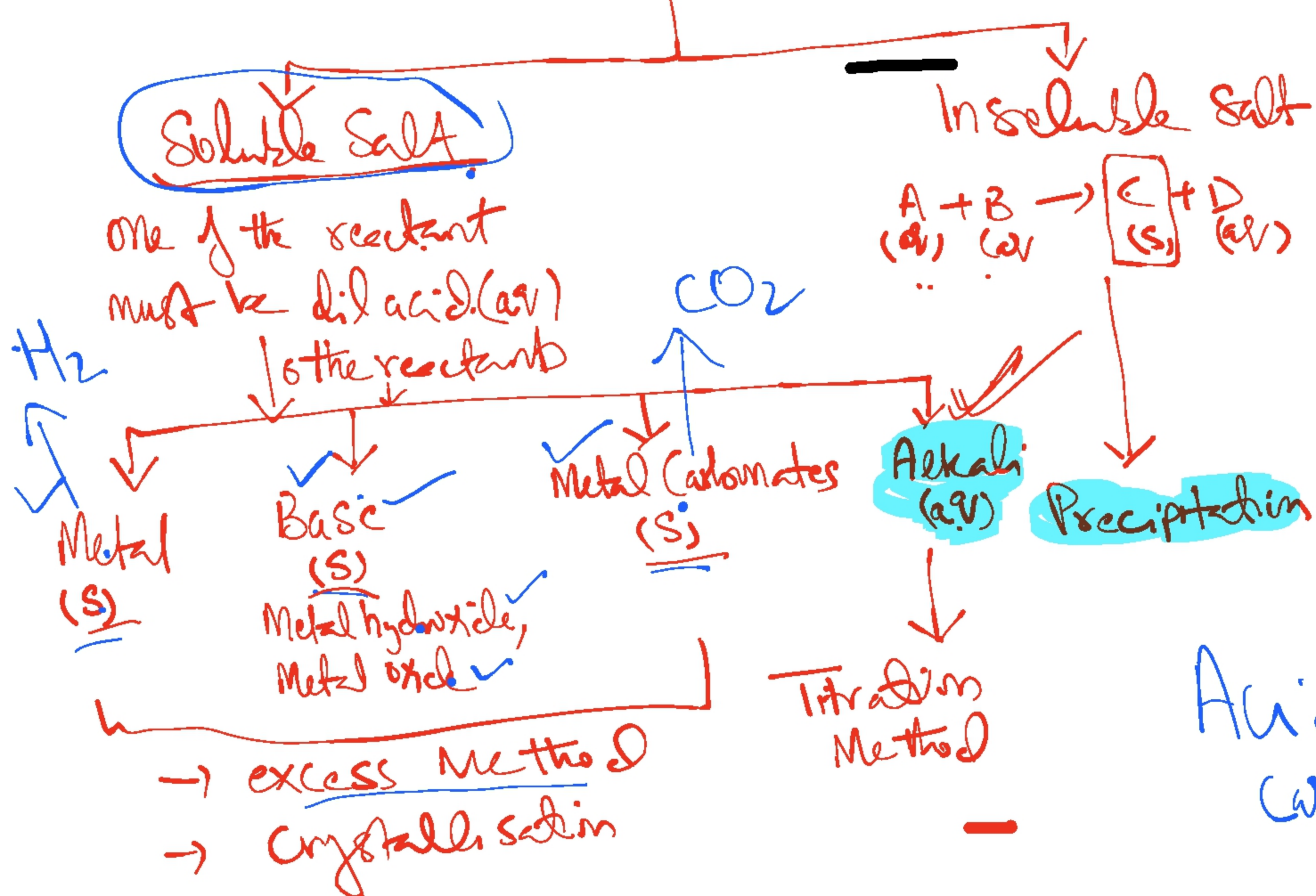




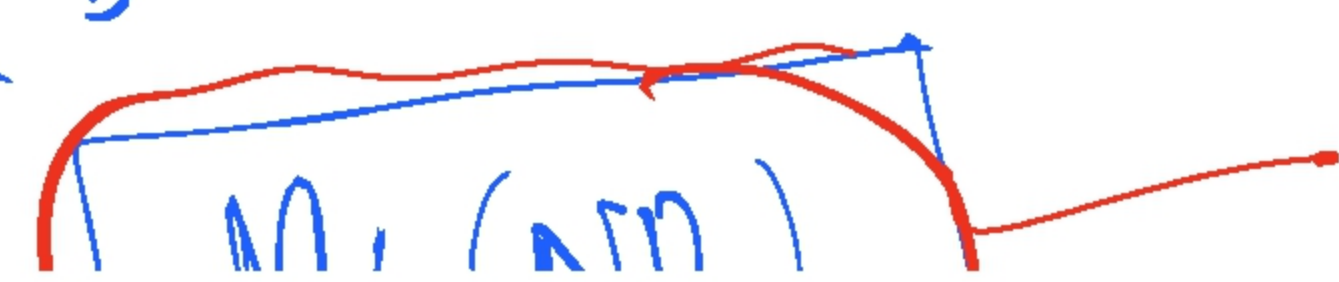
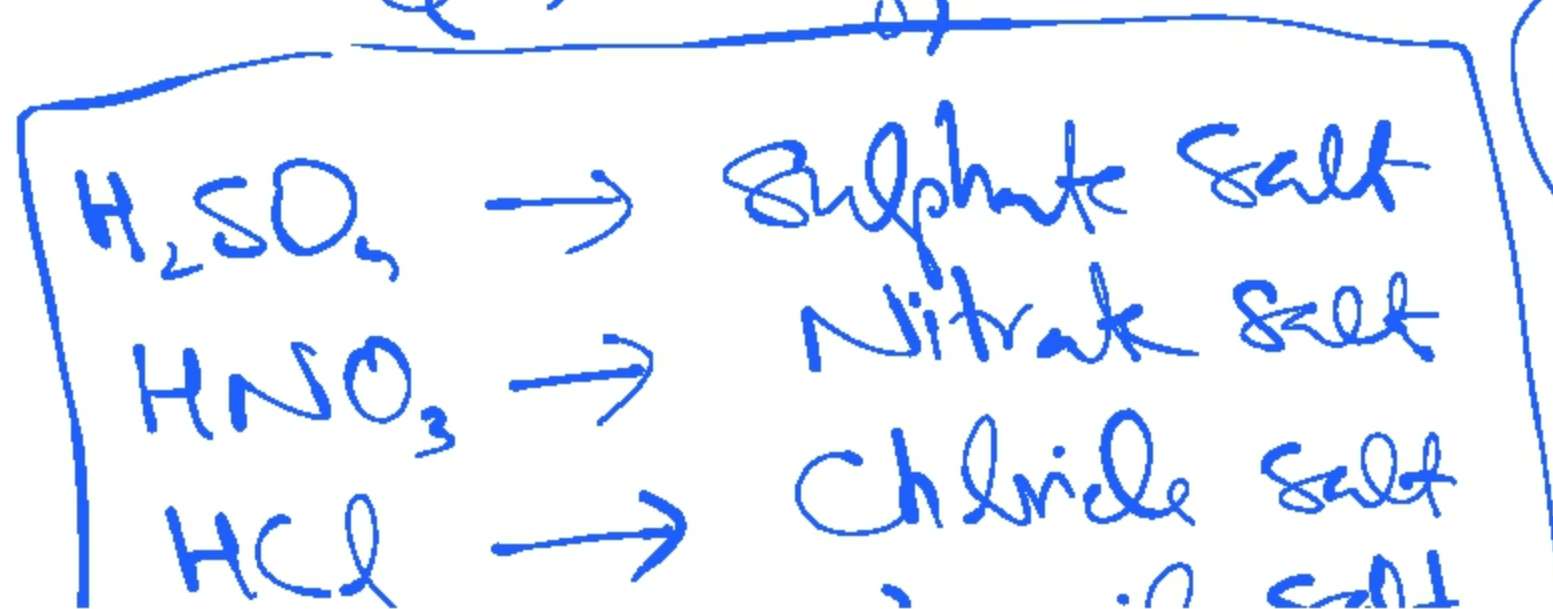
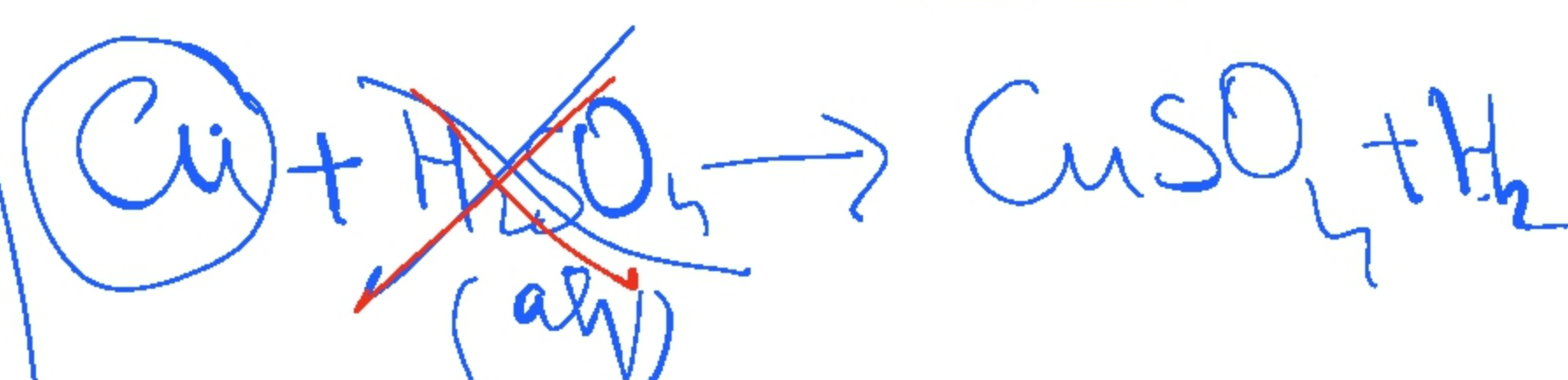
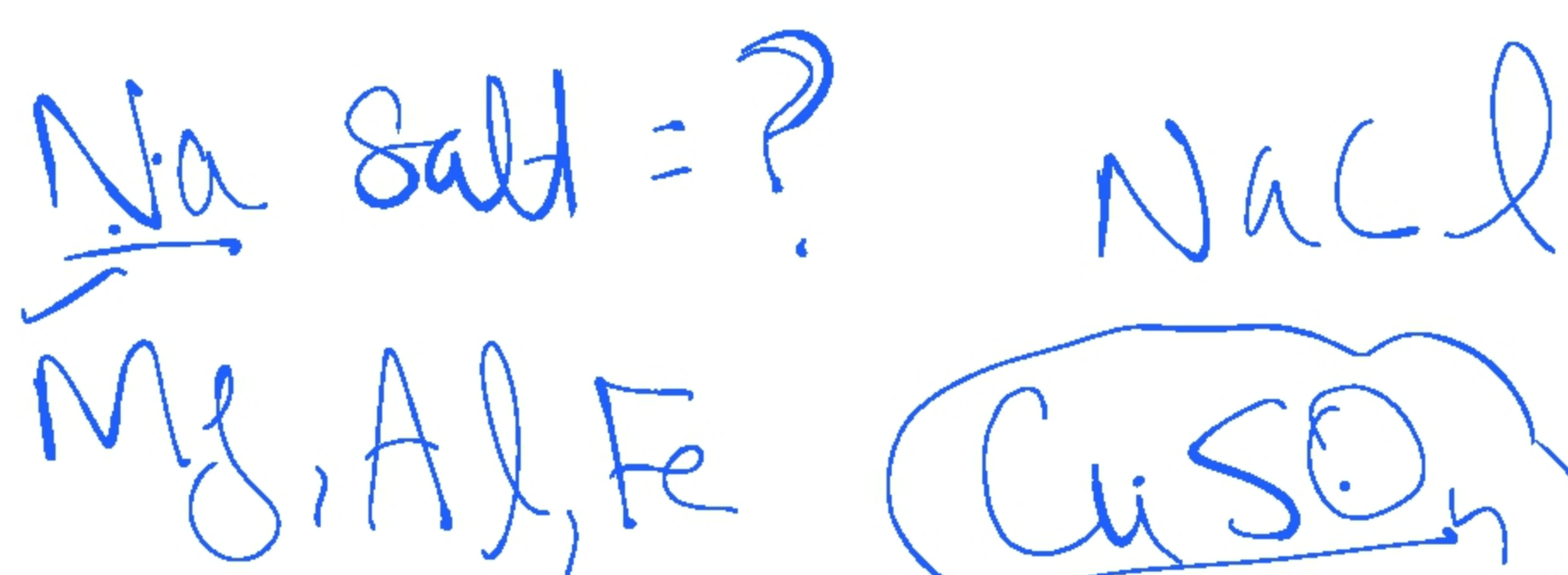
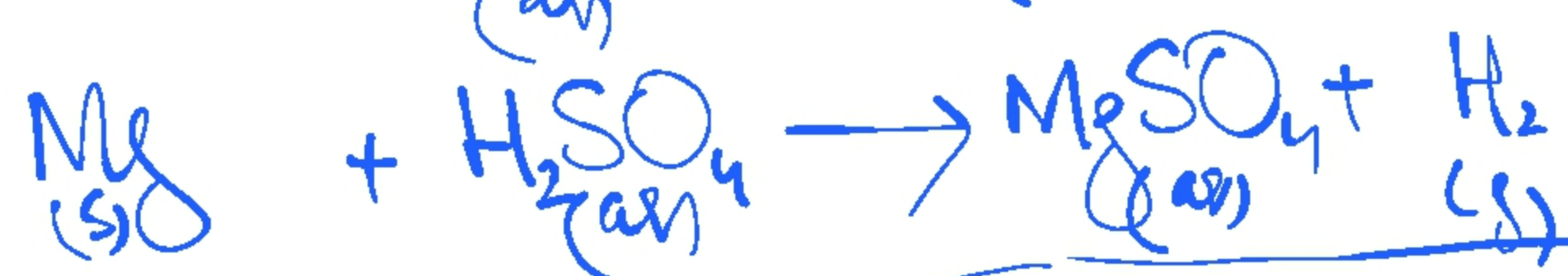
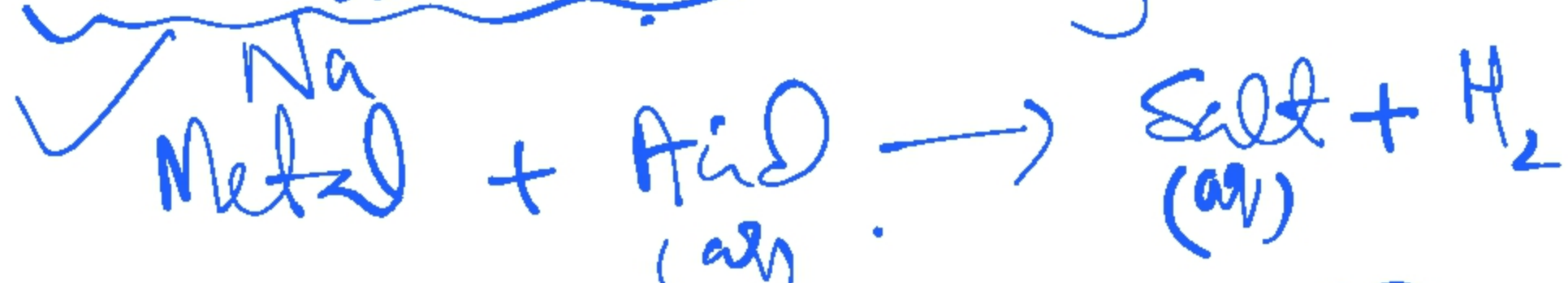
SO_2 Oxides CO CO_2
 Compound containing oxygen with another element.



Salt Making



Excess Method Using Metal



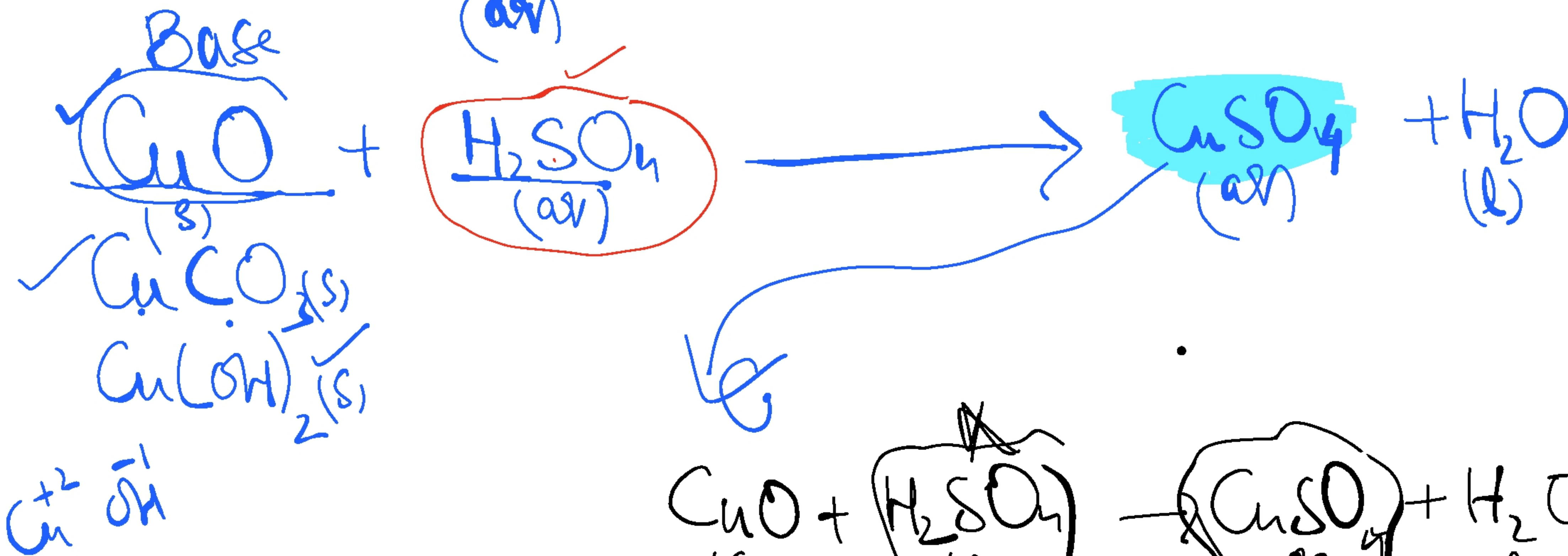
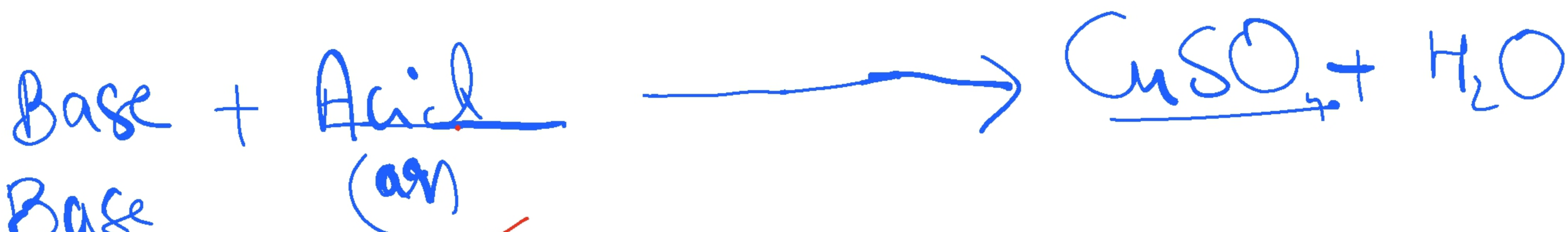
1 Why Metal / Metal hydroxide / Metal oxide / Metal carbonate in excess amount?
 To make sure all the acid reacted

2. How you will know all acid is used
 fizzing will stop

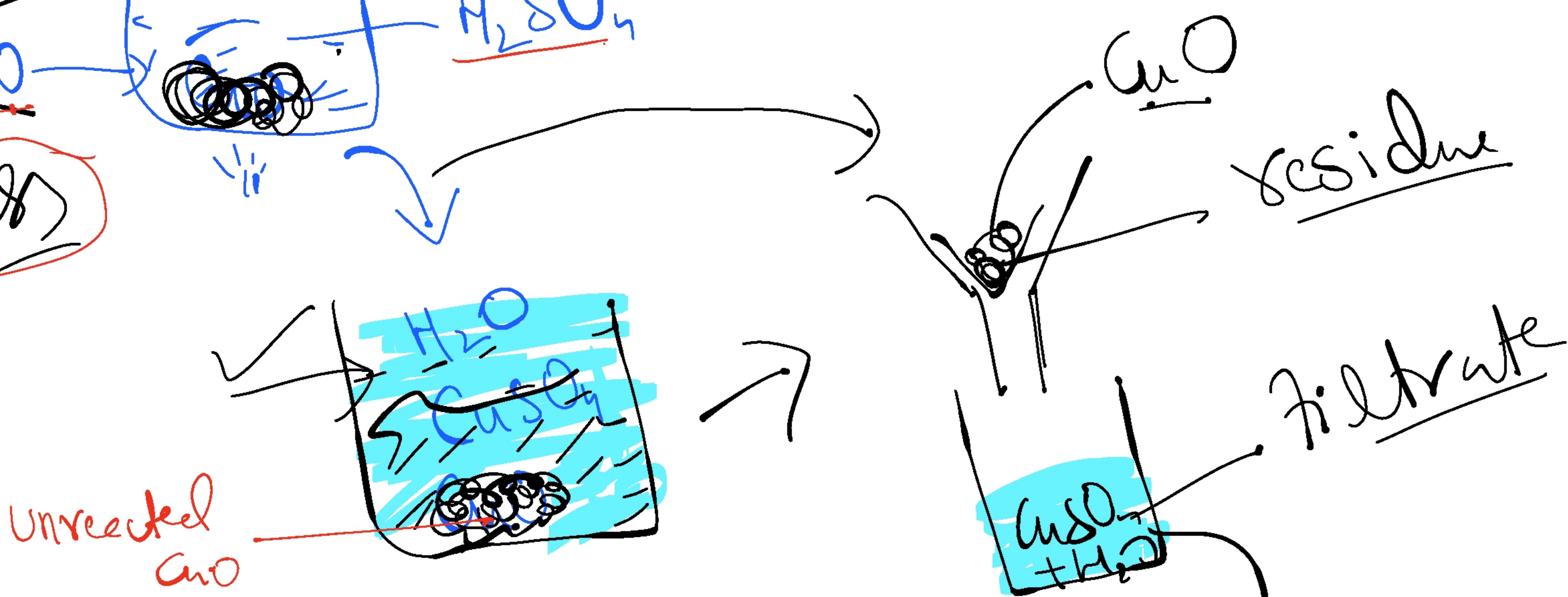
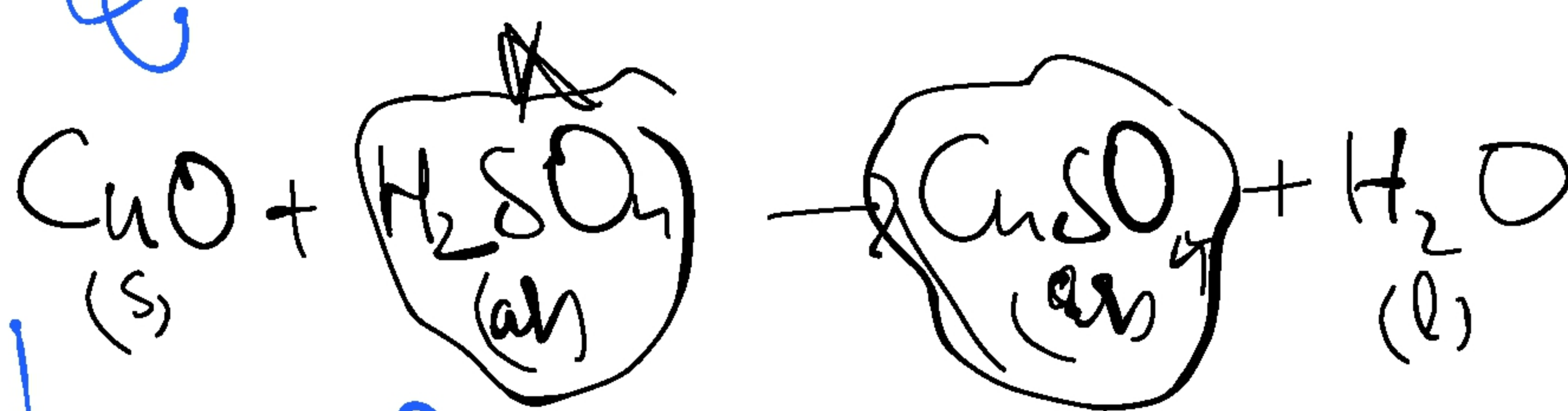
$\text{HBr} \rightarrow \text{Kimmer}$
 $\text{Mg} + \text{HNO}_3 \rightarrow \text{Mg(NO}_3)_2$
 $\text{Mg} + ? \rightarrow \text{MgCl}_2$

Cu is unreactive
 Cu + Acid $\nrightarrow$

excess Method Using
 Metal oxide / hydroxide / Carbonate
 CuO / Cu(OH)_2 / CuCO_3



excess amount
 CuO
 excess



3 Pathe + 8 brack shw $\rightarrow$ sand
 excess

evaporating dish $\rightarrow$ dm your crystals

Drying ~~by~~ your crystals
by using oven?

b/w tubes of
filter paper

$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ (hydrated salt)

Having H_2O chemically combined

Using oven will evaporate this H_2O

So making your salt anhydrous

When hydrated loses its H_2O of
crystallization

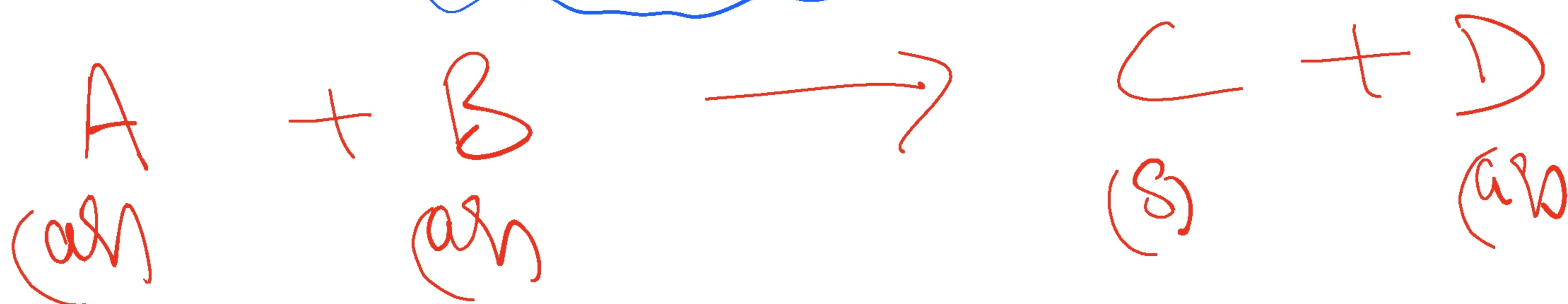
Water of crystallization ~~then~~ salt
having fixed H_2O molecule in their

chemical formula



~~titrati~~ Insoluble Salt

Both reactants must be soluble



Solubility Rule

- All nitrate salts are soluble (aq)
- All sulphate salts are soluble except Ca Ba Sr Insoluble (s)
 $CaSO_4, BaSO_4, PbSO_4$

- All halide salts are soluble except Si Pb Hg

Si Pb
silver lead

Mercury

AgCl
AgBr
AgI

PbCl₂ 9A
PbBr₂ 10A
PbI₂

F₂
Cl₂
Br₂
I₂

F^{-}
 Cl^{-}
 Br^{-}
 I^{-}

Halides

