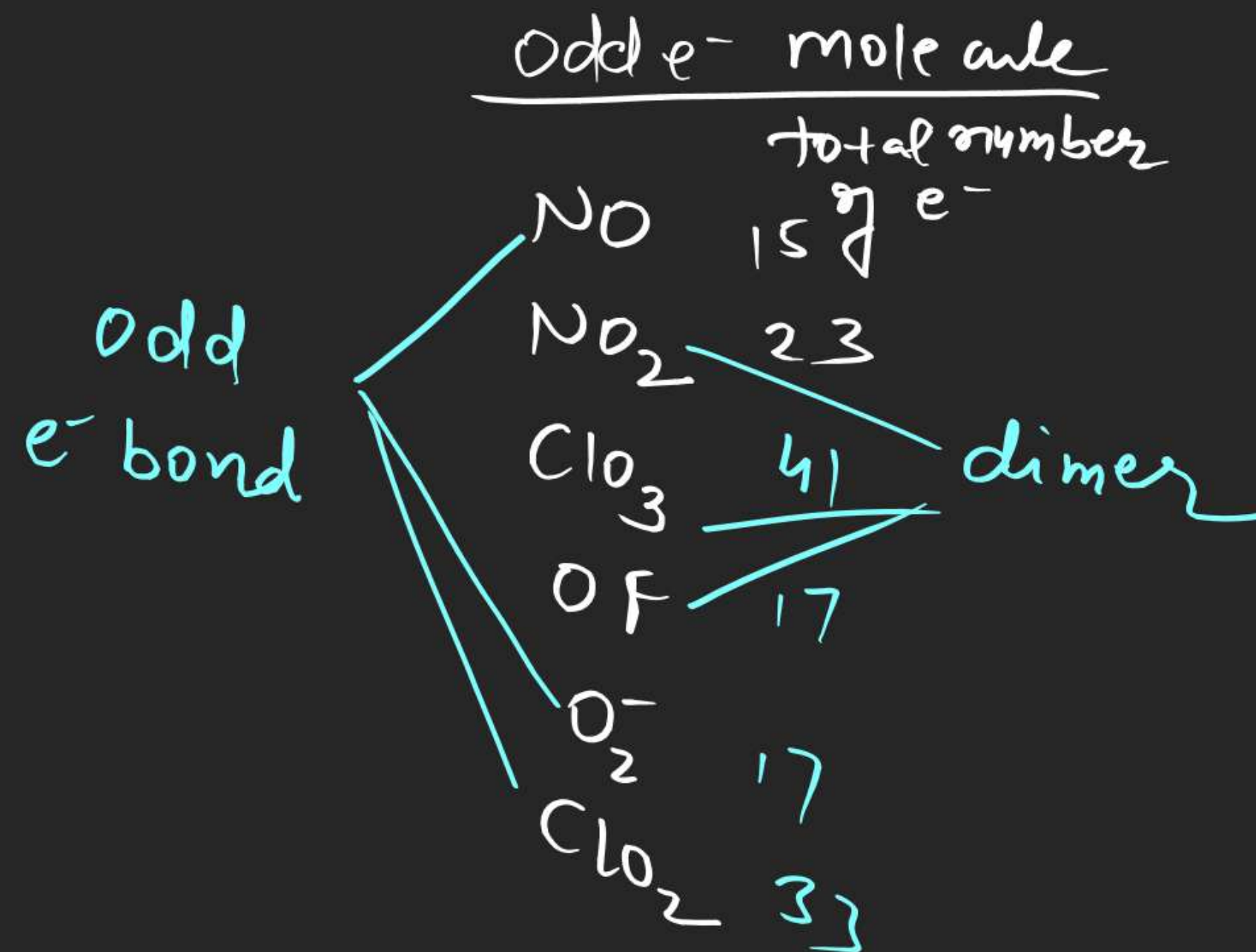


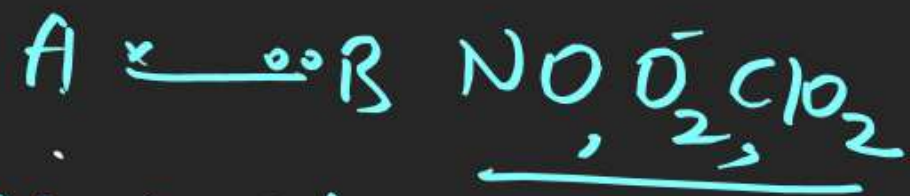
CHEMICAL BONDING





type of odd e^- bond

example H_2^+ N_2^+



odd e^- bond is type σ as well as π bond

Bond order of simple covalent bond is one

bond order of odd e^- bond is 0.5

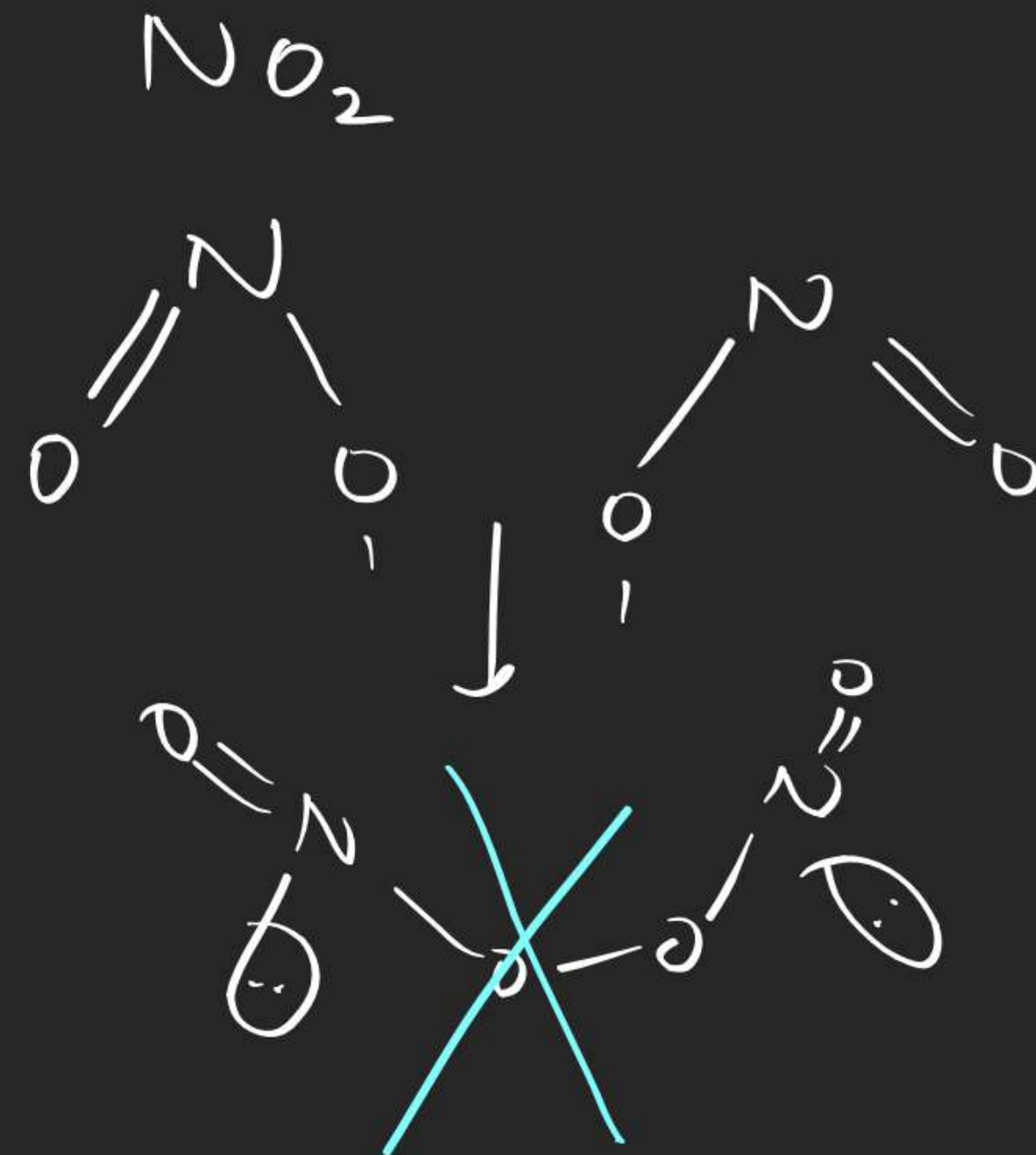
all odd e^- molecules are paramagnetic

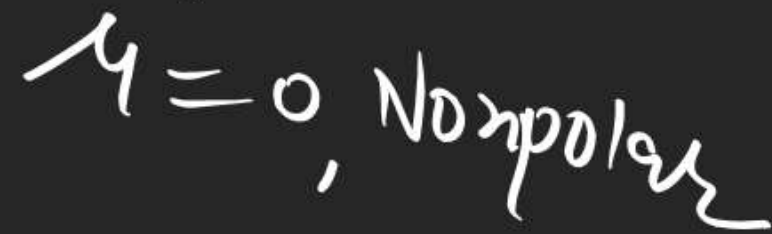
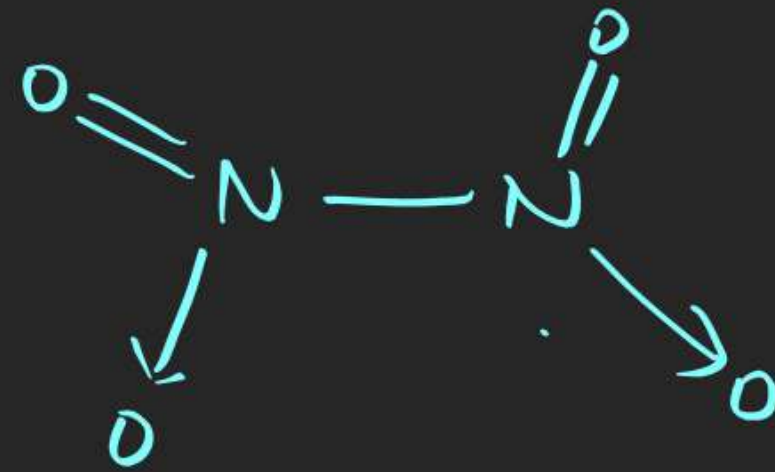
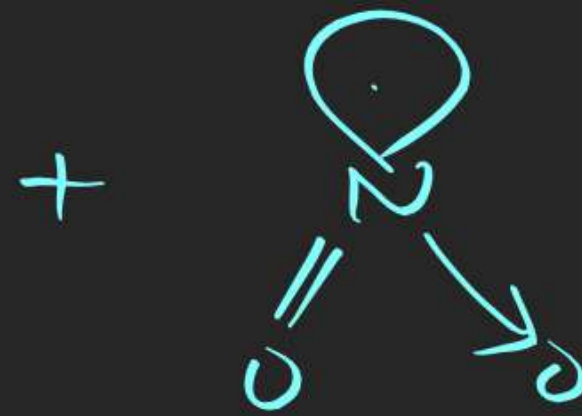
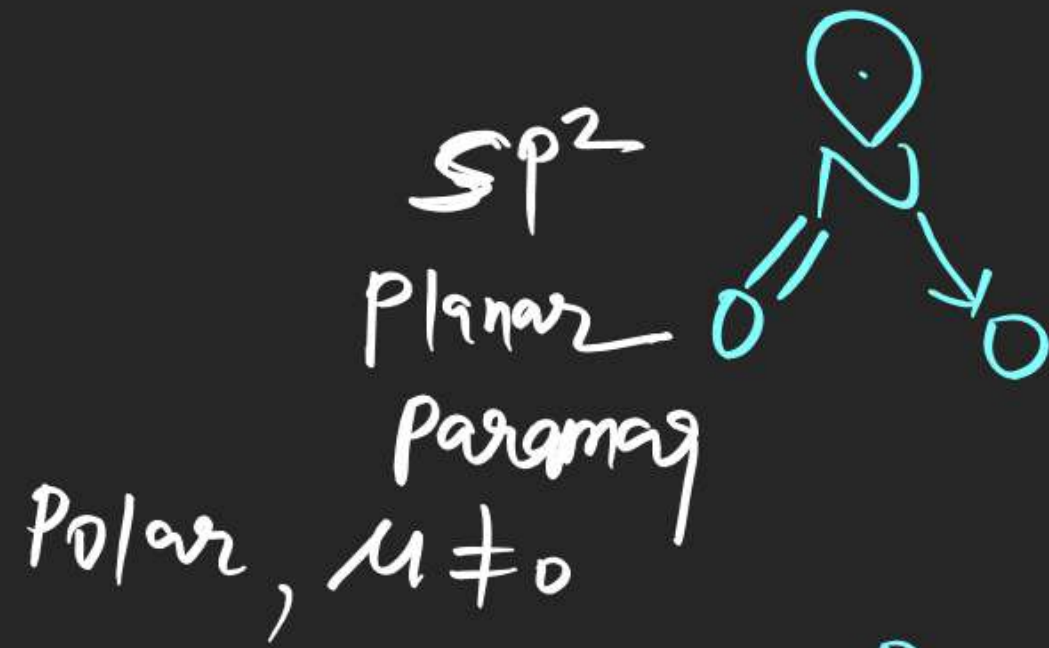


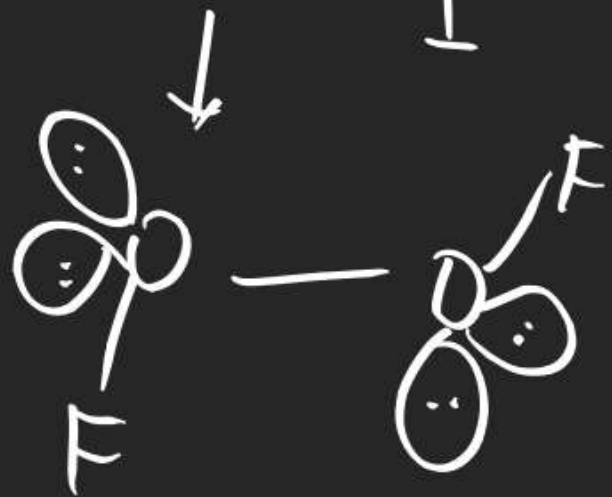
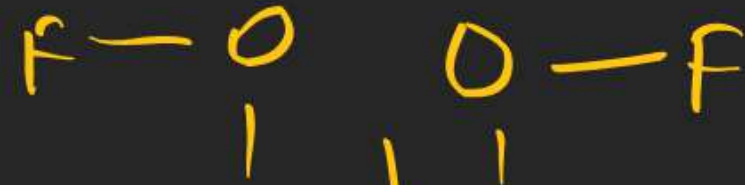
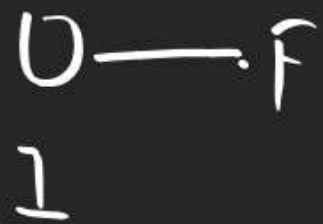
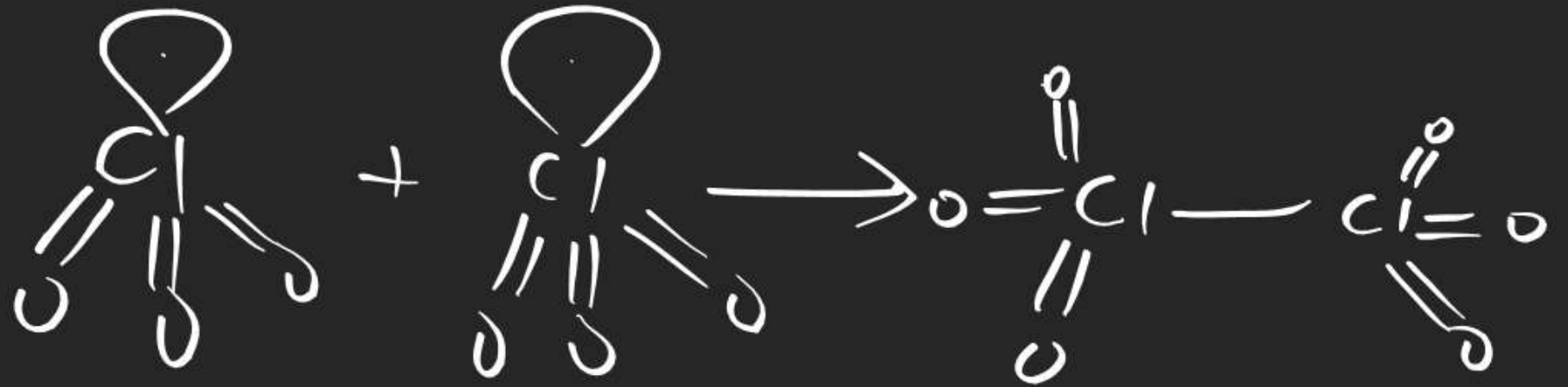
$$\begin{aligned} \text{B.O.} &= 1 + 1 + 0.5 \\ &= \underline{2.5} \end{aligned}$$

Paramag.

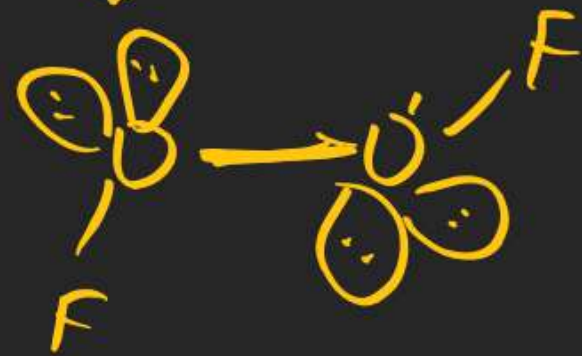
Ques NO has loose dimer why?
because of odd e^- bond.







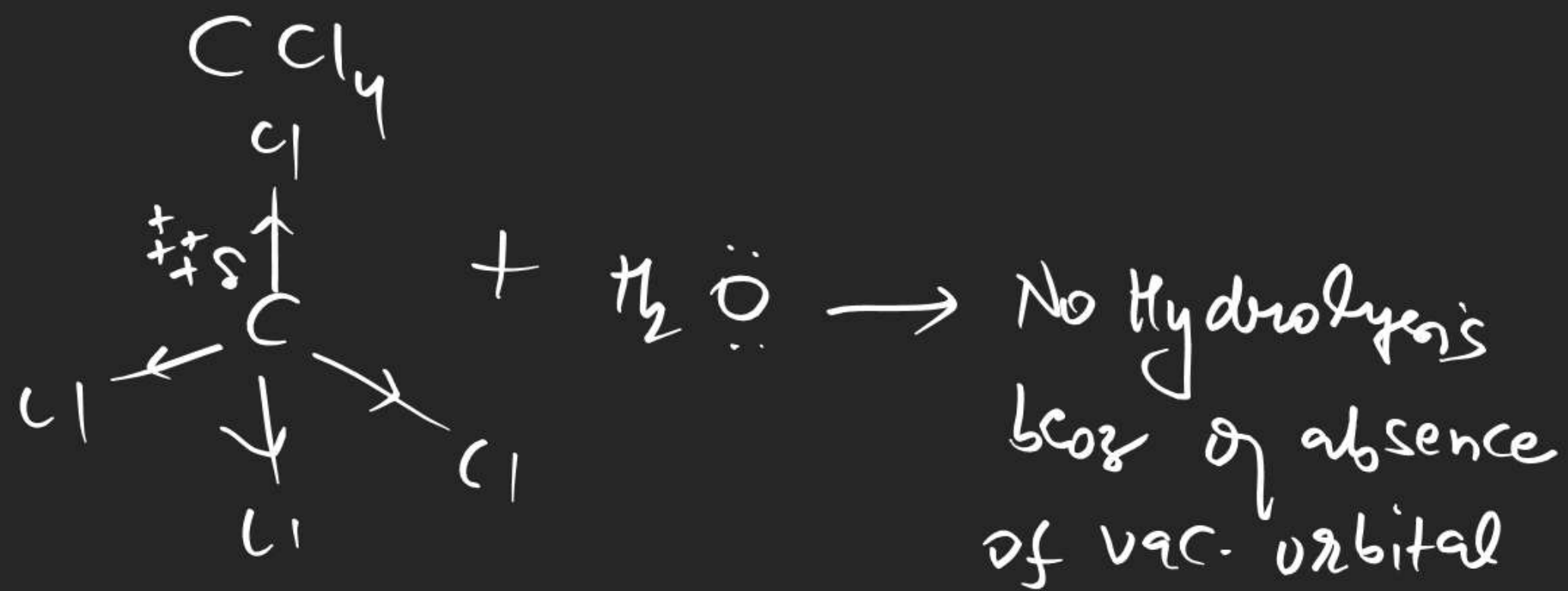
open book like structure

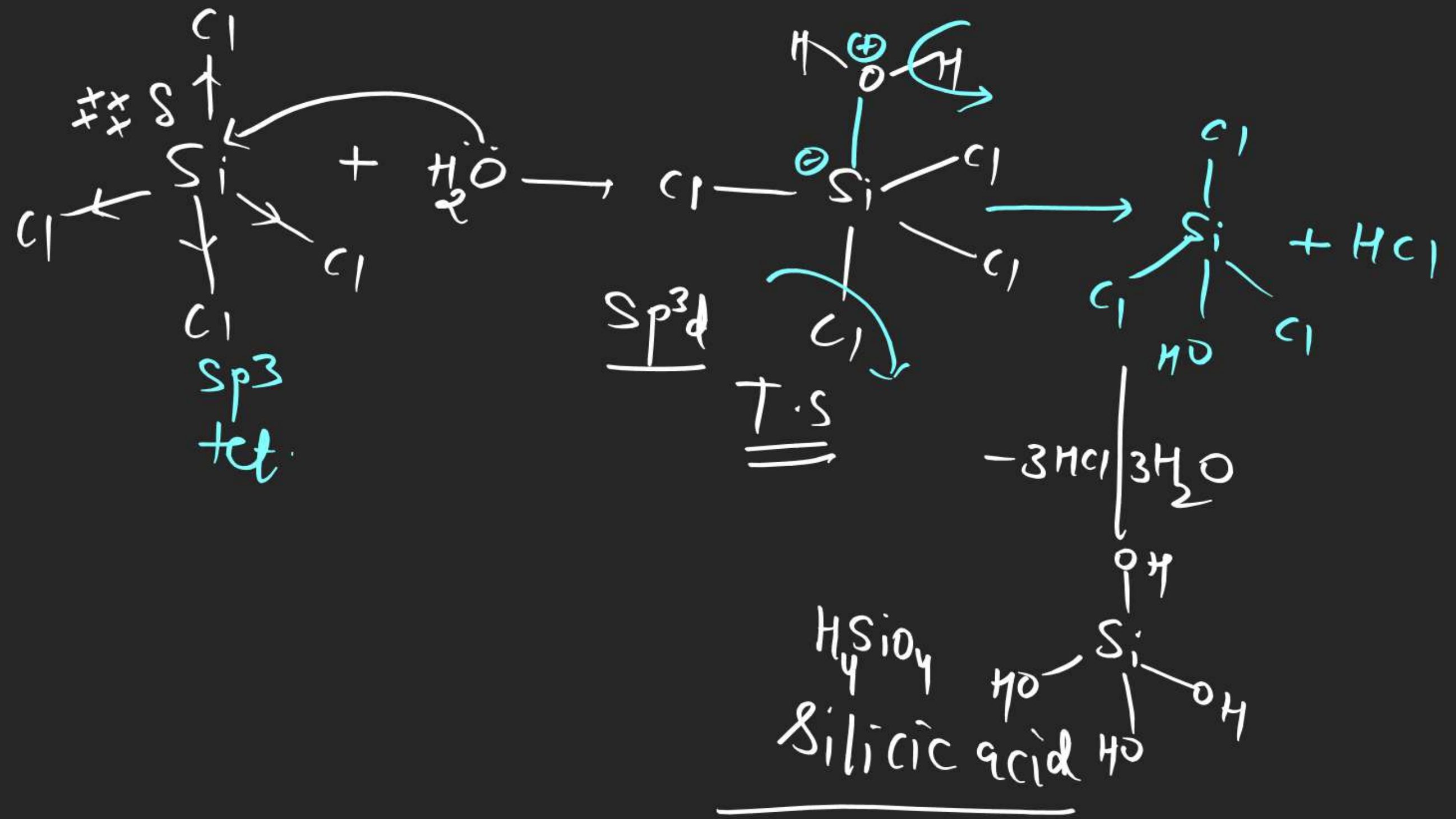


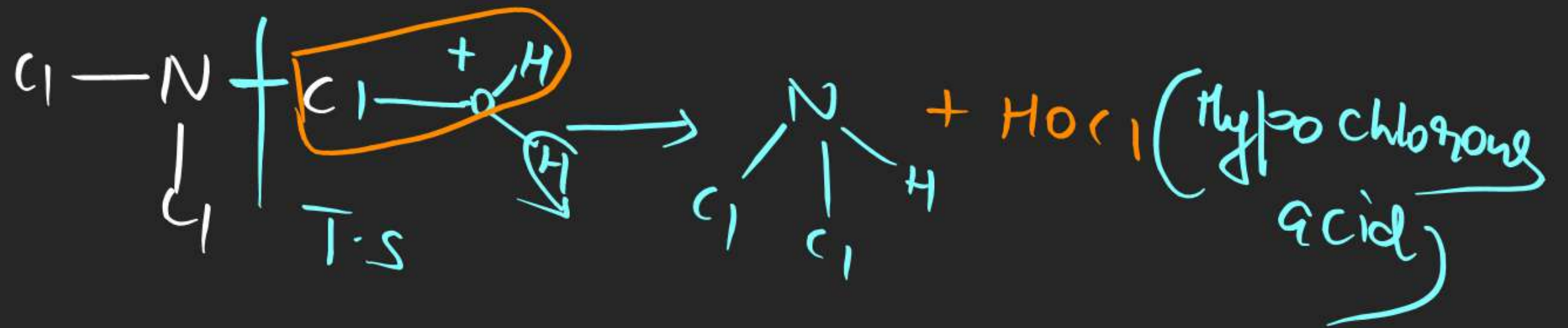
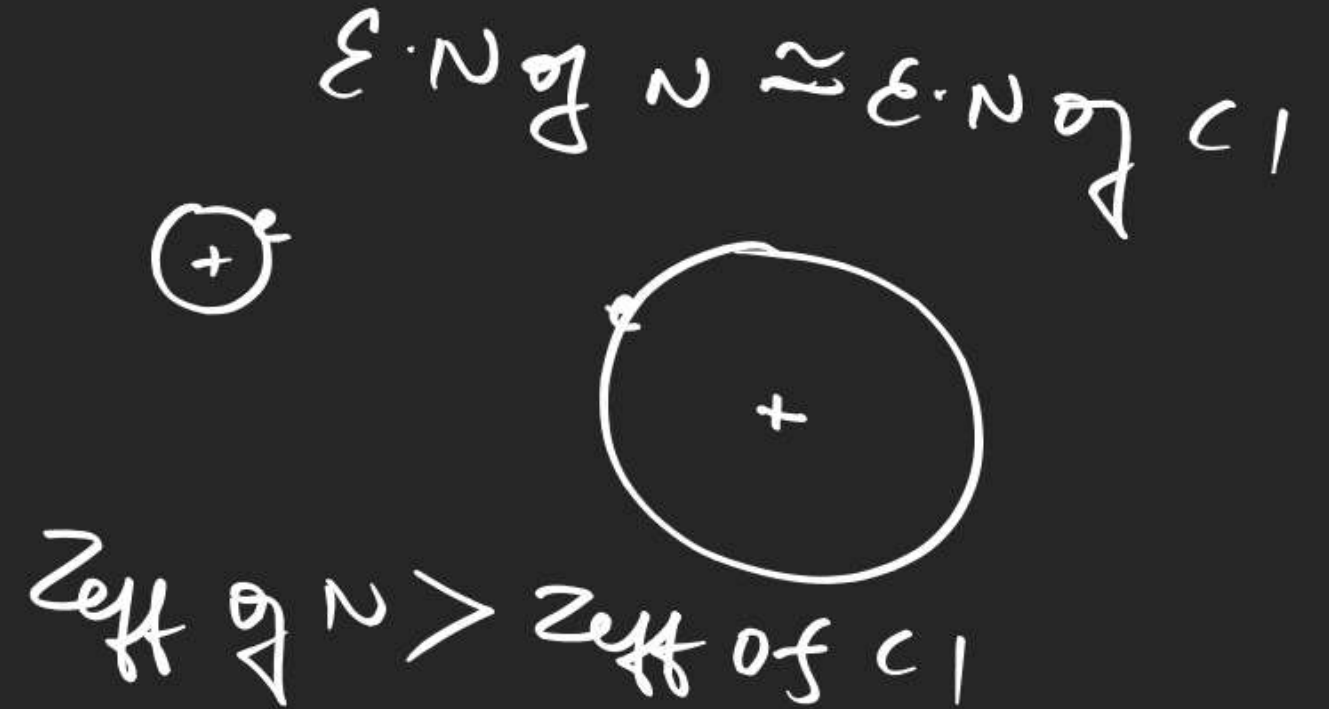
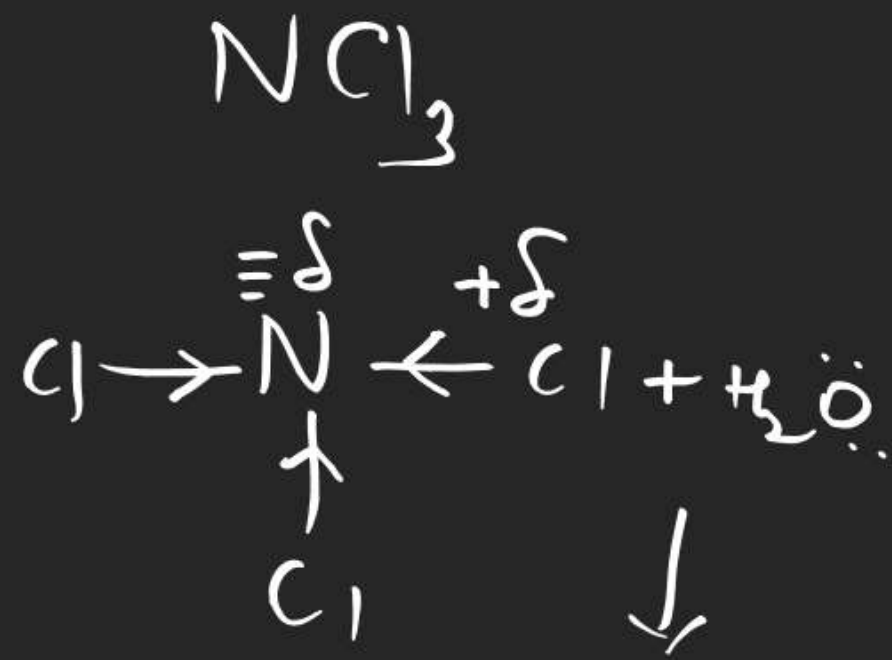
Hydrolysis

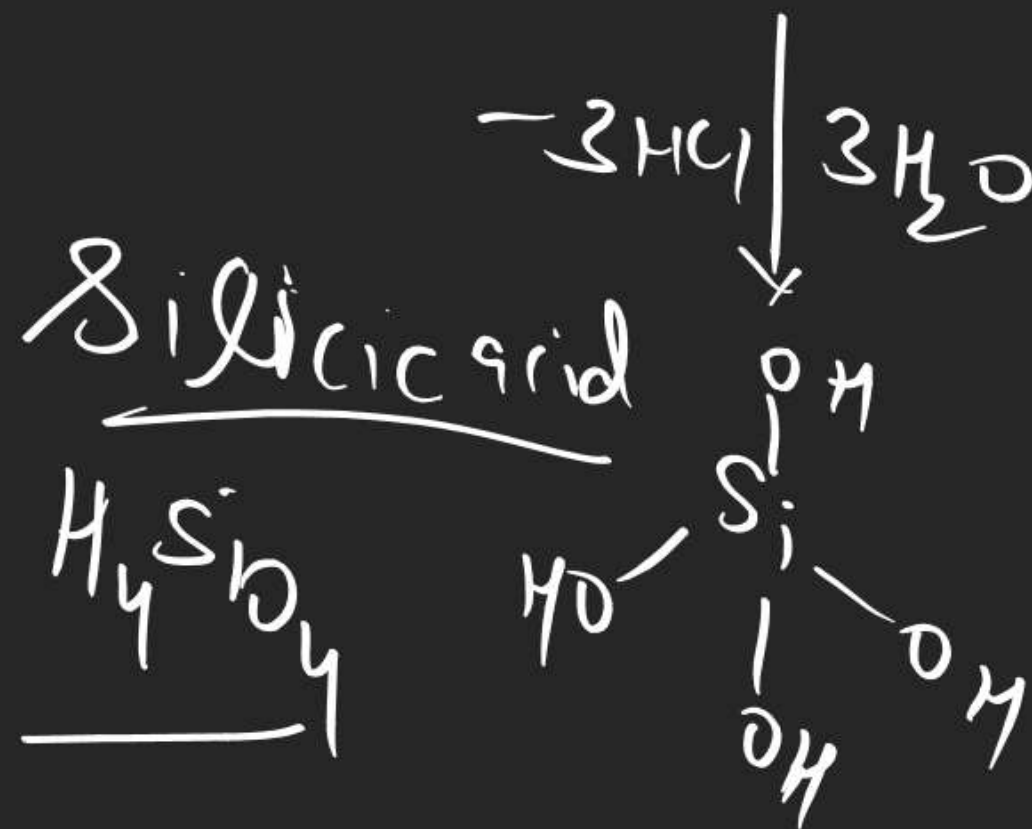
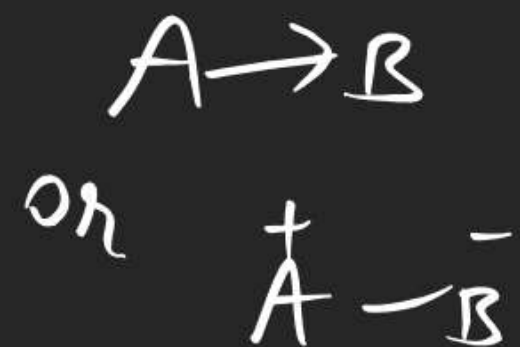
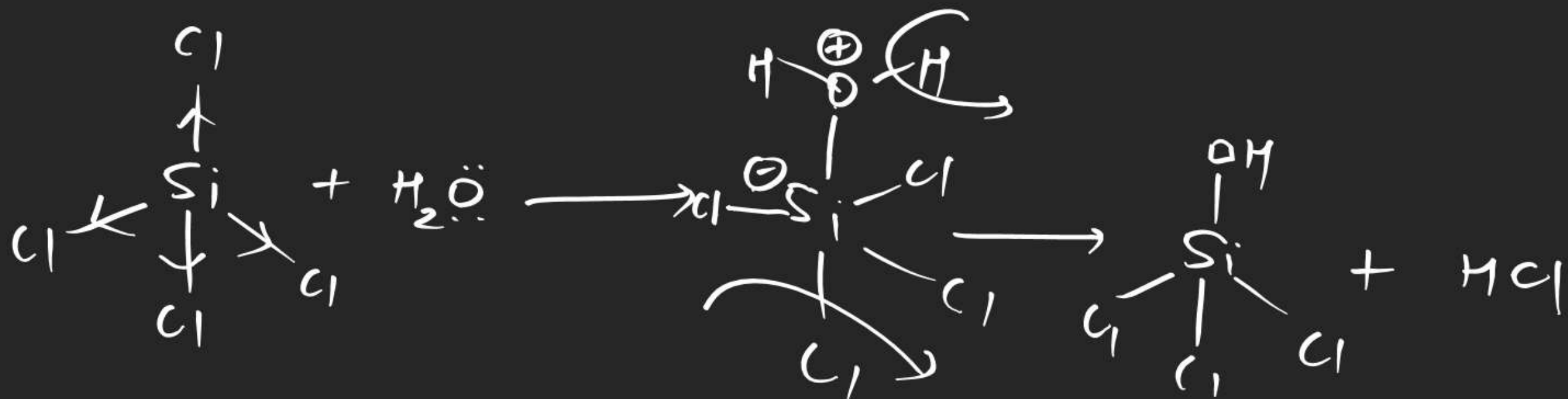
Condition of Hydrolysis

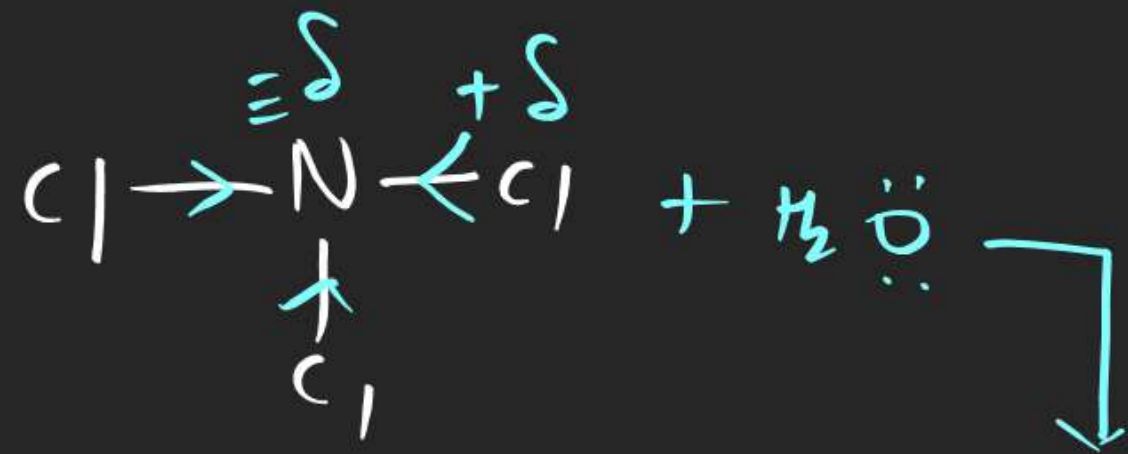
- ① +ive charge and vac. orbital should be present on same atom
- ② Steric crowding min.



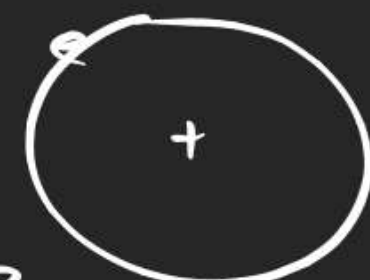




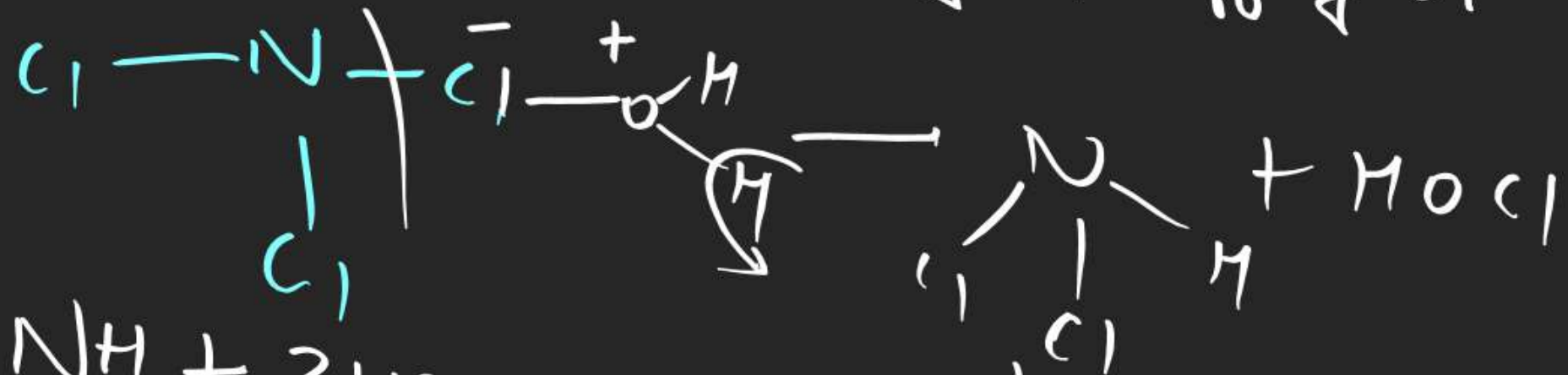




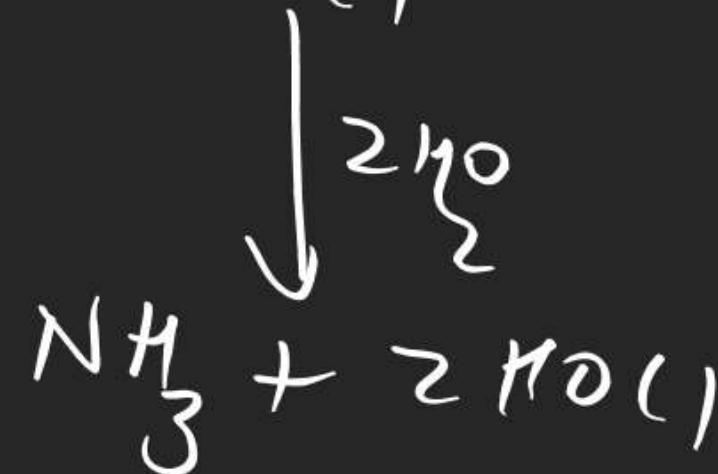
Electronegativity of N \sim Electronegativity of Cl

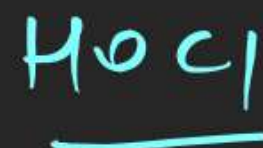
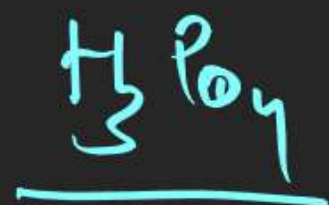


Effective nuclear charge of N $>$ Effective nuclear charge of Cl



(hypochlorous)

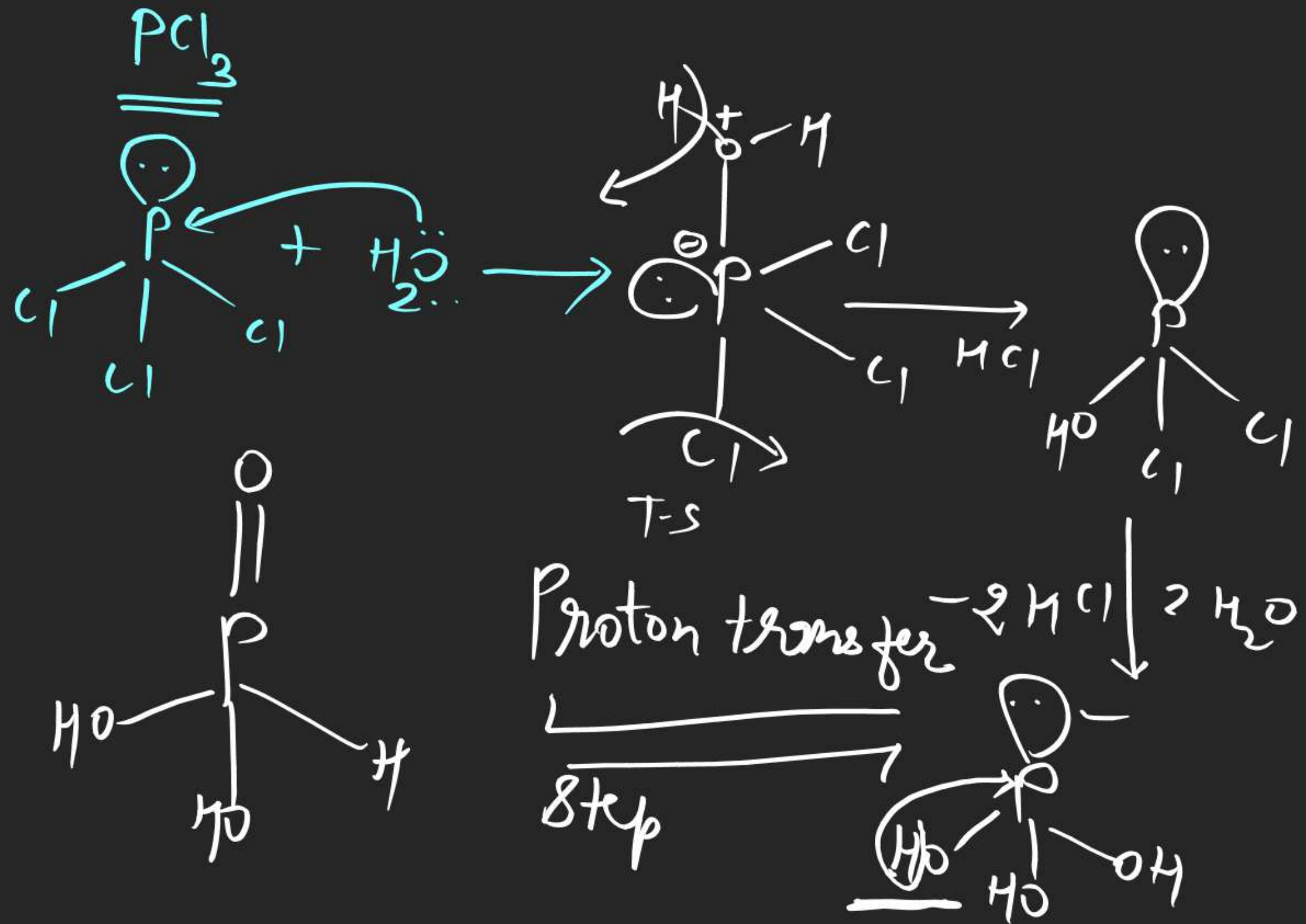




basicity \Rightarrow number of ionisable hydrogen

basicity \propto number of hydrogen

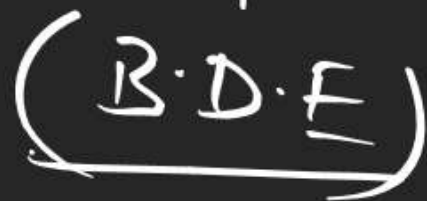
Hypophosphorous acid	H_3PO_2	1
Phosphorous acid	H_3PO_3	2
Pyrophosphorous acid	$H_4P_2O_5$	2
Boric acid	H_3BO_3	1



Condition of Proton transfer step

$$(2P_A - 2P_B)(2P_A - 3d_A)(2P_A - 3P_B)$$

$$\textcircled{1} \quad P = O > P - O$$

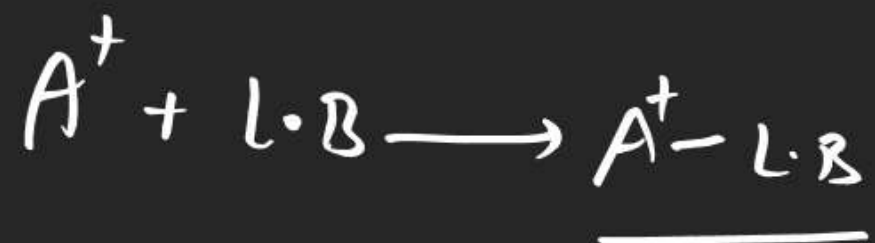


② atom should have l.p

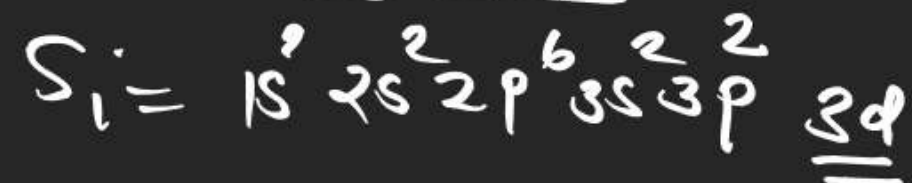
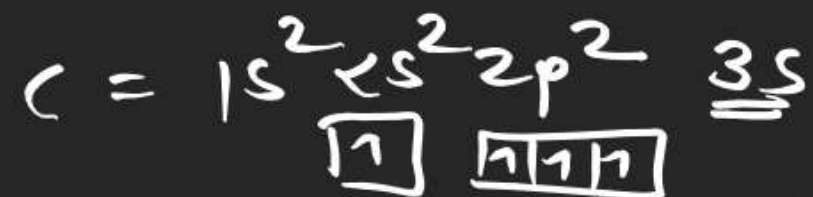
③ acidic Hydrogen should be present

S_N^1

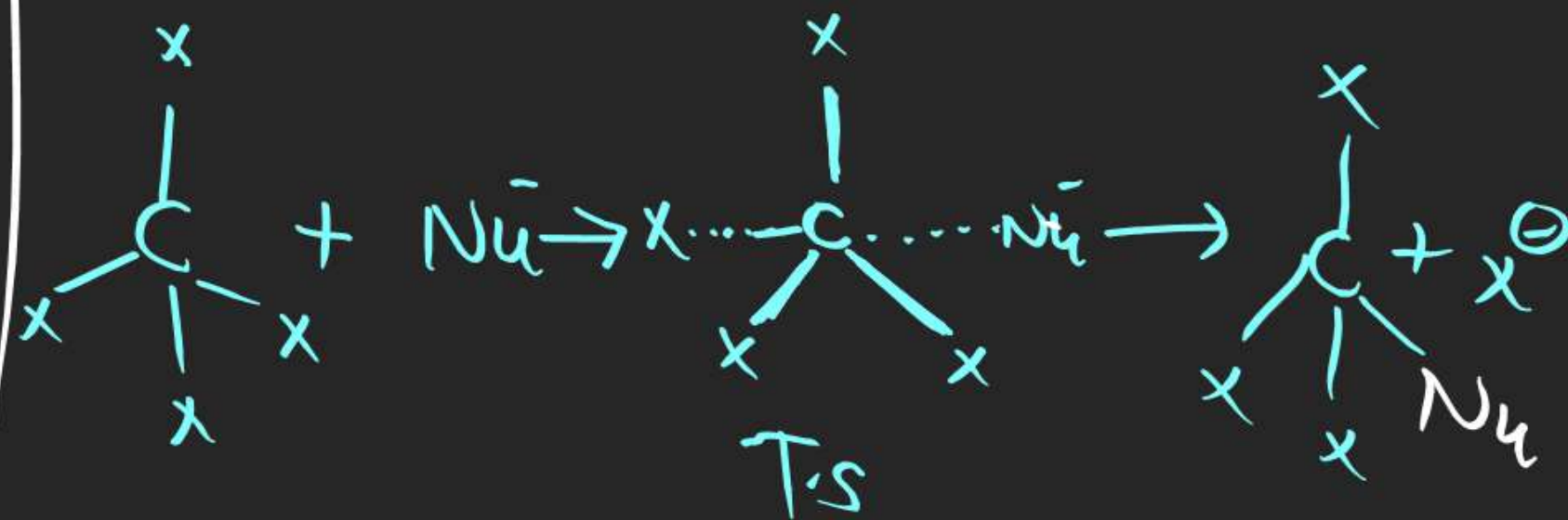
two step reaction
Cation and anion formed

 S_N^2

one step
reaction



T.S



O_2^- (superoxide)



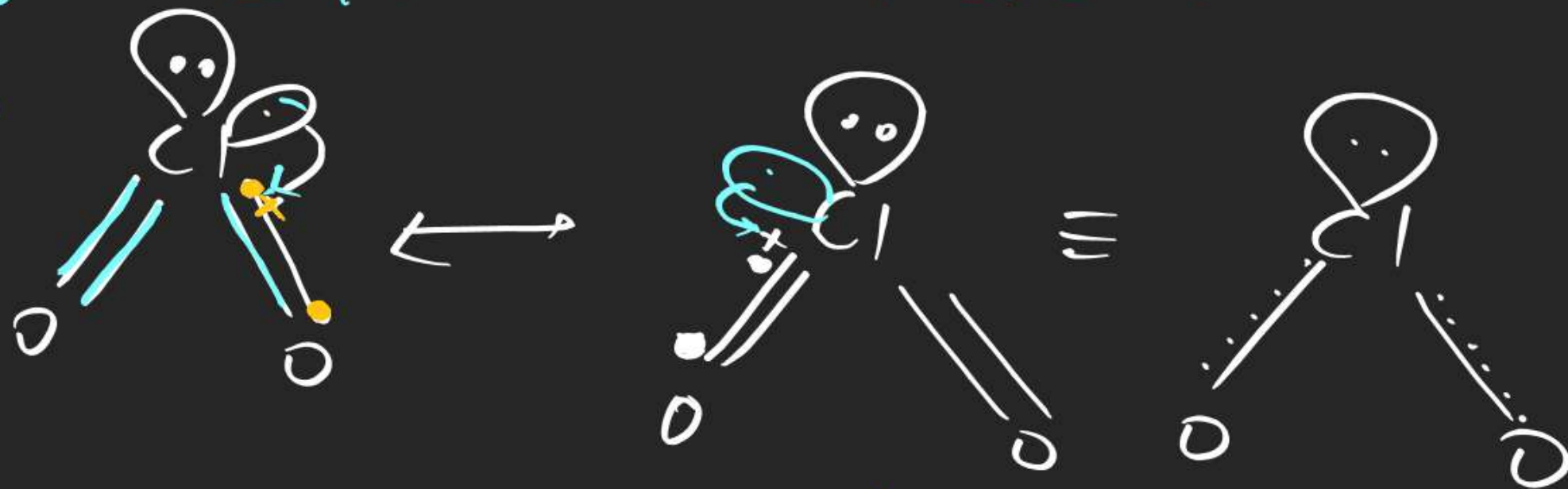
$$\begin{aligned} \text{B.O} &= 1 + 0.5 \\ &= 1.5 \end{aligned}$$

odd e^- of ClO_2 present in 3d orbital

Planar, sp^2

$\mu \neq 0$

Polar



$$\text{B.O} = \frac{3.5}{2} = 1.75$$

$$1.5 < \text{B.O} < 2$$

Note \Rightarrow $\text{Cl}-\text{O}$ bond length
identical

