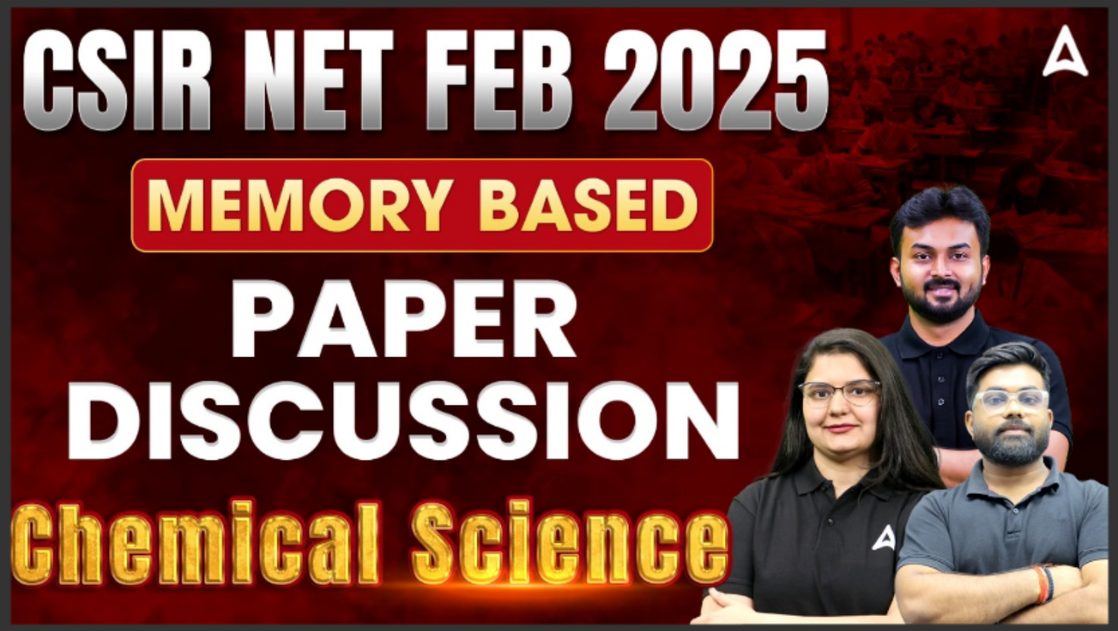
CSIR NET FEB 2025
MEMORY BASED
PAPER
DISCUSSION
Chemical Science

Send Your Question

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$SRP \rightarrow La^{3+}$

$S = nR\ln w$

11.53

D & P terms for p^3

$T=0$, $S = nR\ln w^{2}$

ω, $w=2$, $S = 2 \times R\ln 2$

$S = 11.52 / 11.53$

(*) Colloids → stability → Electric double layer / Stern potential.

10^{-9} m → 10^{-7} m.

r_{ion} → room

Part C - easy to moderate.

Part - B → moderate to tough.

(*) Solid State -

anion →
cation → } ratio

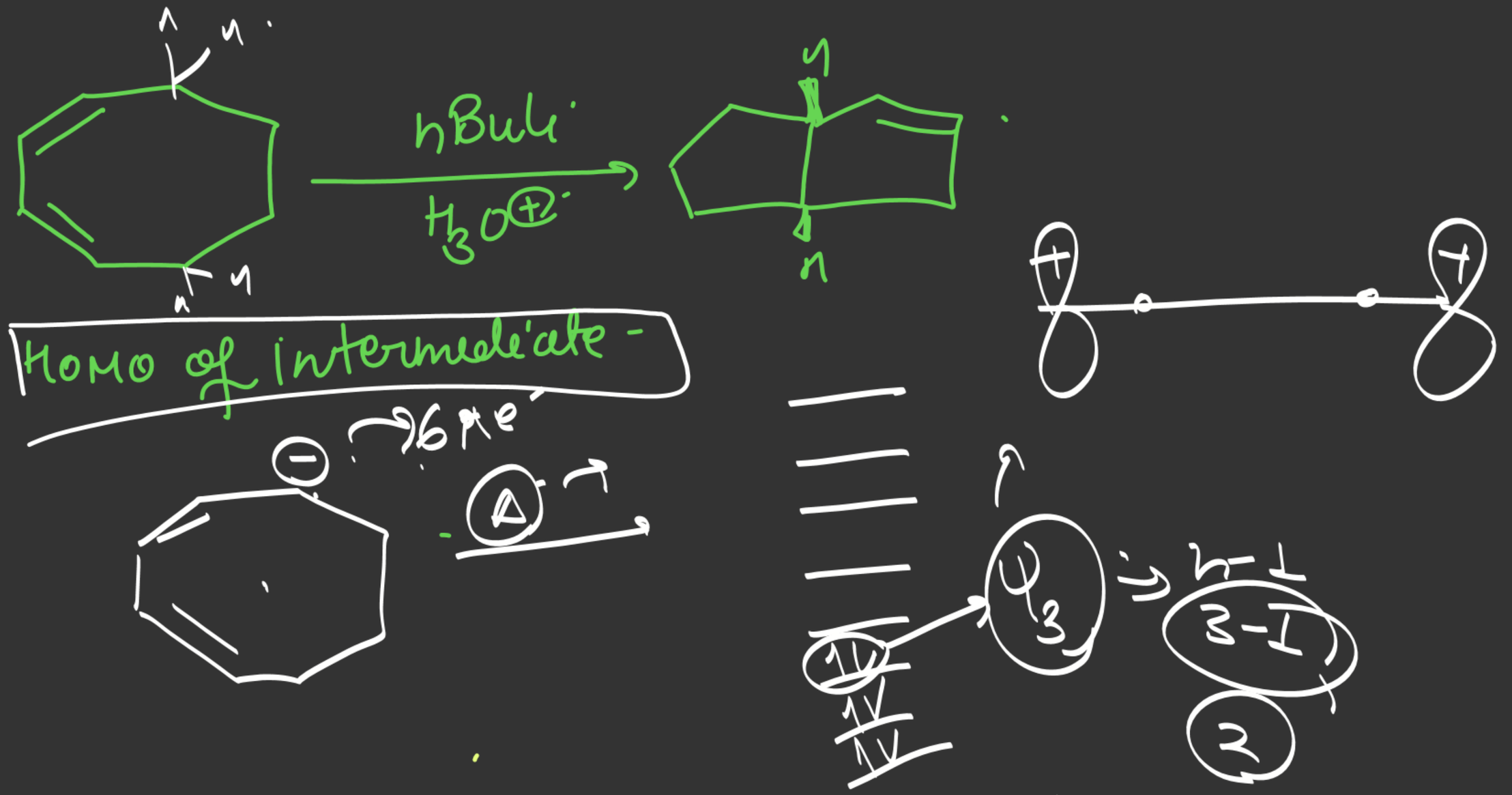
$\frac{74}{170} = 0.435$

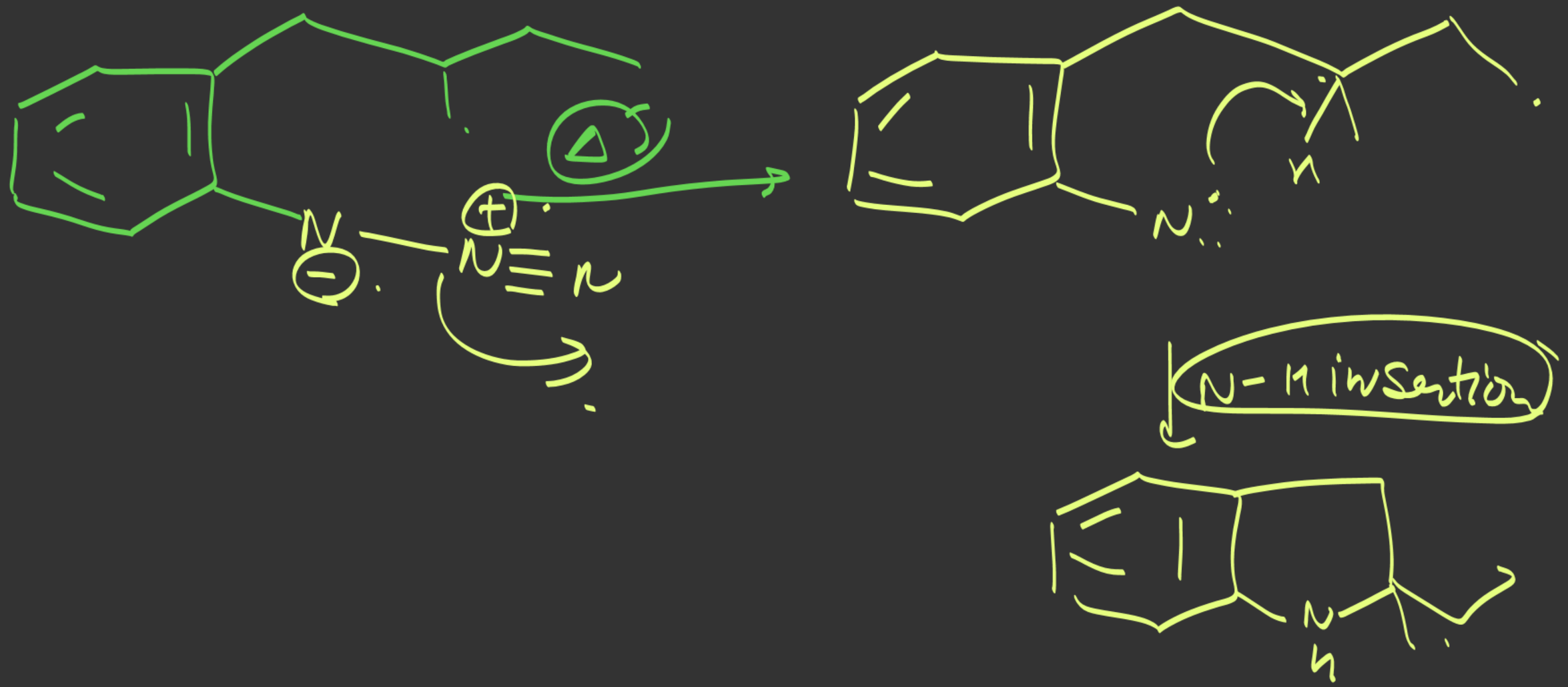
radius ratio

Geometry / Struct.

0.414 → 0.732 → oh 6

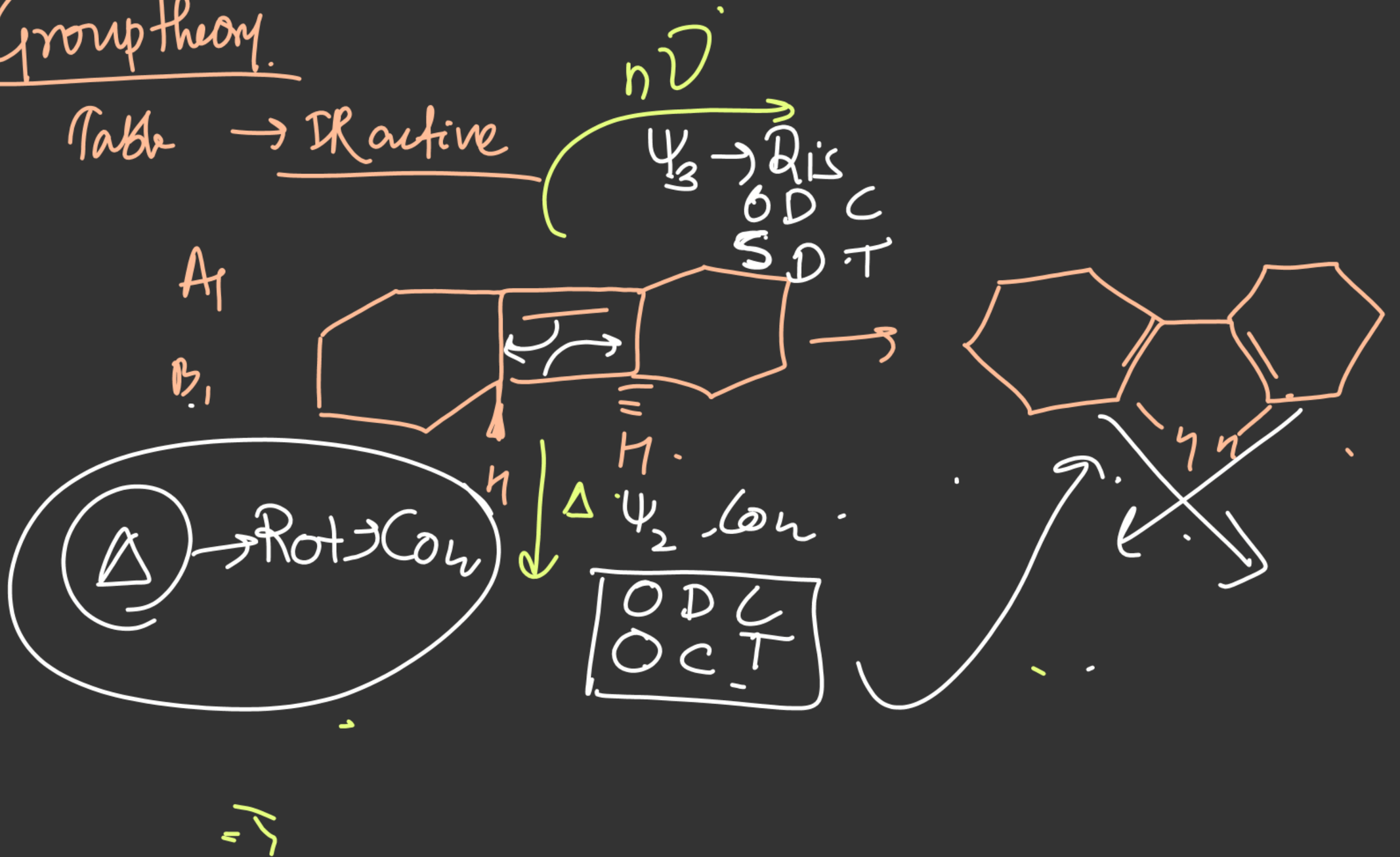
$\alpha - 1.6\beta$
$\alpha - 0.6\beta$
$\alpha + 0.6\beta$
$\alpha + 1.6\beta$


nBuLi
H_3O^+
HOMO of intermediate -
6 π e
A
ψ_3
ψ_2
ψ_1


N-H insertion

Group theory.

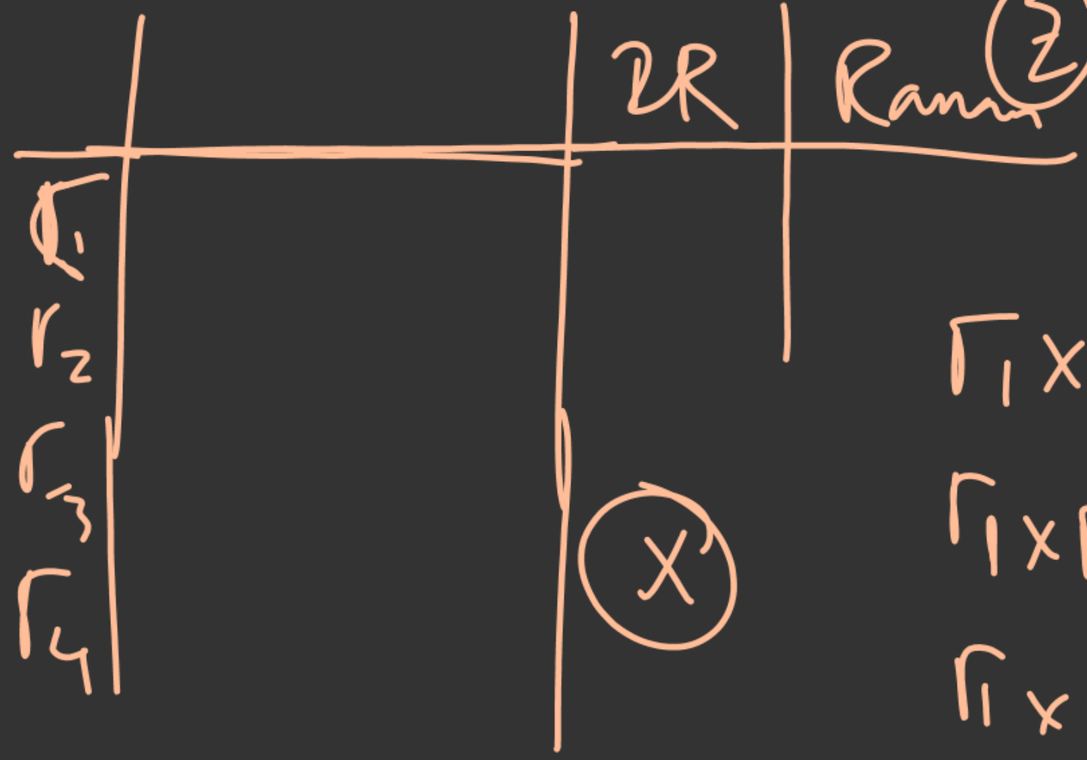
Table → IR active



⇒

$A_1 \times B_1 = B_1$

$A_1 \times B_2$



A_1
A_2
B_1
B_2

$r_1 \times r_2 =$ ○

$r_1 \times r_3 =$ ○

$r_1 \times r_4 =$ ○

Adiabatic

$PV^{\gamma} = \text{const}$

$TV^{\gamma-1} = \text{const}$

$t_{1/2} = ??$

1st order

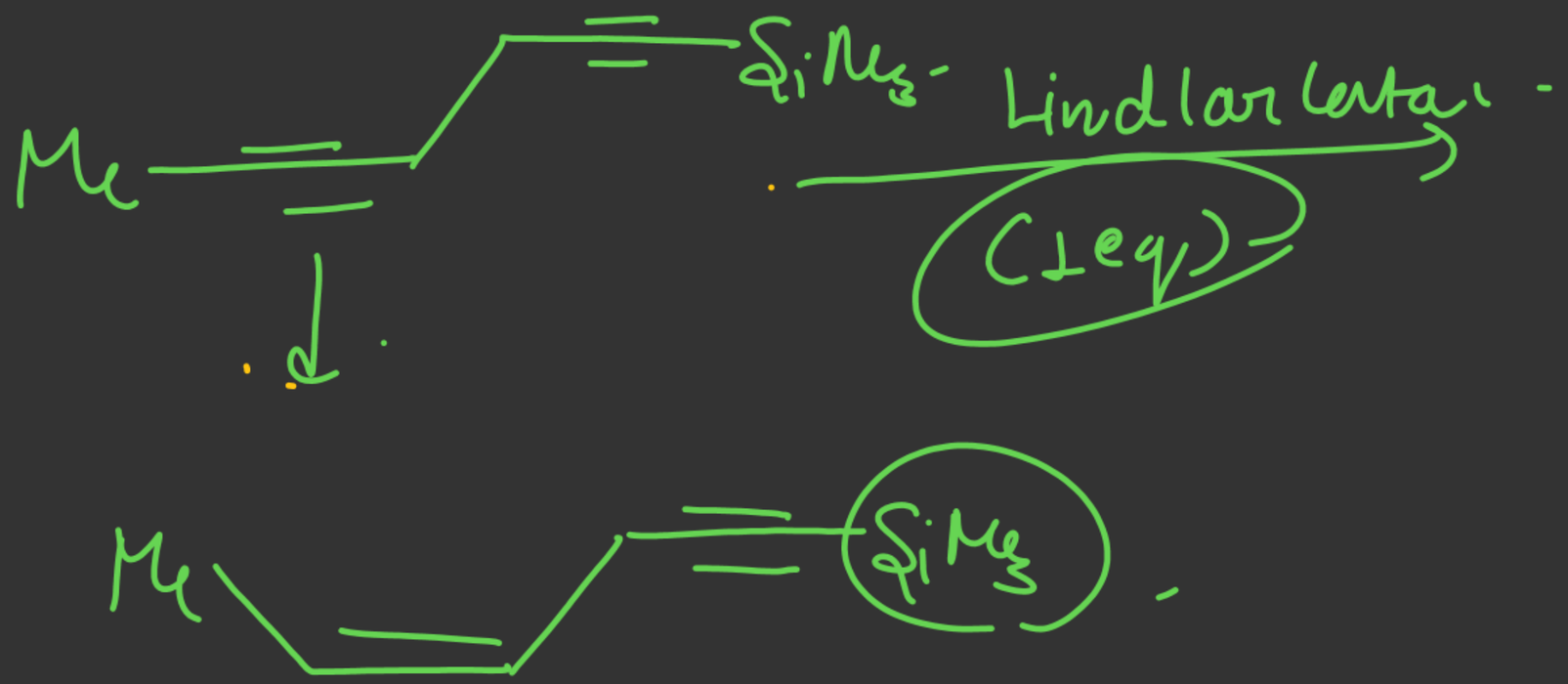
$A \rightleftharpoons B$

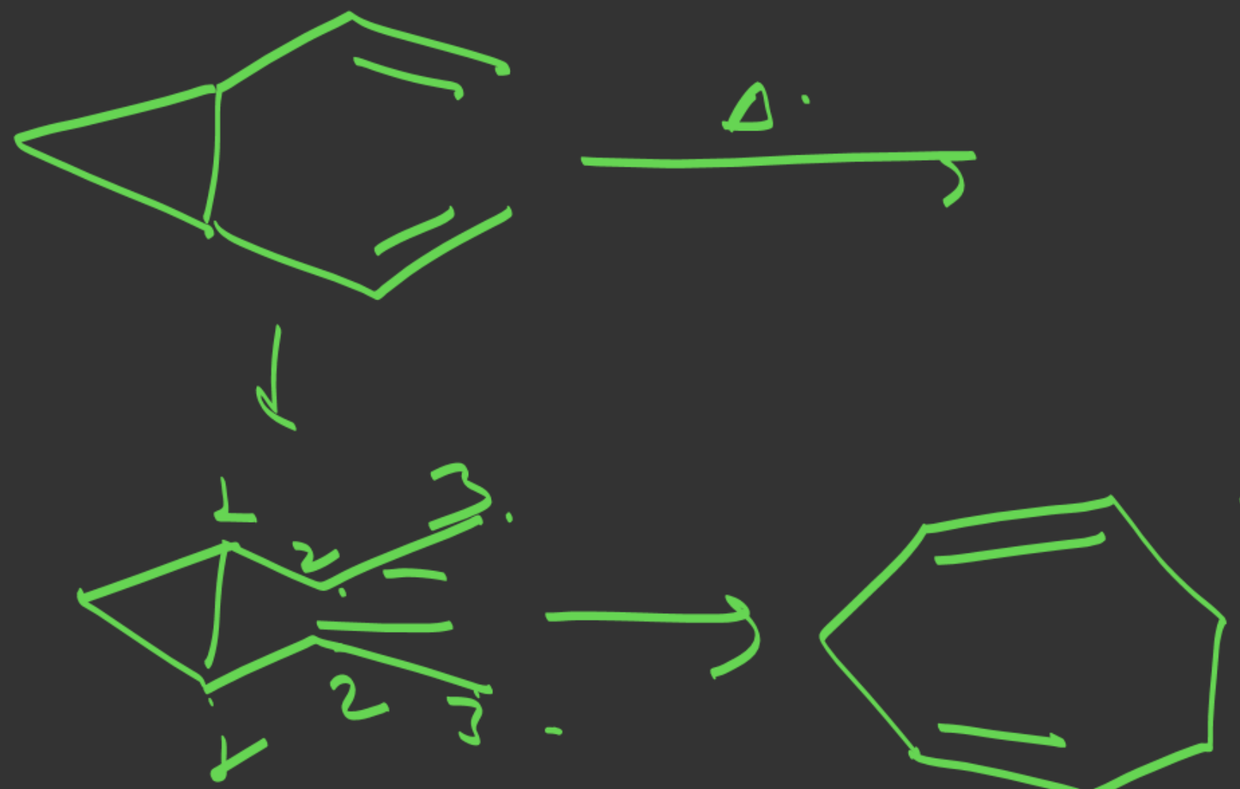
k_f & k_b

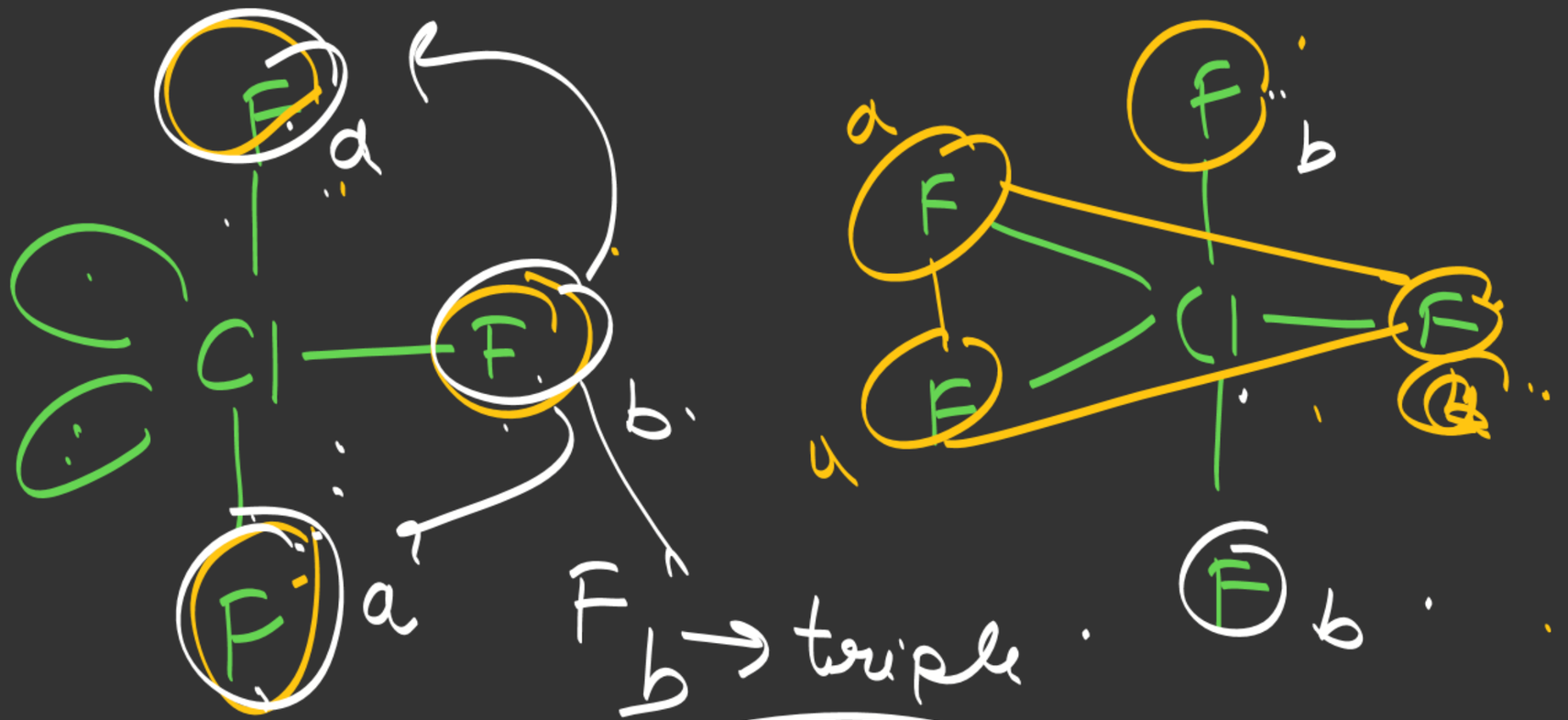
$t_{1/2} \propto \frac{1}{[A]_0^{n-1}}$

$\tau = 1/k_f + k_b$

SP AP


SiMe3
Me
Lindlar catalyst
(1 eq)
Me
SiMe3


Δ
1
2
3
2
1
3



F_b → triple

$F_a = 1 + 1 = 2$

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electron → size

band gap decrease or increases → decrease size

of metal nanoparticles or semiconductor.

CO → residual entropy → **Atkins**

W = 2

CO	CO	CO
CO	OC	OC
CO	CO	OC
CO	OC	OC

T = 0 K, ✓

$$S = nR \ln W$$

$$= ? \times R \ln 2$$

$$=$$

$S = 5.78$ JK^{-1}

$$E = E^\circ - \frac{RT}{nF} \ln \frac{[Zn^{2+}]}{[Ag^+]^2}$$

$[Zn^{2+}]$

$[Ag^+]$

$Zn^{2+}/Zn = -0.76V$

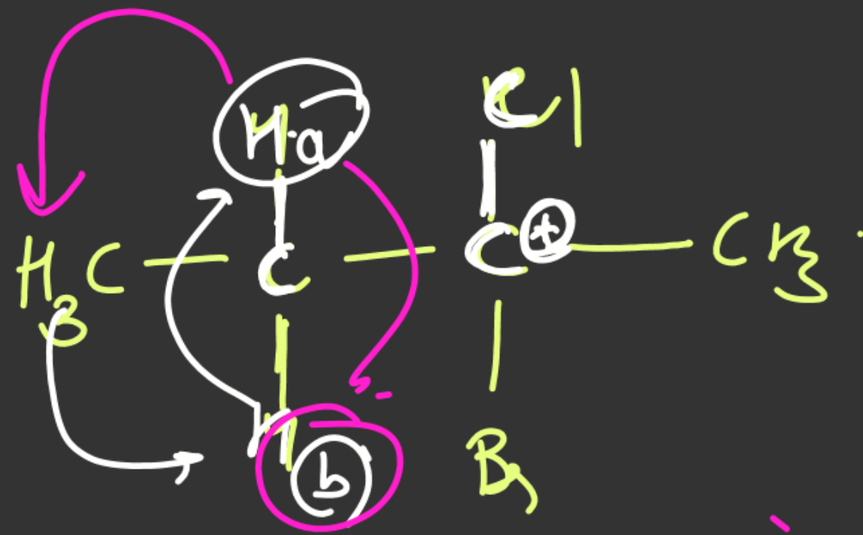
$Ag^+/Ag = 0.80$

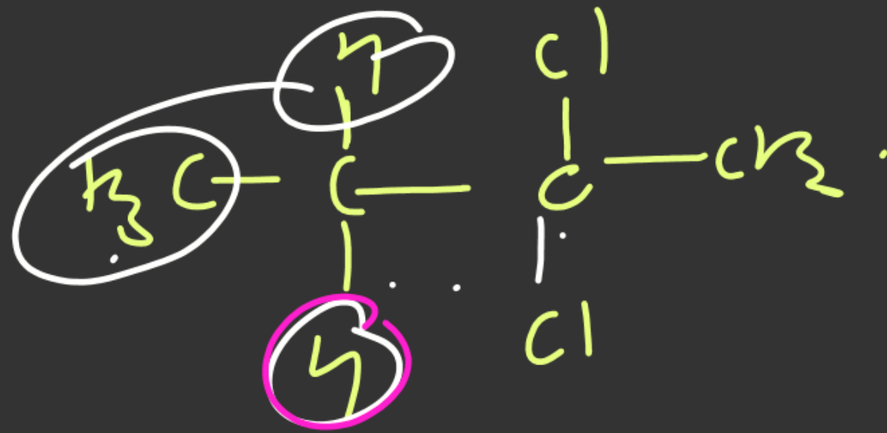
$E^\circ_{cell} = 0.80 + 0.76$

$V = 1.56V$

$Zn + 2Ag^+ \rightarrow Zn^{2+} + 2Ag$

$BCl_3 < AlCl_3 < GaCl_3$


Ha
H3C
C
C+
CH3
Cl
Br
b


H
H3C
C
C
CH2
Cl
Cl
b

0.03m

$$K_3[Fe(CN)_6]^{3-} \rightleftharpoons 3K^+ + [Fe(CN)_6]^{3-}$$

$$I = \frac{1}{2}\left(3 \times 0.03 \times (+1)^2 + 0.03 \times (-3)^2\right)$$

$$= \frac{1}{2}\left[0.09 + 0.03 \times 9\right]$$

$$= \frac{1}{2}\left[0.09 + 0.27\right]$$

$$= \frac{1}{2}\left[0.36\right] = \underline{0.18m}$$ ✓

A CF_3CHO

Cl_3CCHO

CF_3COCF_3

$C_7H_6O_2$

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σ_v, σ_v'

(x, y, z) → $(\bar{x}, y, z)$

$(\bar{x}, \bar{y}, z)$

σ_n

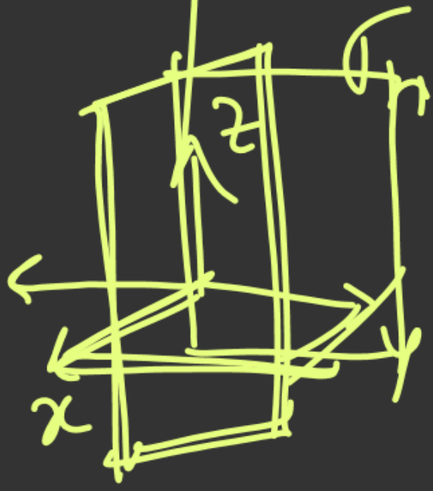
$\sigma_v \cdot \sigma_v' =$

(x, y, z)

Polymer

Monte-Hamiltonian

$\sigma_n, i, C_n.$



$(x, \bar{y}, z)$

$(\bar{x}, \bar{y}, z)$

$$\text{mean} = \frac{\sum x_i}{n}$$

$$F^- > H_2O > Urea > NH_3 > En - Ox > NCS^- > Cl^- > CN^- > Ru^- > NO_2^- > I^-$$

$$J_{max} = \sqrt{\frac{k_B T}{2Bhc}} - \frac{1}{2}$$

$$J_{max} \propto \sqrt{T}$$