Reaction

Basic

Name Rx^{n}

* "Dehydration"

Stability of Carbocation

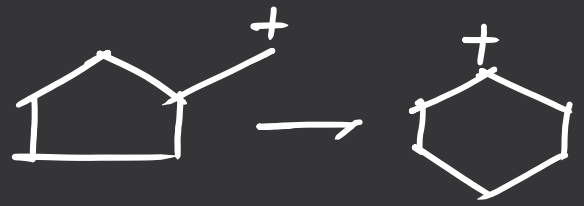
+M

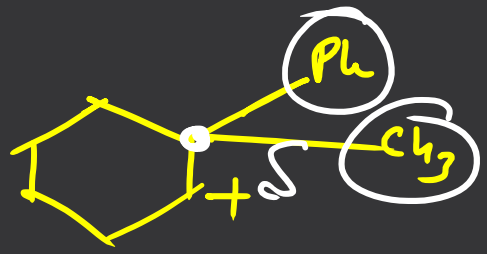
Dancing Resonance

* O^{-H} Clayden

* Rearrangement

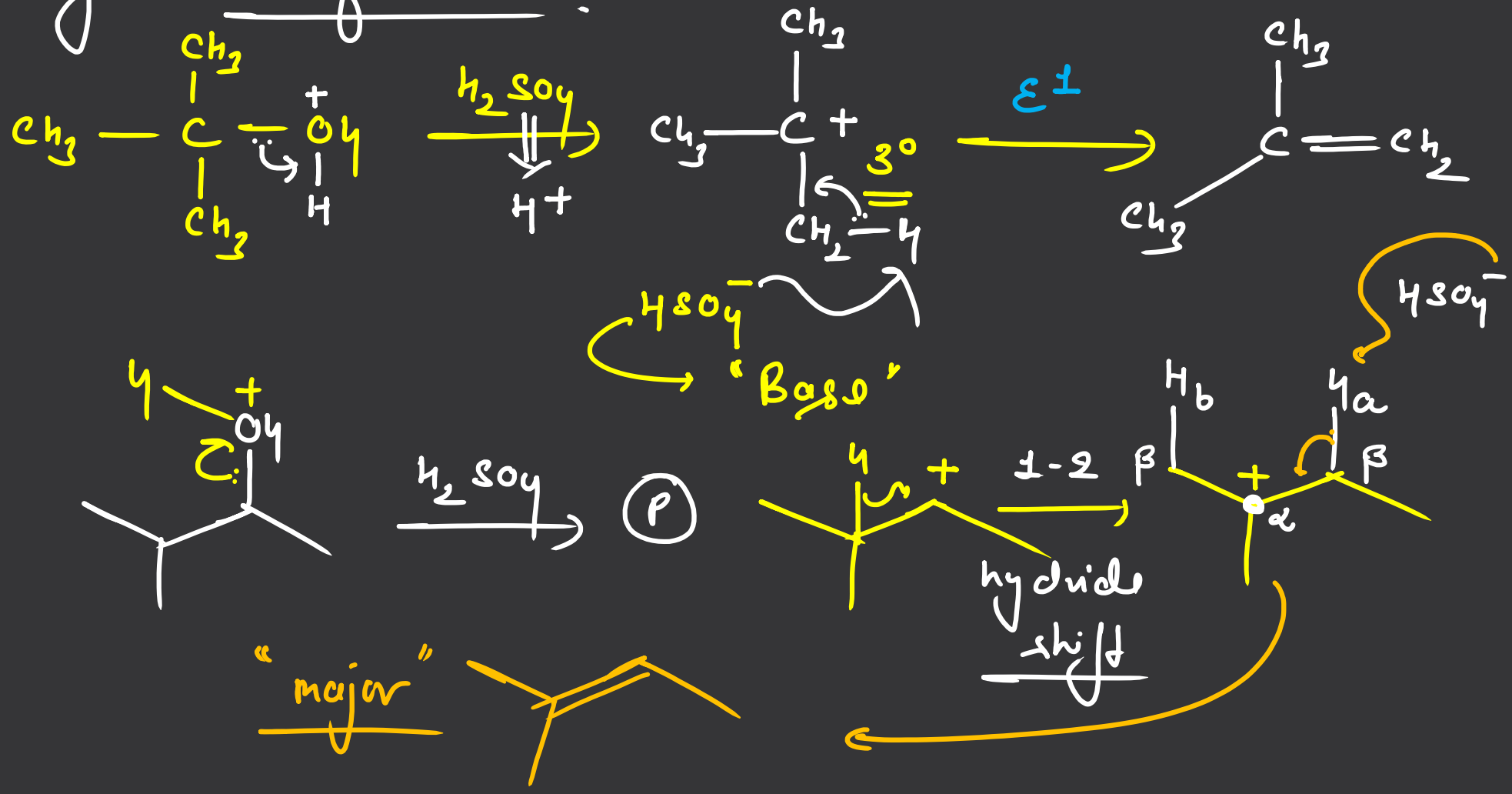
* Ring Expansion *





Dehydration

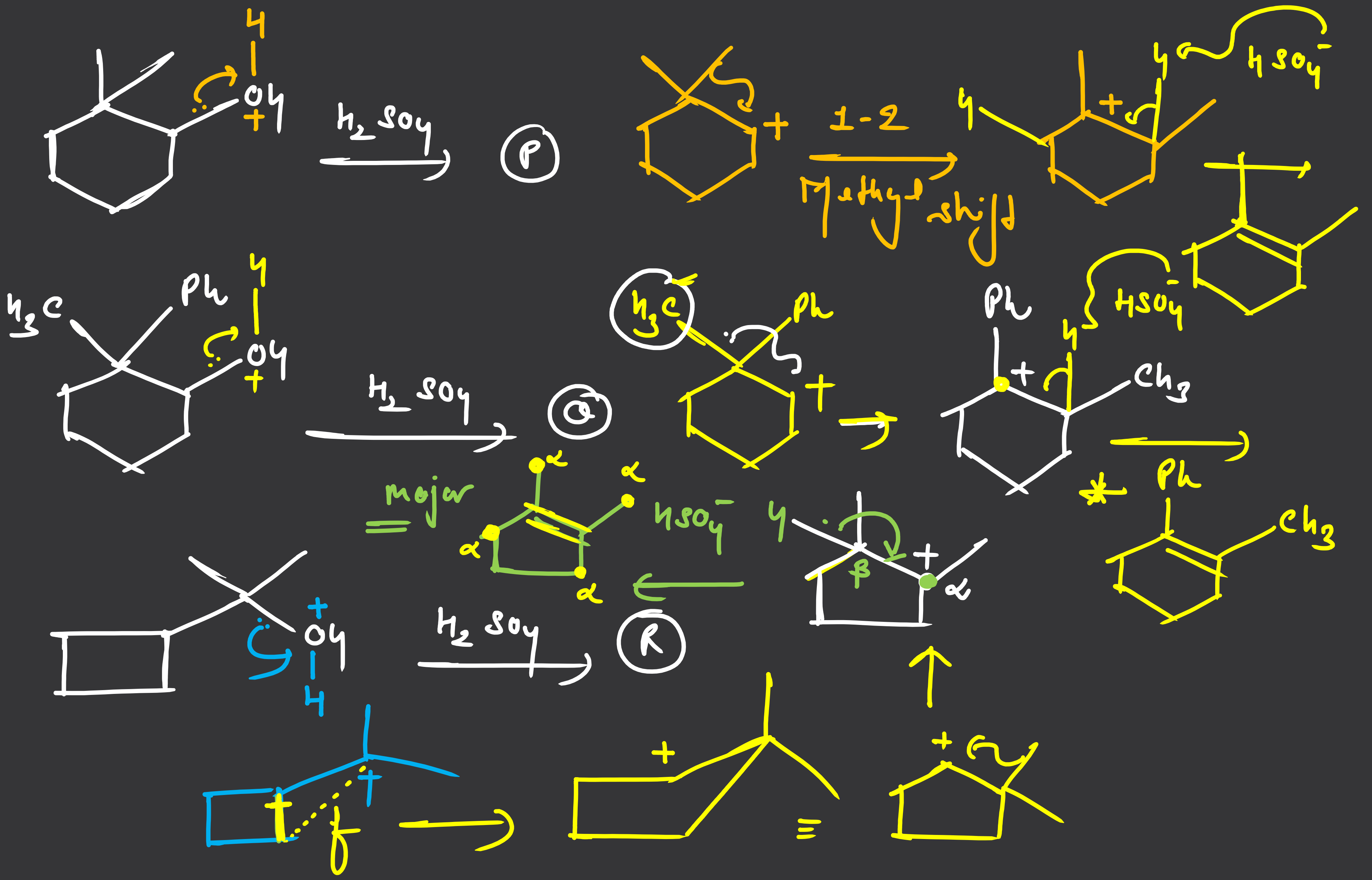
* Dehydration of alcohol.



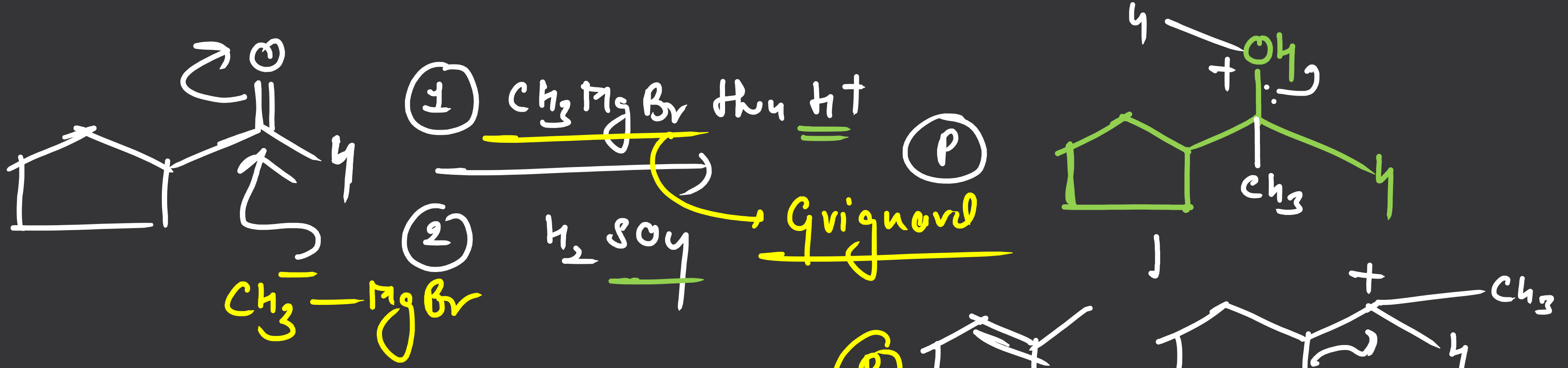
Q4

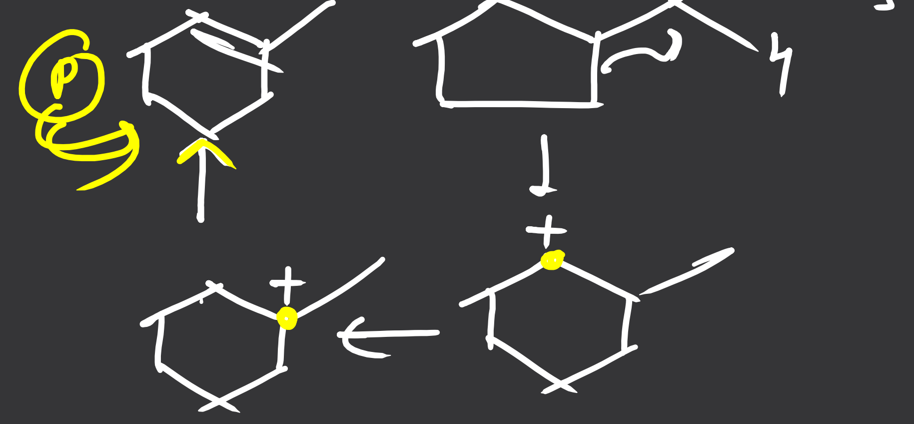
Q4

Q4

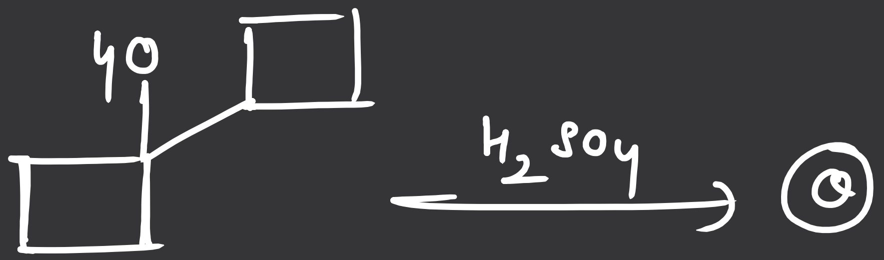


Q4 *

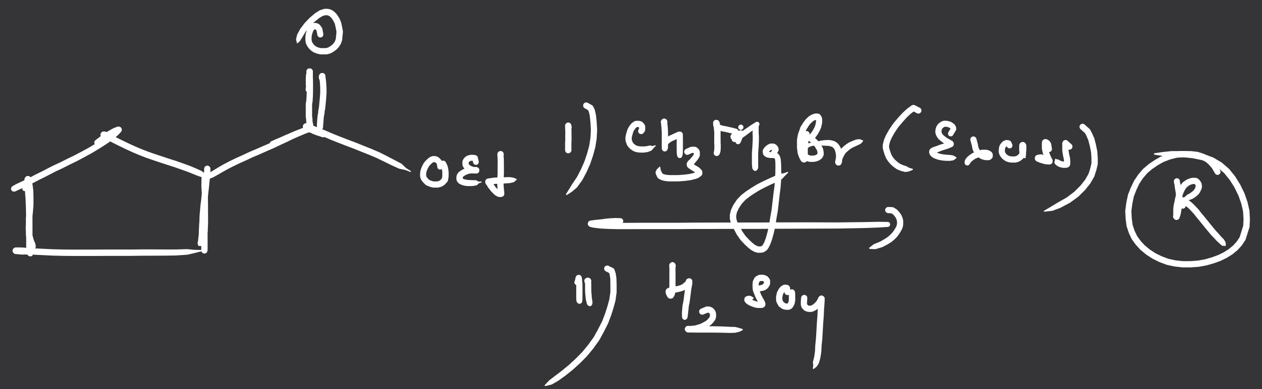

① CH_3MgBr then H^+
② H_2SO_4
P
Grignard
CH_3-MgBr
CH_3
P

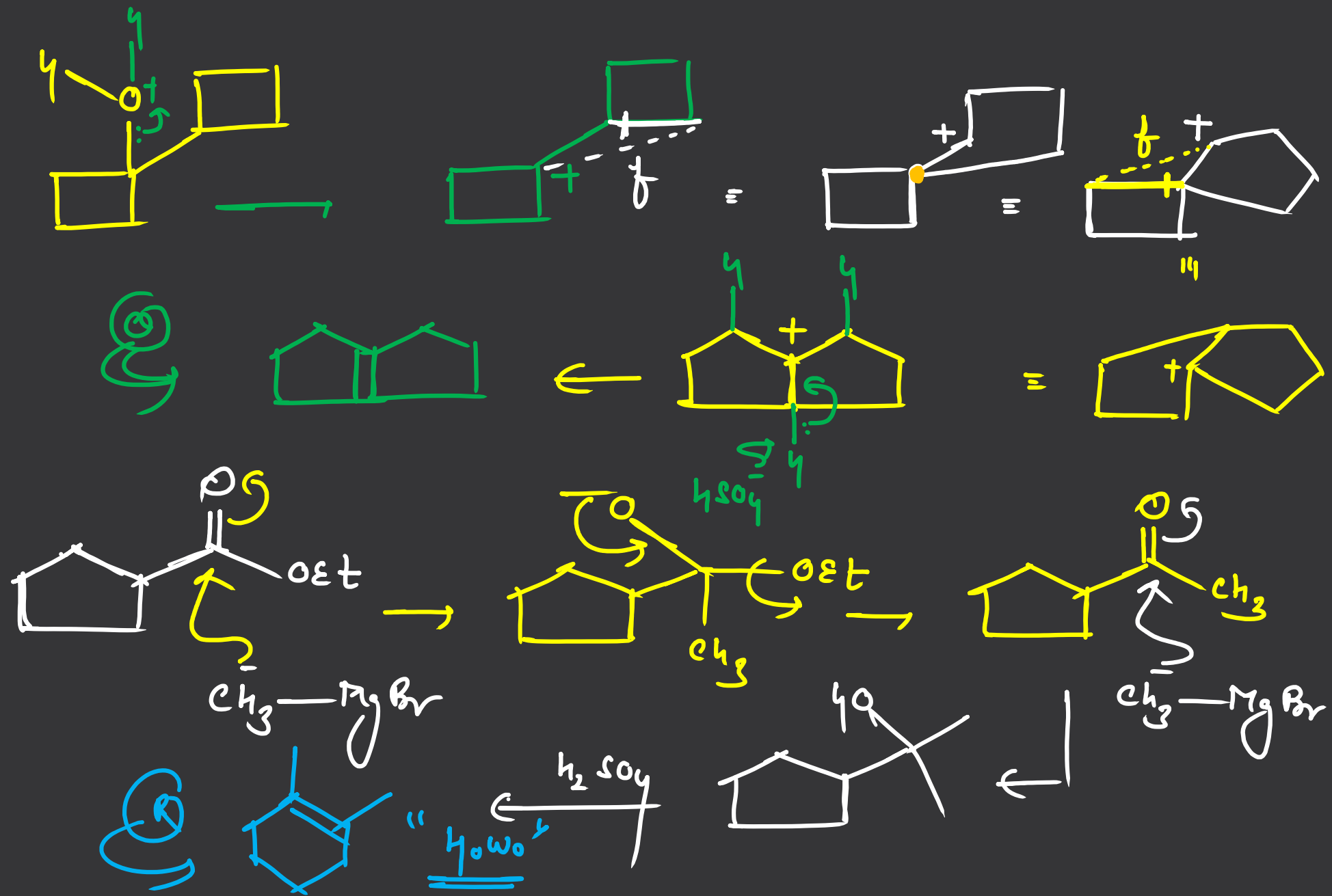


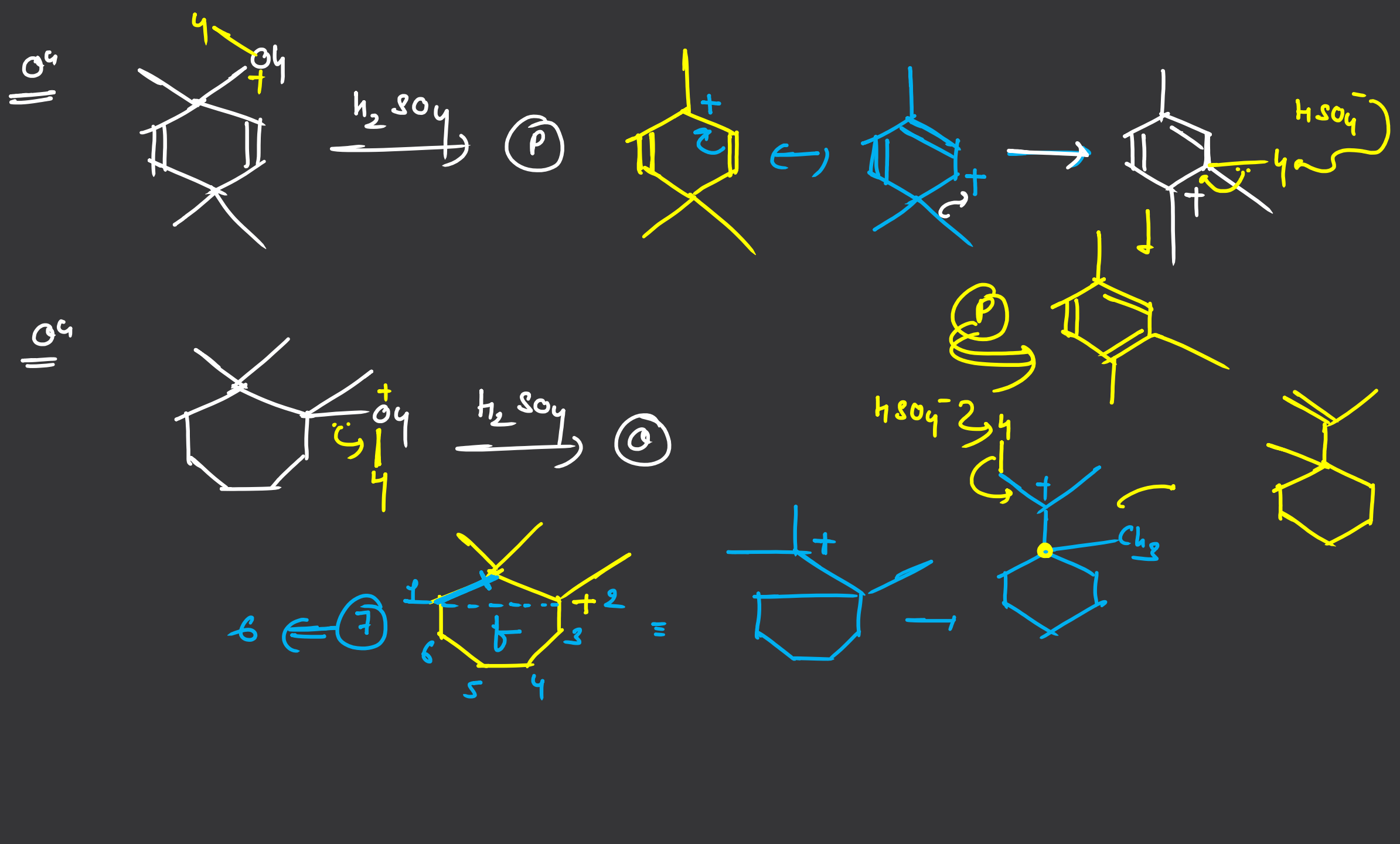
Q4 *


HO
H_2SO_4
Q

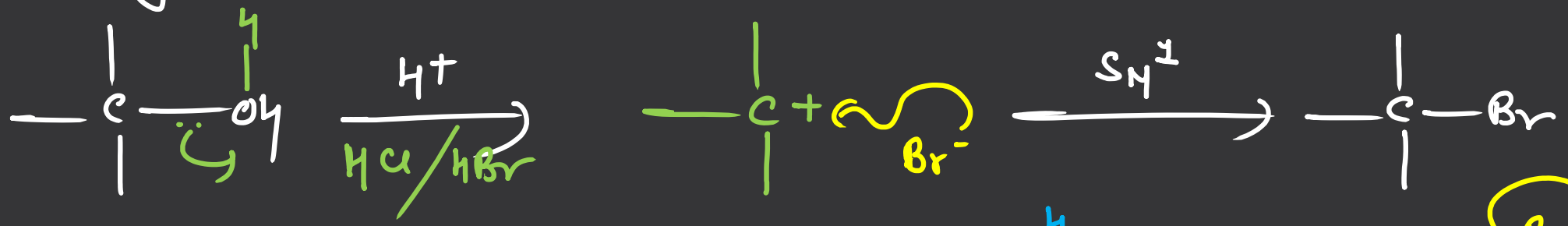
Q4

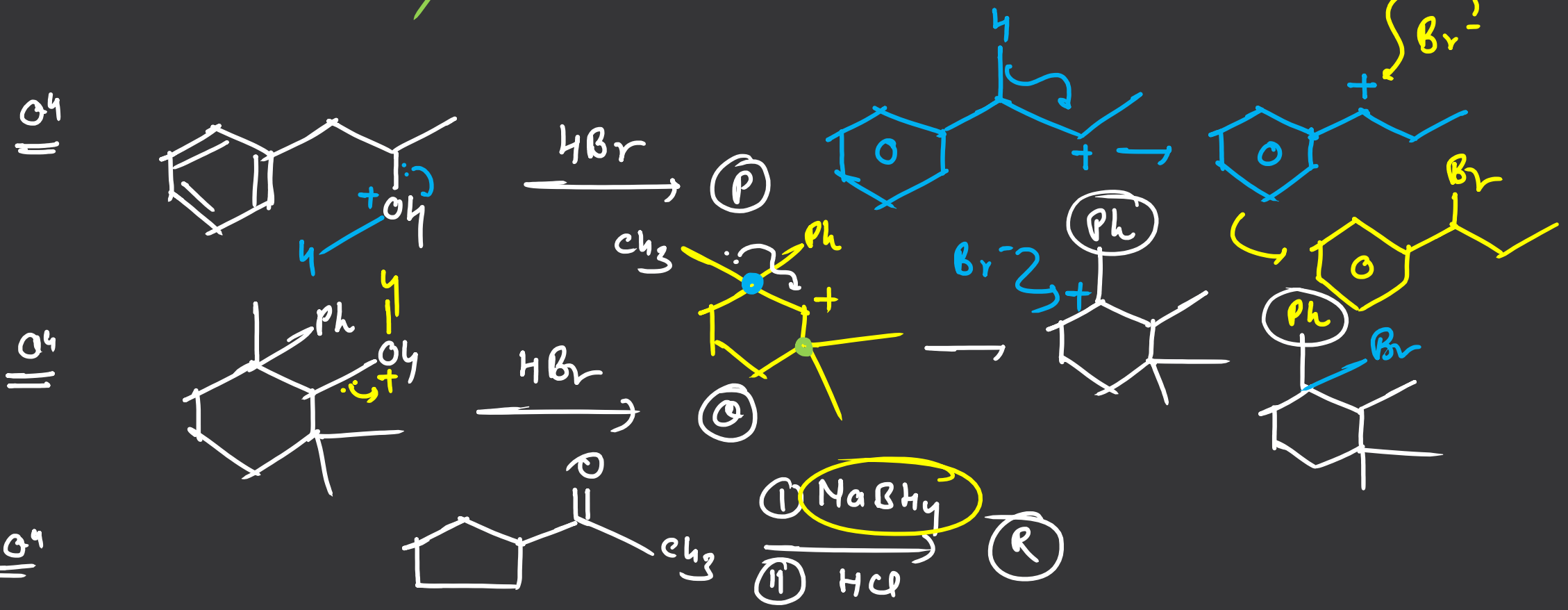

OEt
i) CH_3MgBr (Excess)
ii) H_2SO_4
R

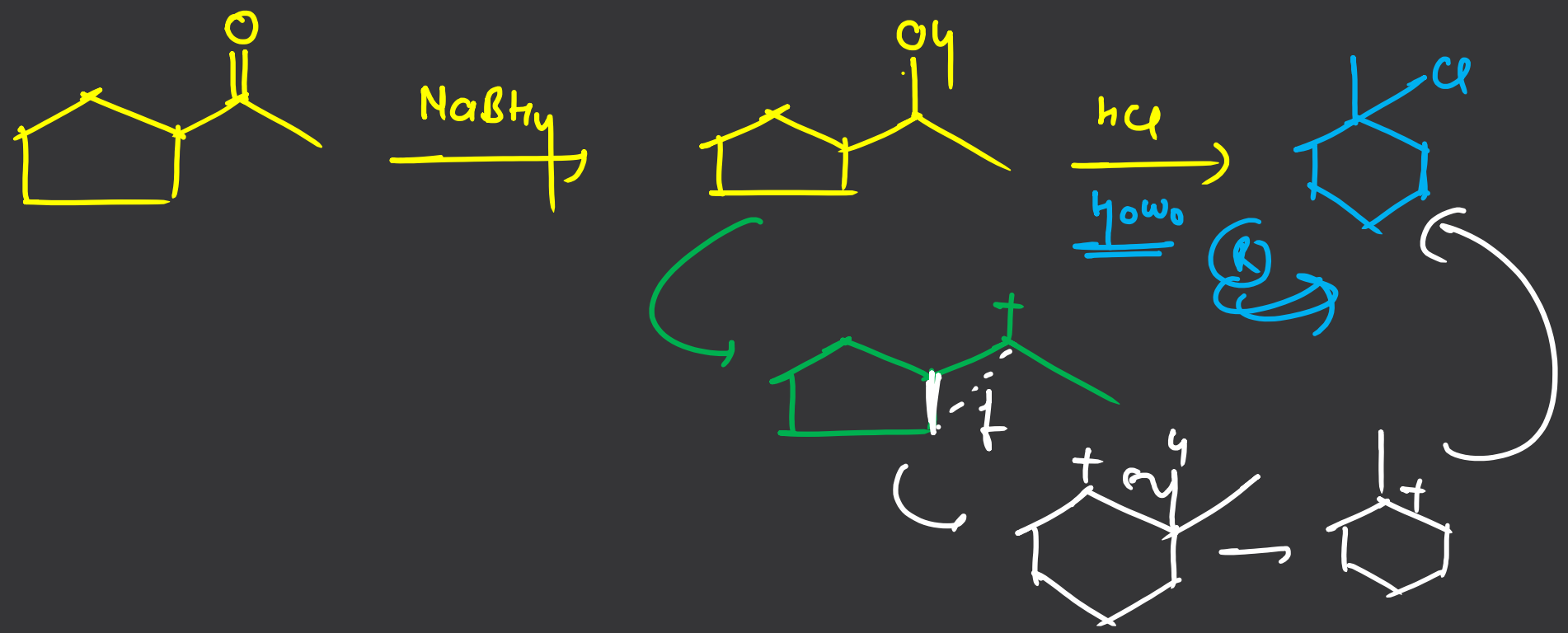

OEt
CH3—MgBr
CH3
OEt
CH3
CH3—MgBr
H2SO4
"H2O"

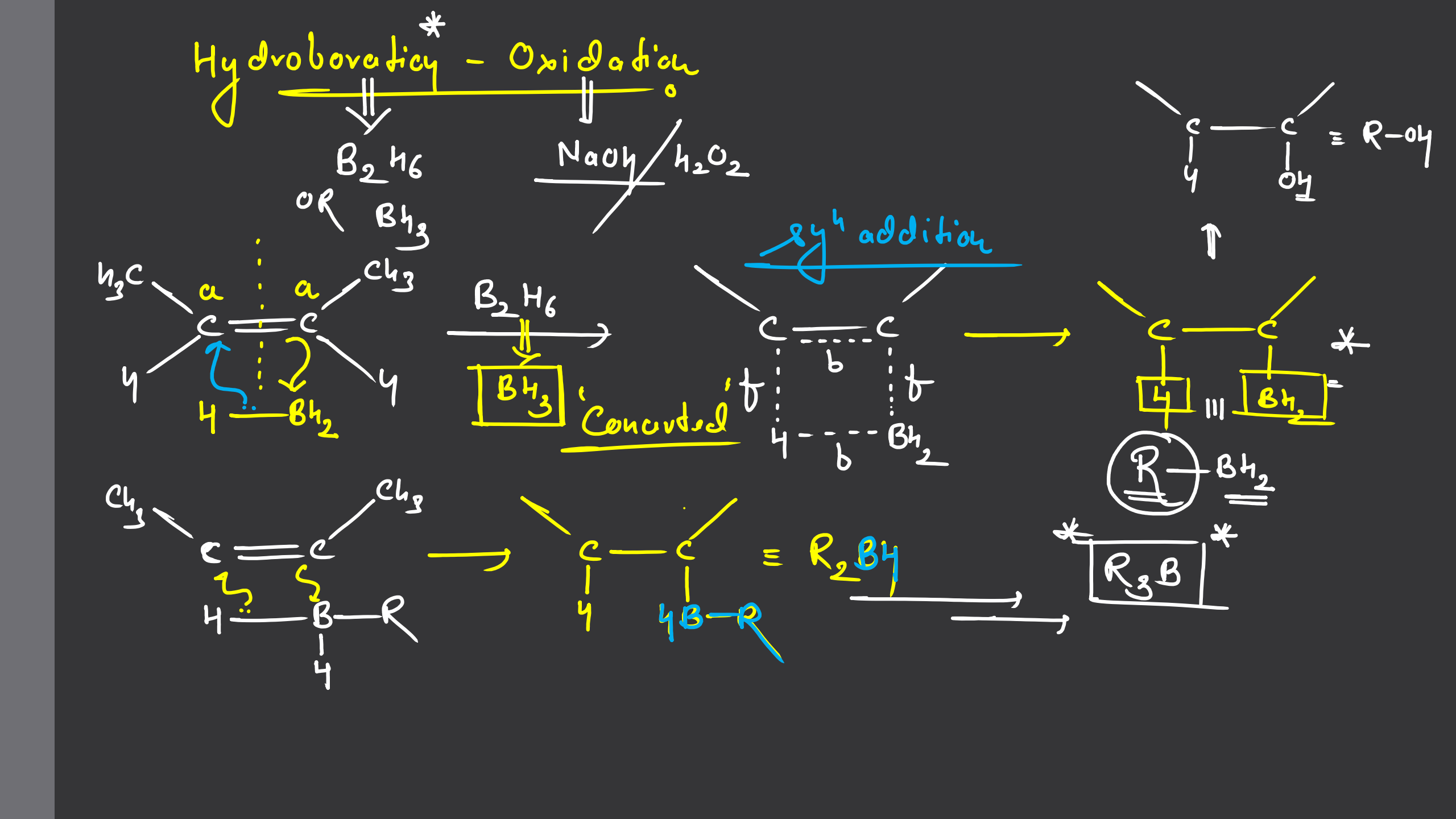

OH
H2SO4
P
HSO4-
OH
H2SO4
Q
HSO4-
2
CH3
6
7
1
2
3
4
5
6
b

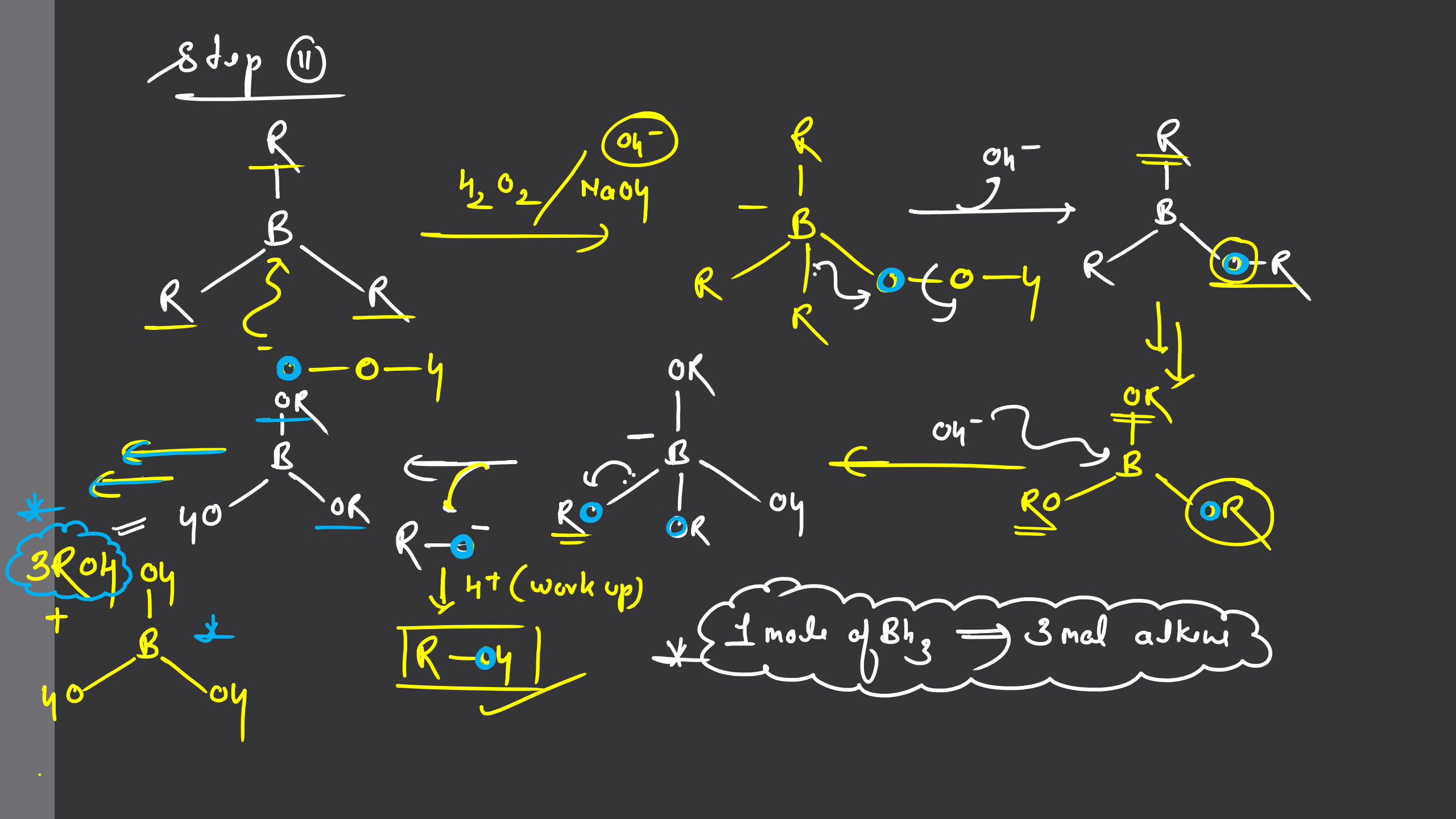
Halogenation.






NaBH4
OH
HCl
Cl


Hydroboration - Oxidation
B2H6
OR
BH3
NaOH / H2O2
syn addition
B2H6
BH3
Concerted
≡ R-OH
≡ R2BH
R3B


Step (11)
H_2O_2 / NaOH
OH^-
3 ROH
H^+ (work up)
R–OH
1 mole of BH_3 ⟹ 3 mol alkyl

Q. How many moles of BH_3 would be required for '8 moles' of alkene?

GATE (NAT)

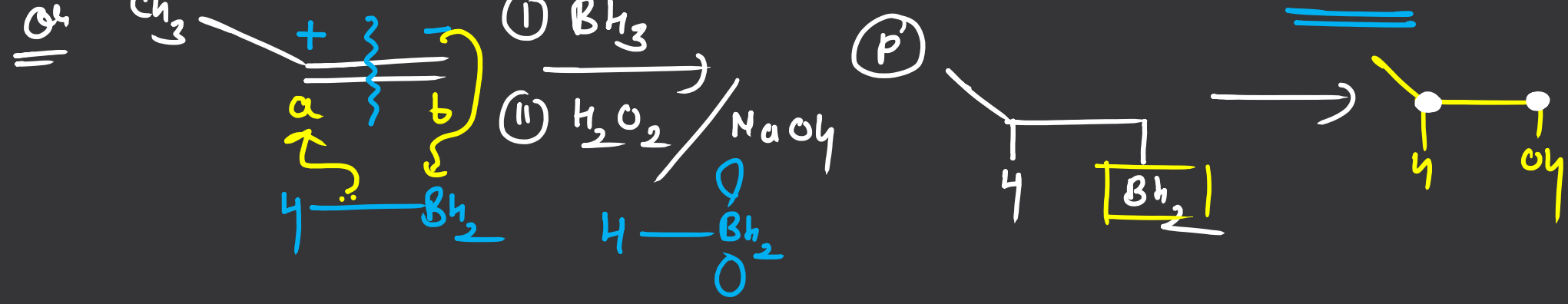
1 mole BH_3 ⟶ 3 mole alkene.

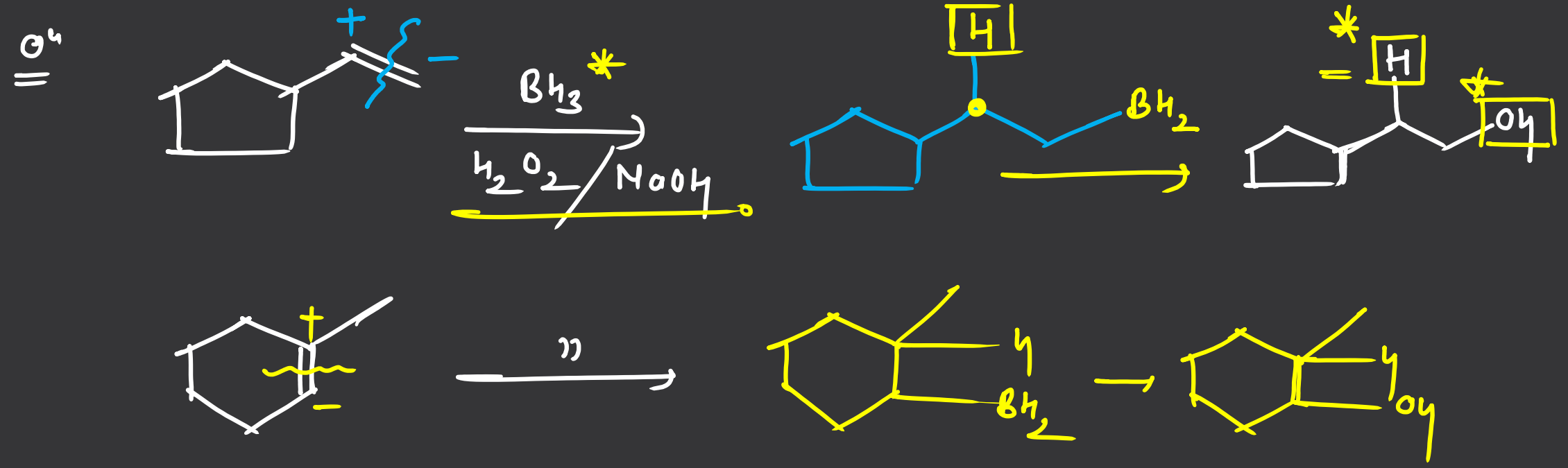
1 mol alkene ⟶ $\left(\frac{1}{3}\right)$ mole BH_3

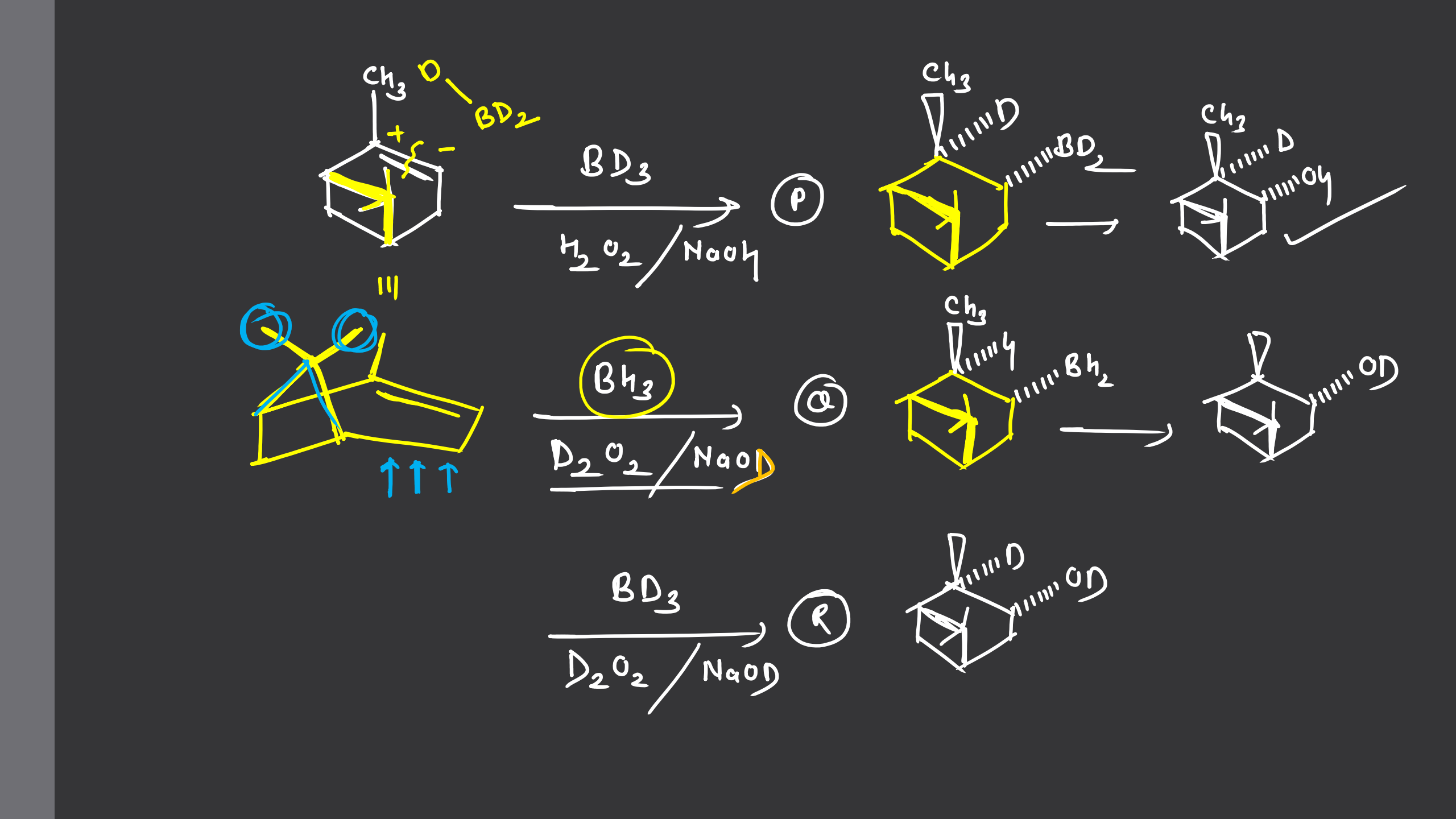
8 mol alkene ⟶ $8 \times \frac{1}{3} = \frac{8}{3}$ *

$= 2.66$

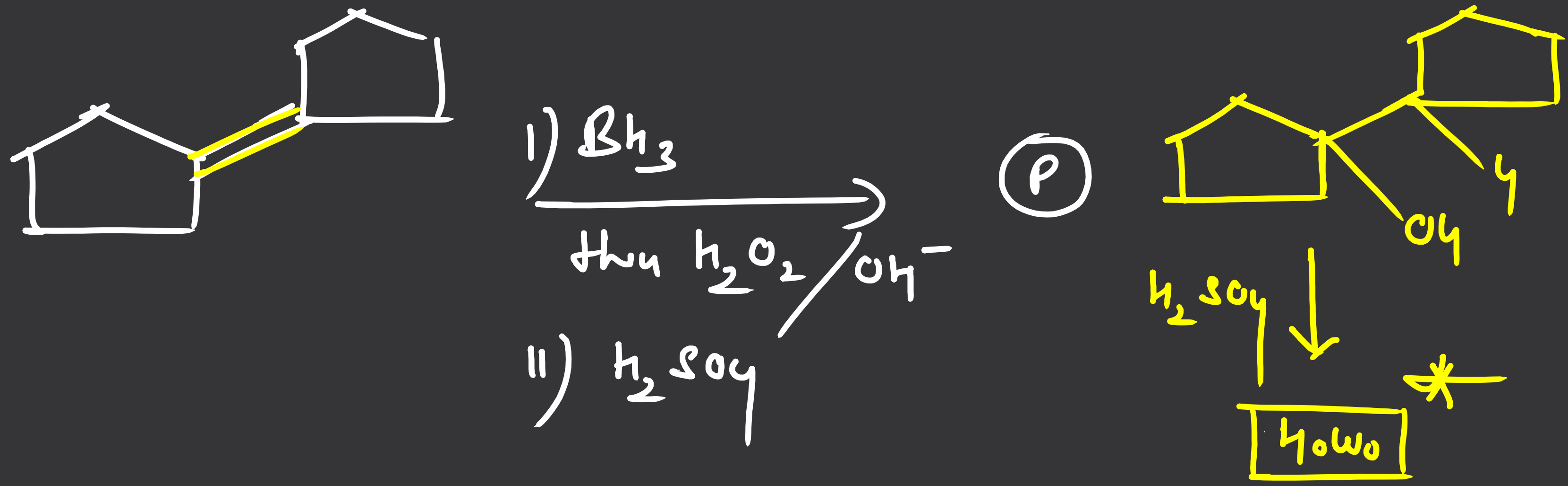
Or




OH
BH3
H2O2 / NaOH
H
BH2
H
OH
n
H
BH2
H
OH

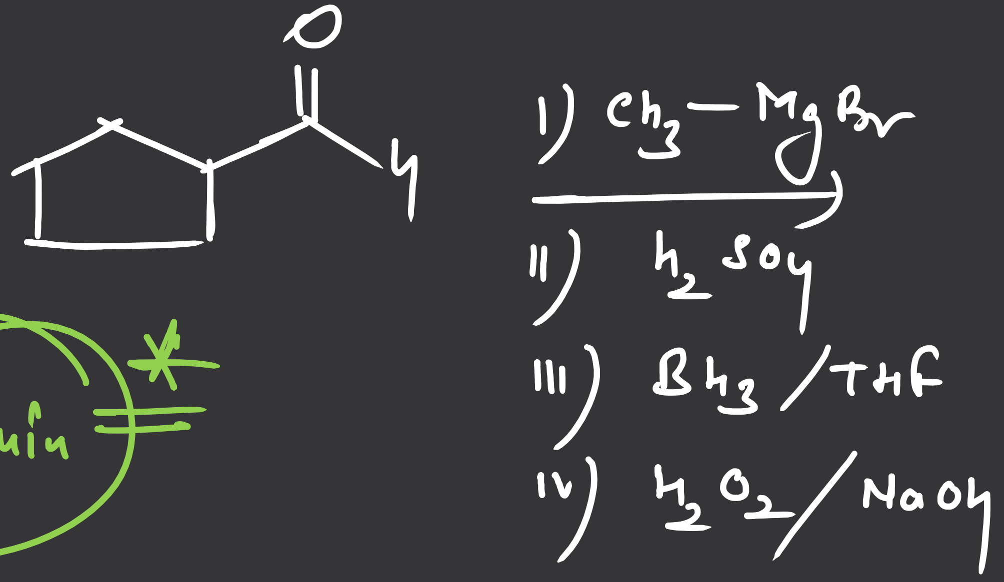

CH3
O
BD2
+
−
BD3
H2O2 / NaOH
P
CH3
D
BD2
CH3
D
OH
III
BH3
D2O2 / NaOD
Q
CH3
H
BH2
OD
BD3
D2O2 / NaOD
R
D
OD

Q4



Q4

40%

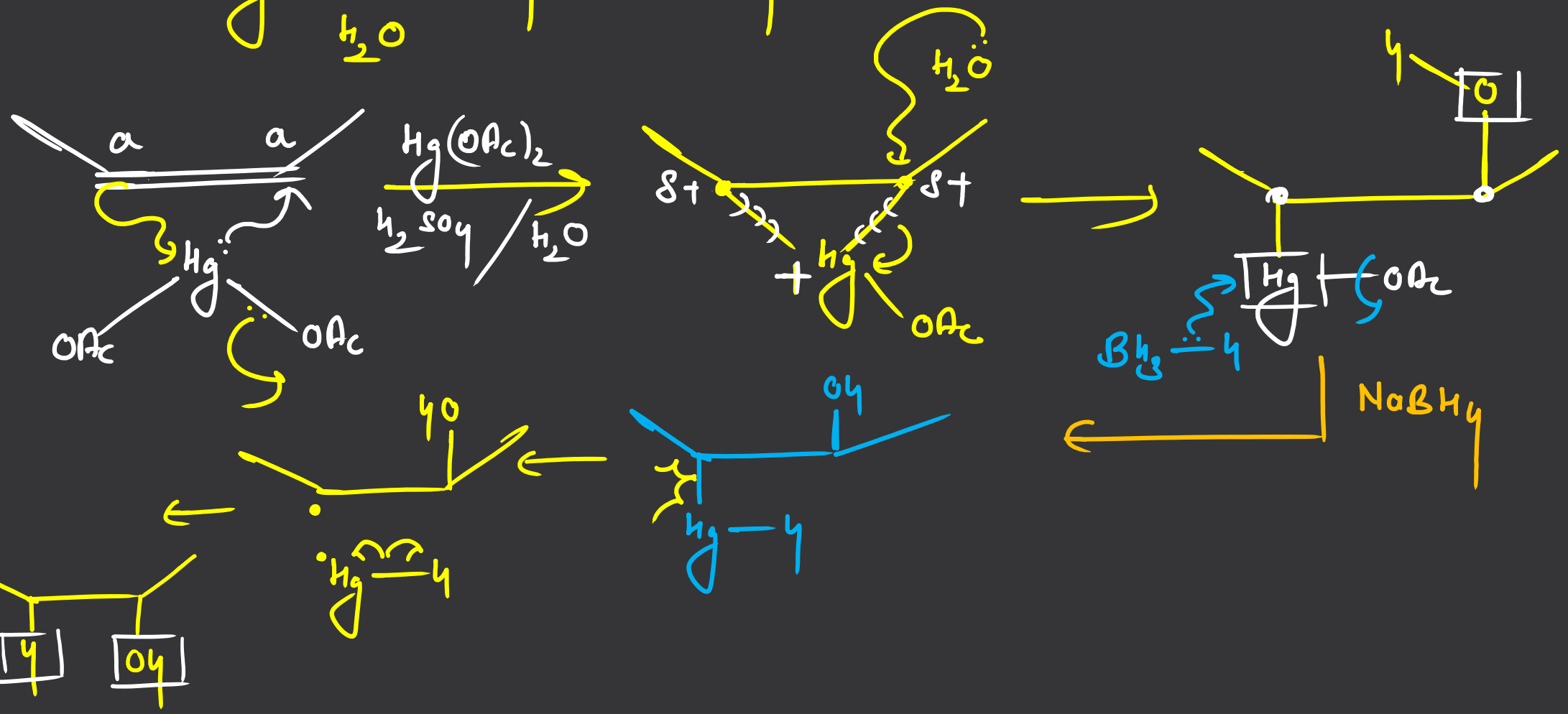


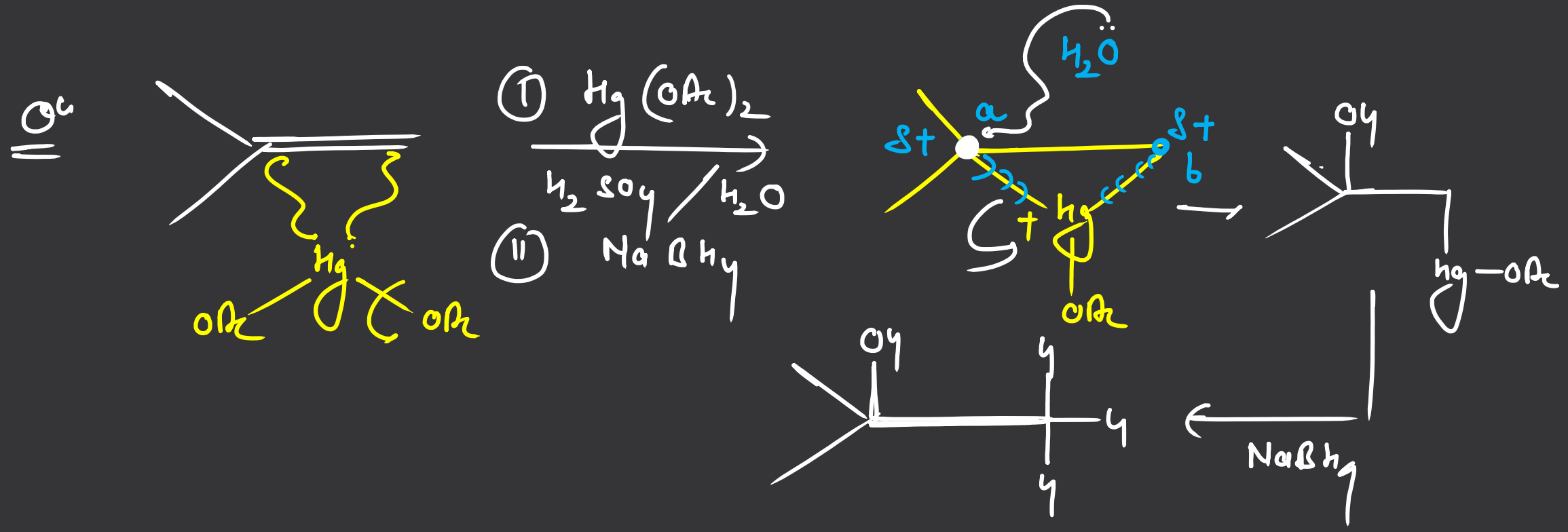
10 min

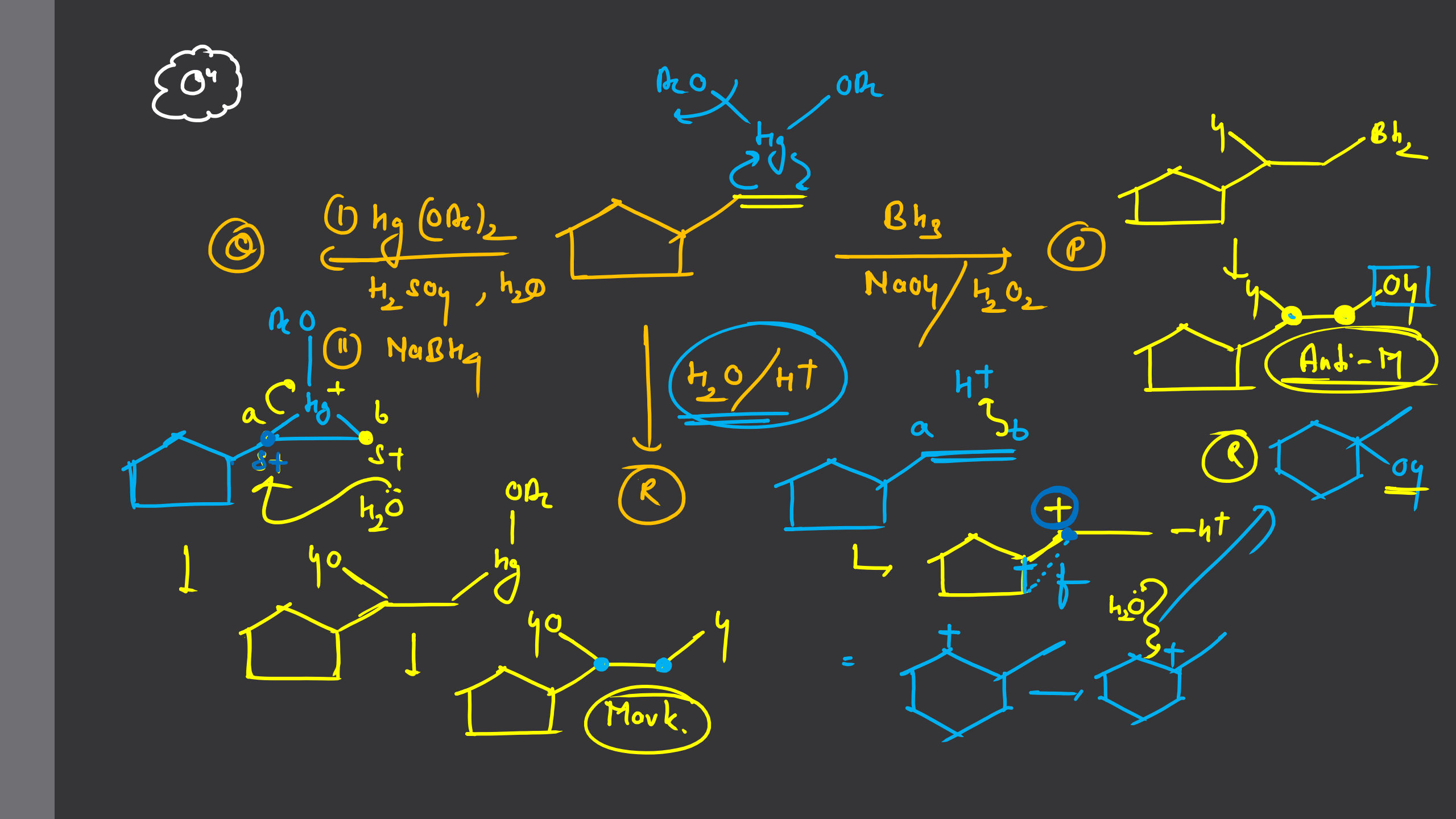
"Oxymercuration – Demercuration".

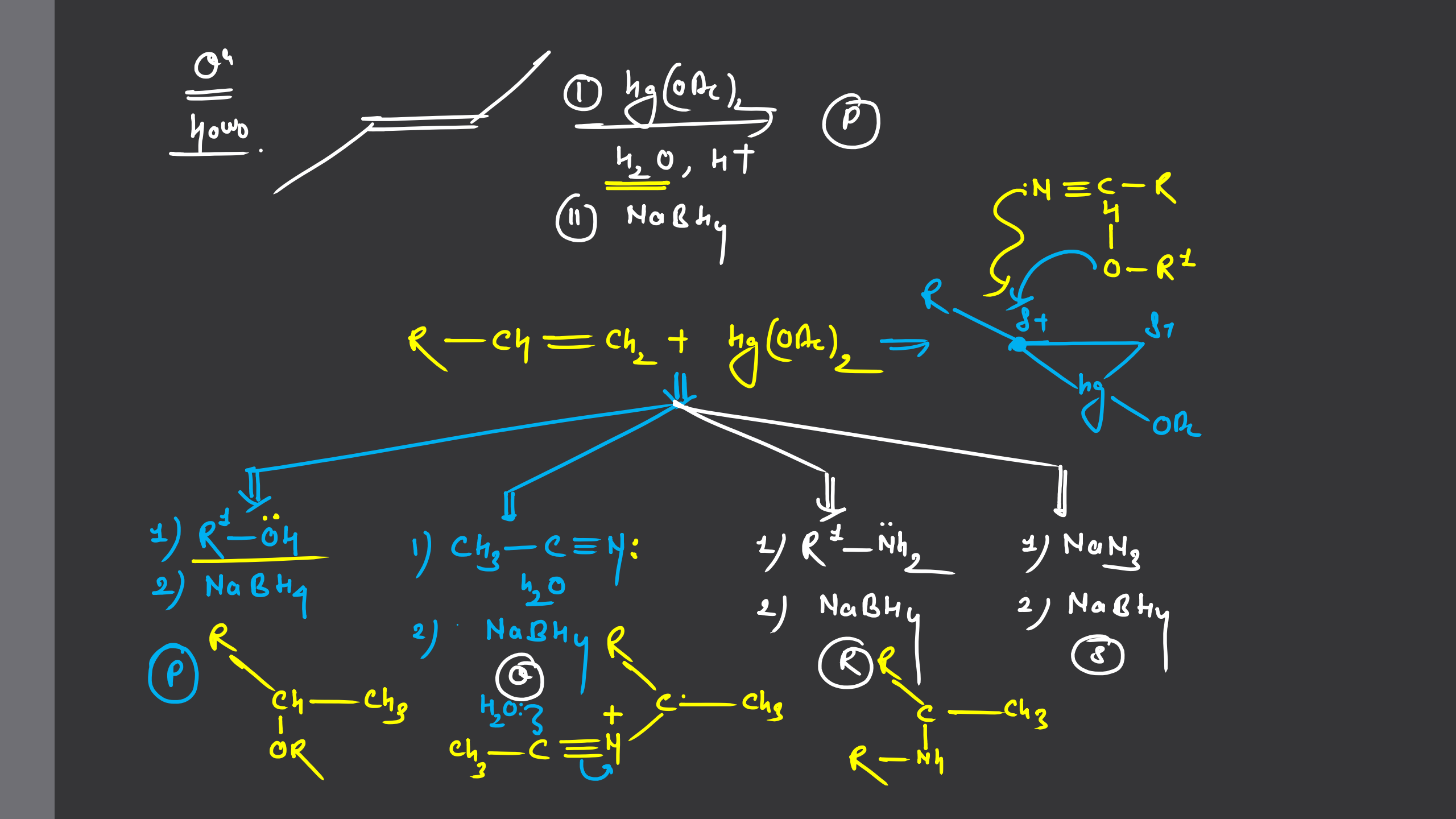
$Hg(OAc)_2$, H_2SO_4
H_2O

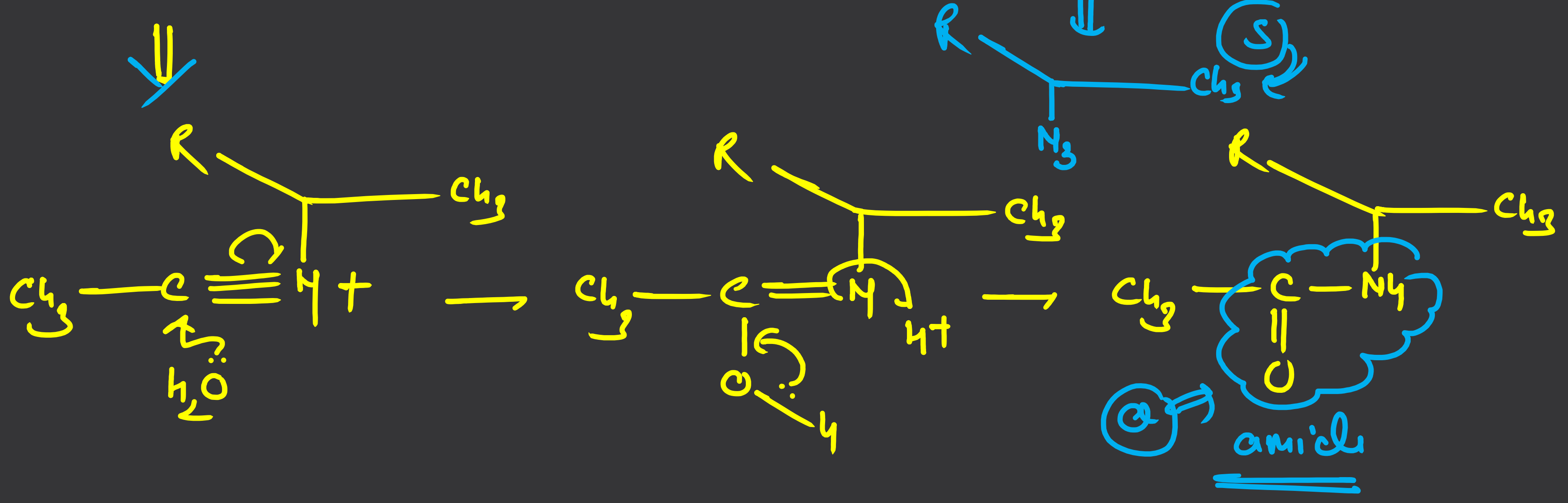
$NaBH_4$



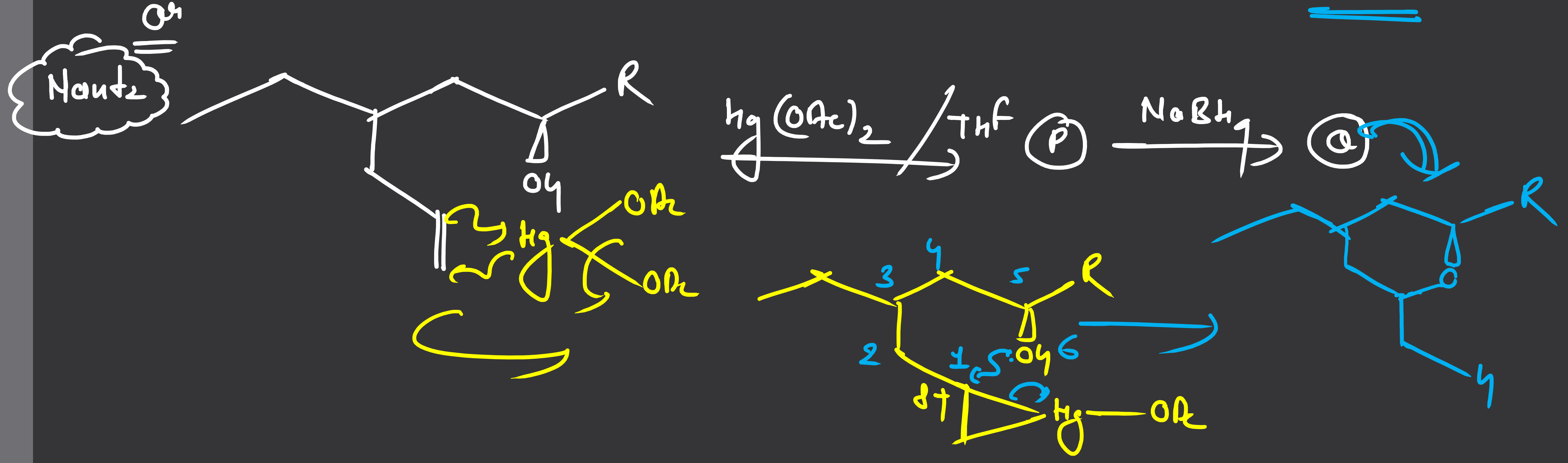

OH
Hg
OR
OR
① Hg(OAc)2
H2SO4 / H2O
② NaBH4
H2O
δ+
a
δ+
b
Hg
OR
OH
Hg–OR
NaBH4


Q
(1) Hg(OAc)2
H2SO4, H2O
(II) NaBH4
H2O/HT
R
BH3
NaOH/H2O2
P
Anti-M
Markovnikov
S
OH


Oxymercuration
(i) Hg(OAc)2
H2O, HT
(ii) NaBH4
(P)
R—CH=CH2 + Hg(OAc)2
1) R1—OH
2) NaBH4
(P)
1) CH3—C≡N:
H2O
2) NaBH4
(Q)
1) R1—NH2
2) NaBH4
(R)
1) NaN3
2) NaBH4
(S)



amide



Hg(OAc)2 / THF
NaBH4
P
Q
OH
OAc
Hg

Reaction with alkyne