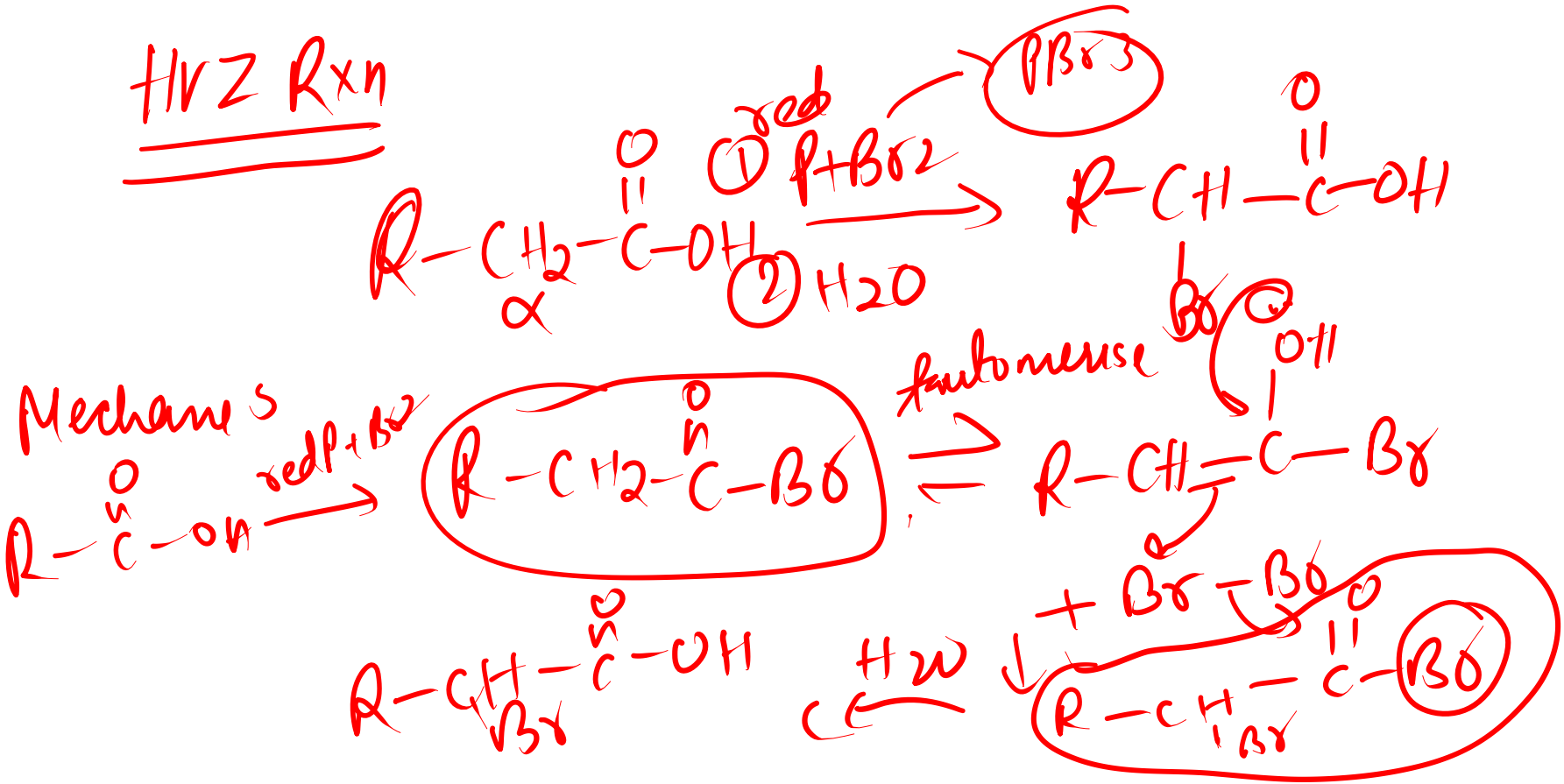
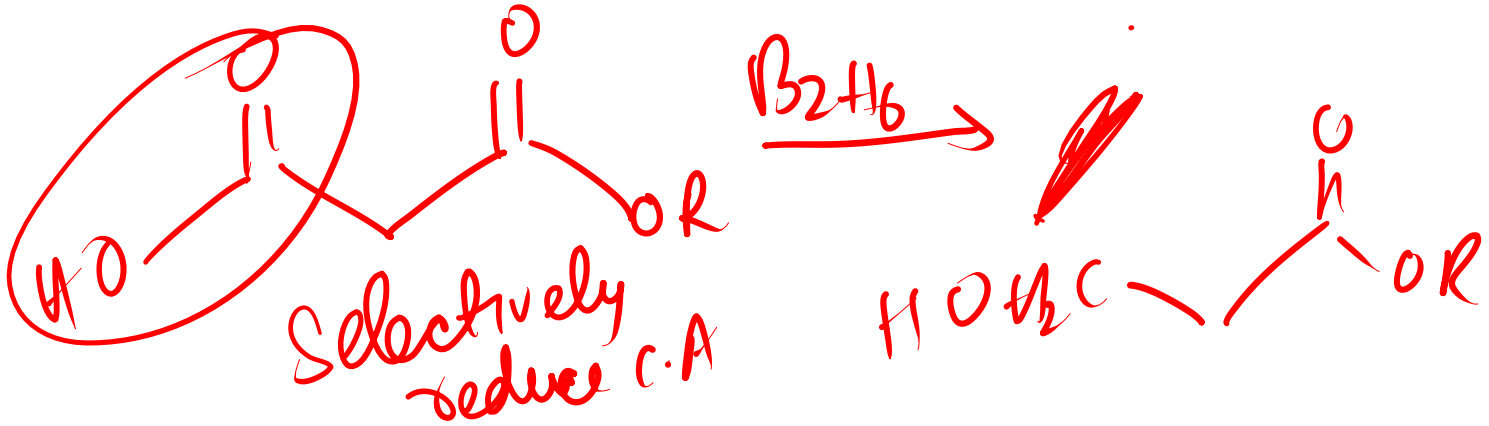
HVZ Rxn



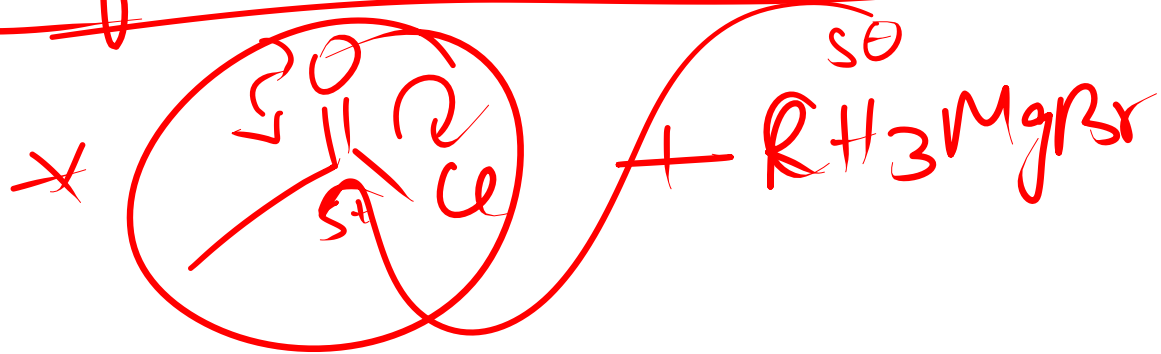
Reduction

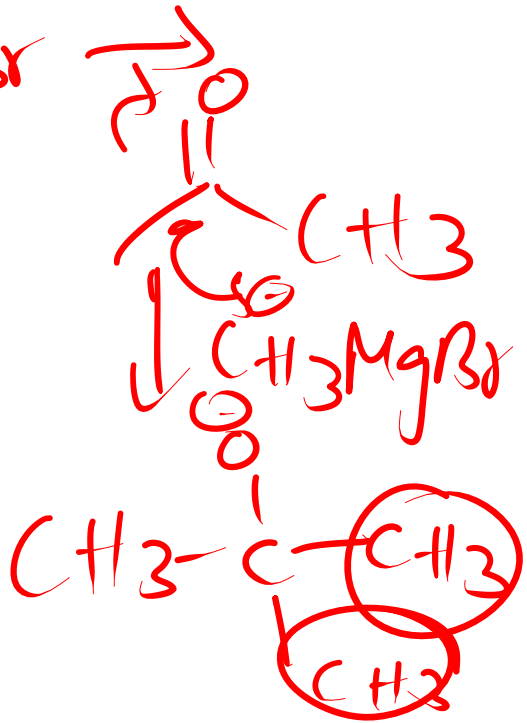
$R-\overset{O}{\overset{\|}{C}}-OH \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} \boxed{B_2H_6 \mid BH_3} \quad RCH_2OH$

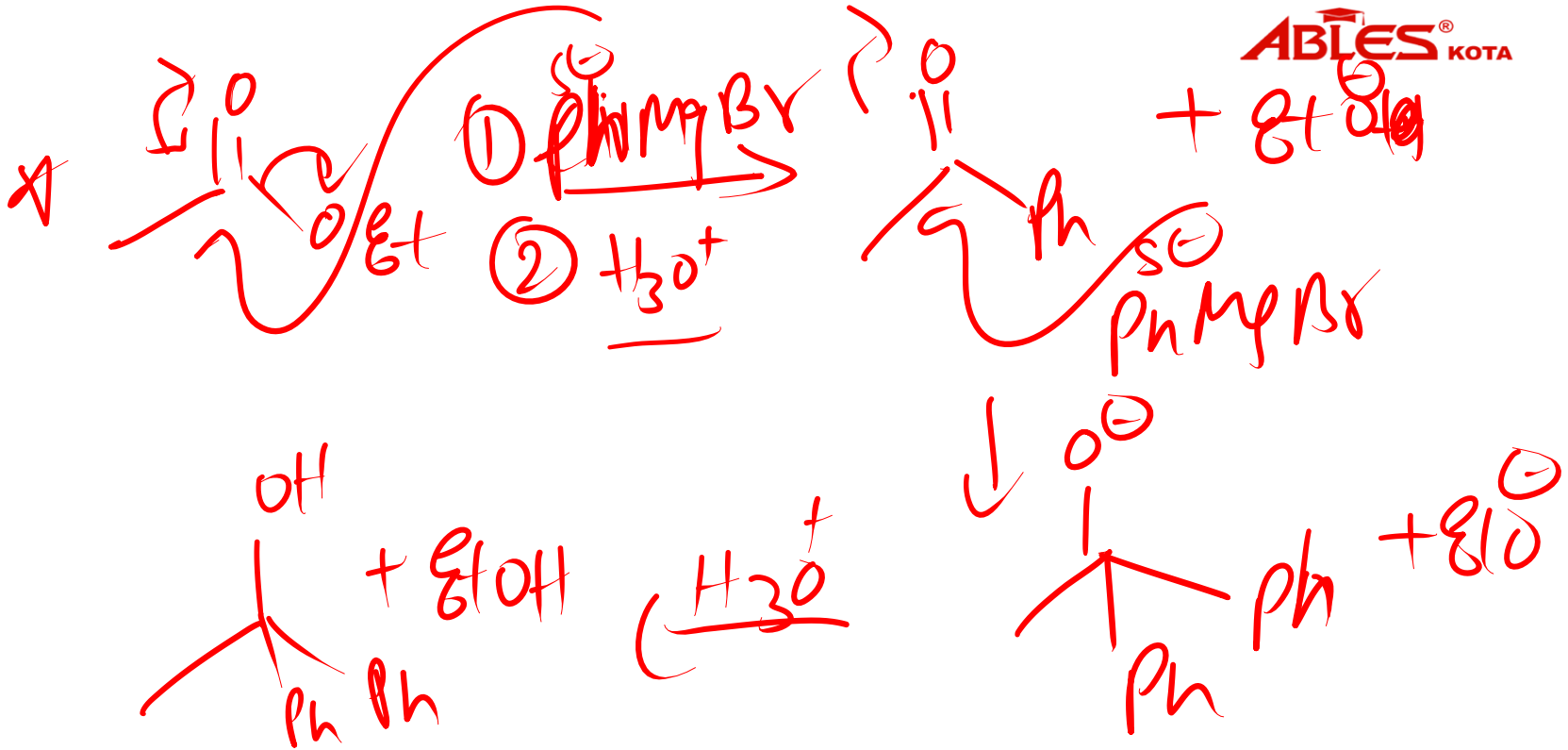
Best method to reduce C.A

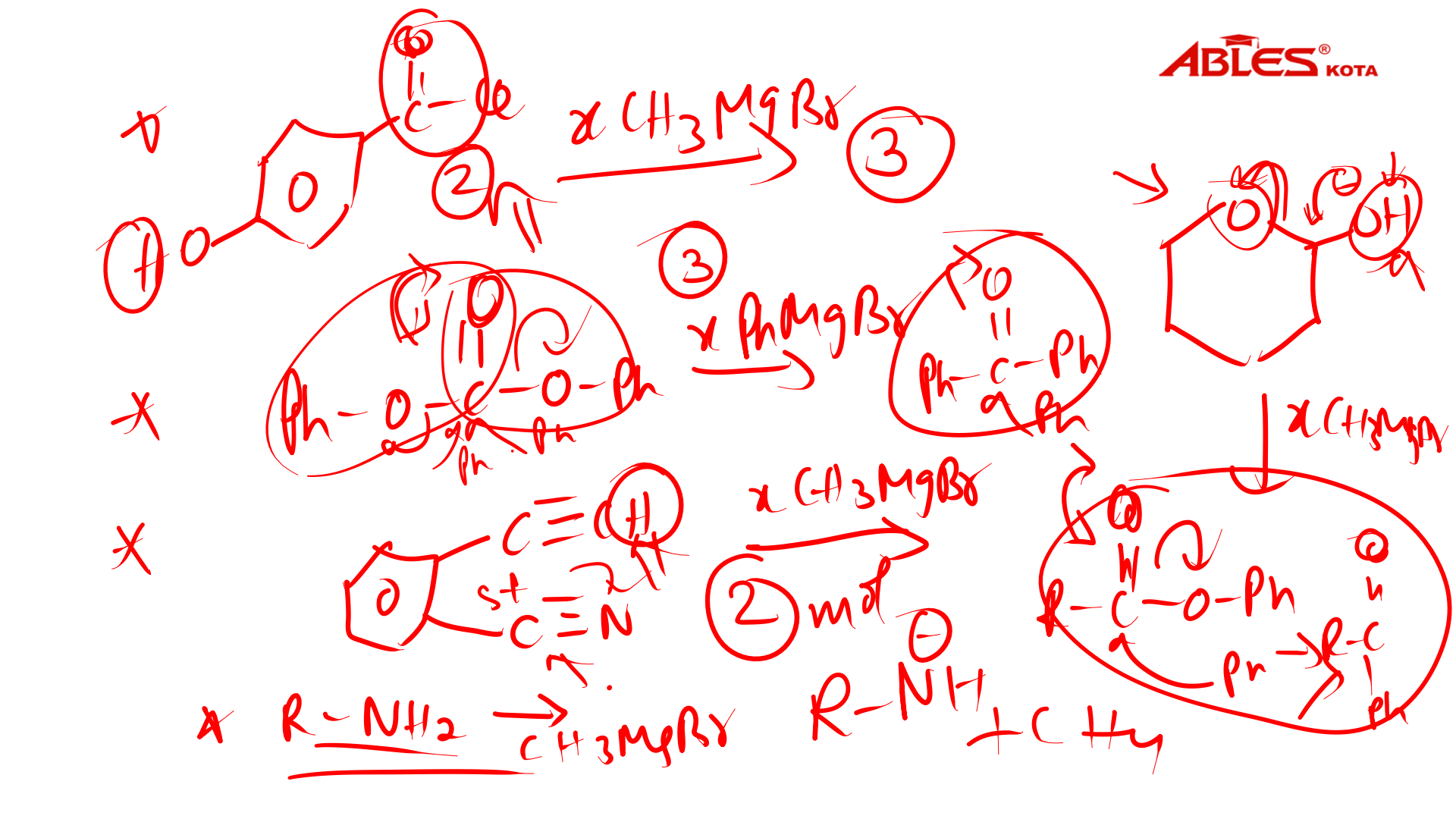


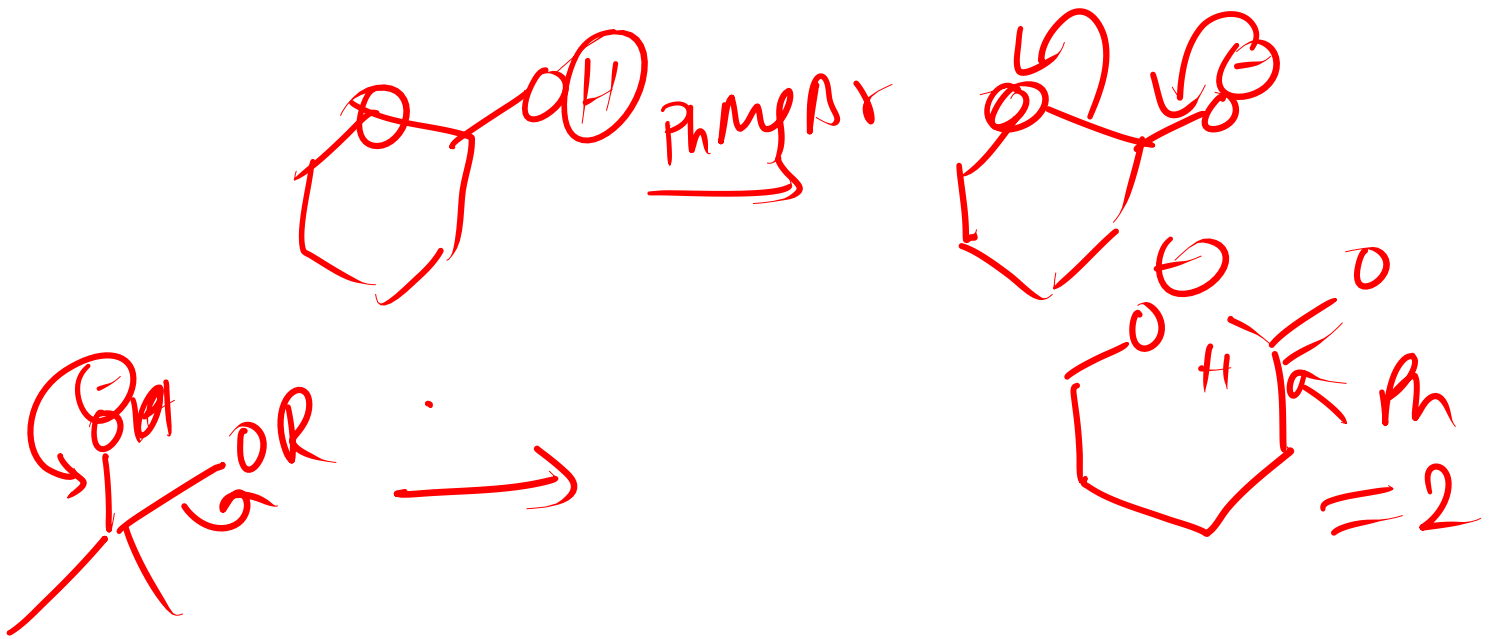
Rxn of C.A derivatives with Gr.R






ABLES KOTA
① PhMgBr
② H_3O^+
+ EtOH
PhMgBr
OH
Ph Ph
H_3O^+
Ph
Ph
+ EtO


ABLES KOTA
CH3MgBr
PhMgBr
CH3MgBr
CH3MgBr
R-NH2 → CH3MgBr
R-NH + CH4


PhMgBr
OR
O
O
H
Ph
= 2

Heating of Carboxylic acid

OMSGAPS

$(CH_2)_n - COOH$

$|$

$COOH$

~~Oxalic~~

$n=0$ Oxalic Acid $COOH-COOH$

$n=1$ Malonic Acid $COOH-CH_2-COOH$

$n=2$ Succinic Acid $HOOC-CH_2-CH_2-COOH$

$n=3$ Glutaric Acid

$n=4$ Adipic Acid

$n=5$ Pimelic Acid

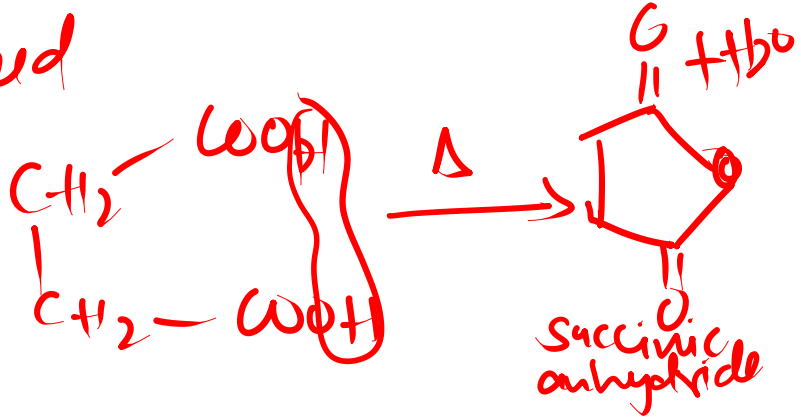
$n=6$ Suberic Acid

Heating of gem dicarboxylic acid ✗

$CH_3-CH(COOH)_2$ (gem) $\xrightarrow{\Delta}$ $CH_3-CH_2-COOH + CO_2$

Eg → $CH_2(COOH)_2 \xrightarrow{\Delta} CH_3COOH$

~~+ Heating of Vicinal dicarboxylic Acid~~



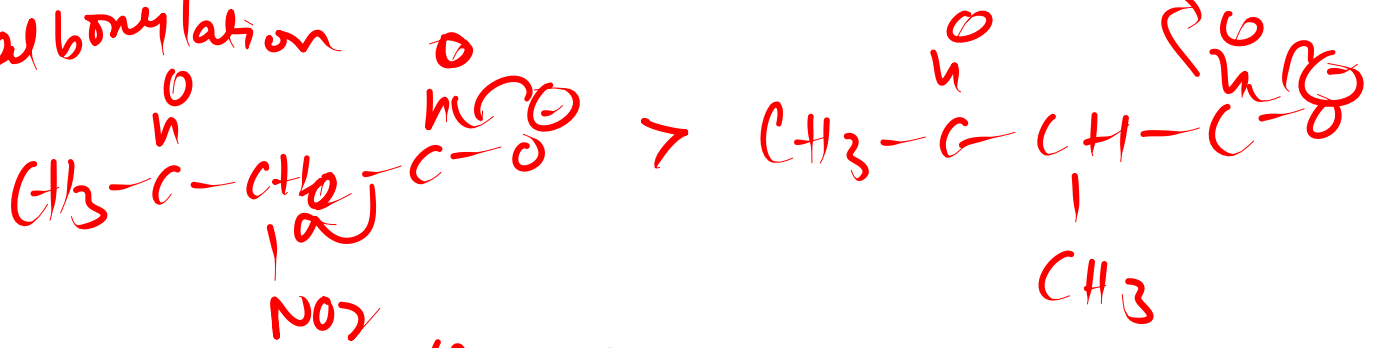
Heating of β keto Acid / Salt

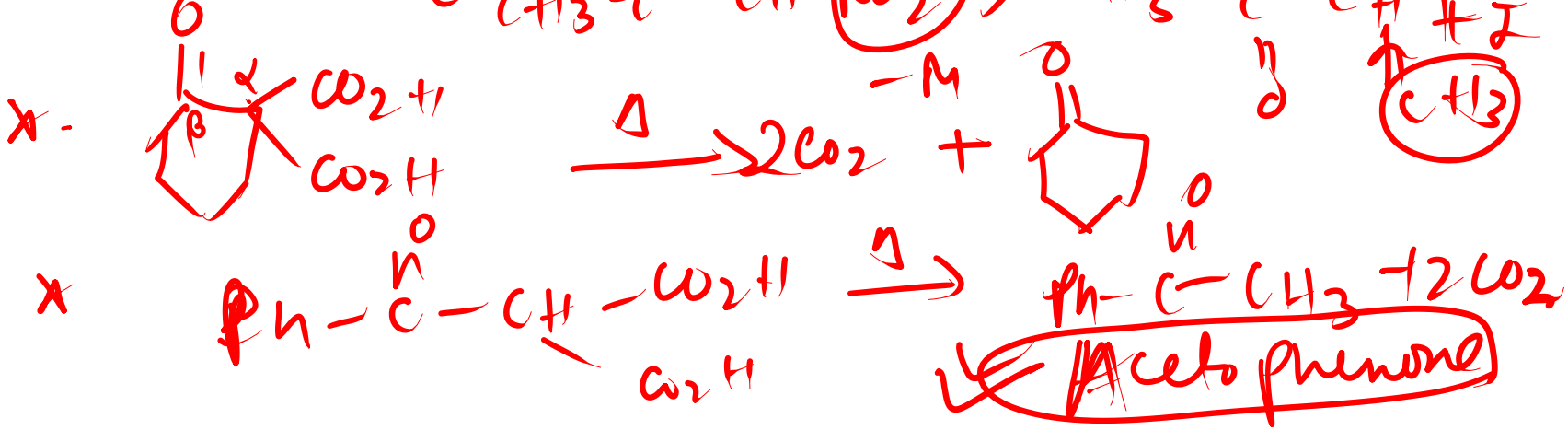
Eg. $CH_3-\overset{\overset{O}{\|}}{C}-CH_2-CO_2H \xrightarrow{\Delta} CH_3-\overset{\overset{O}{\|}}{C}-CH_3 + CO_2$

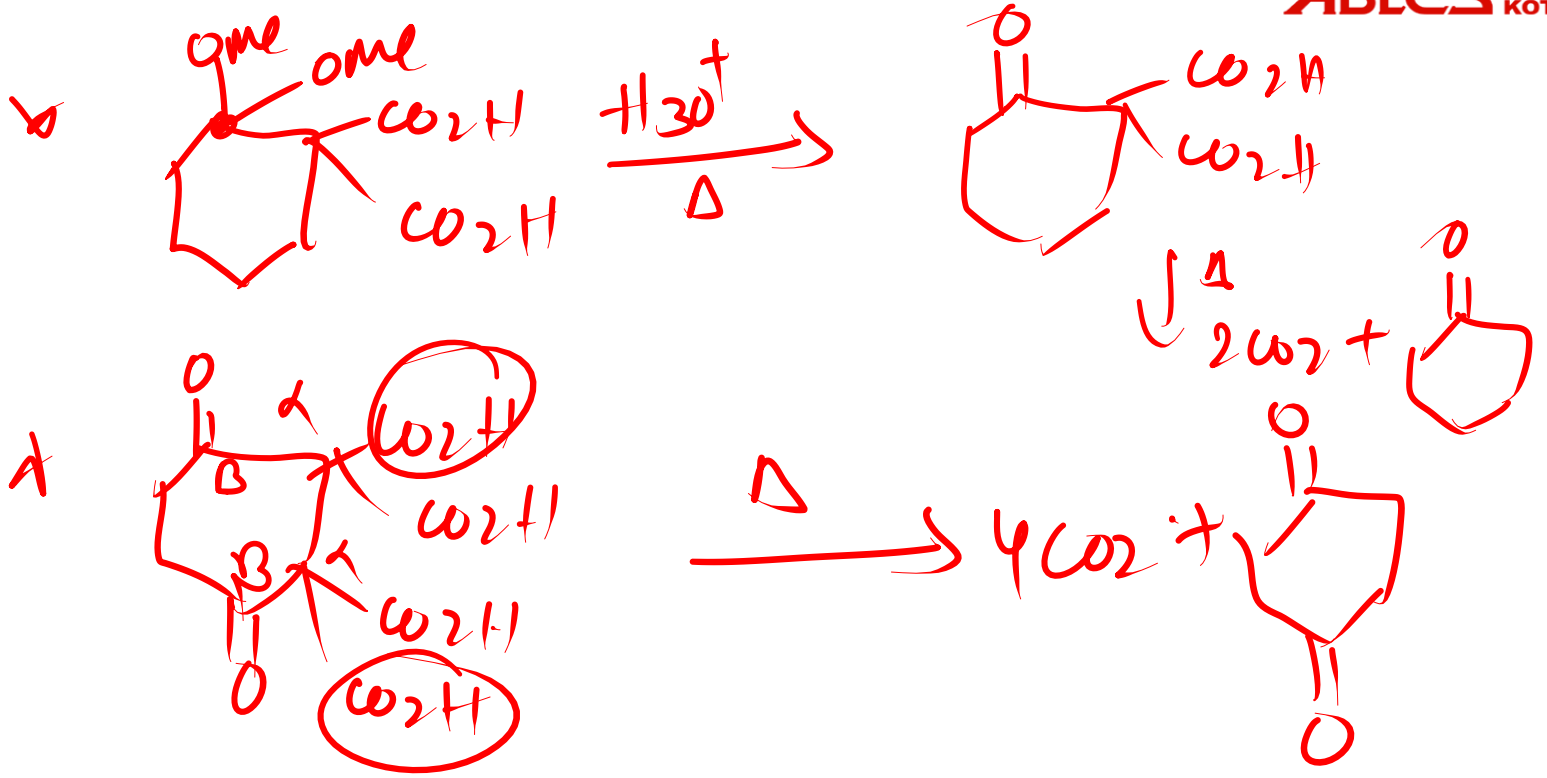
$CH_3-\overset{\overset{O}{\|}}{C}-CH_2CO_2^{\ominus}Na^{\oplus} \xrightarrow{\Delta} CH_3-\overset{\overset{O}{\|}}{C}-CH_3 + CO_2$

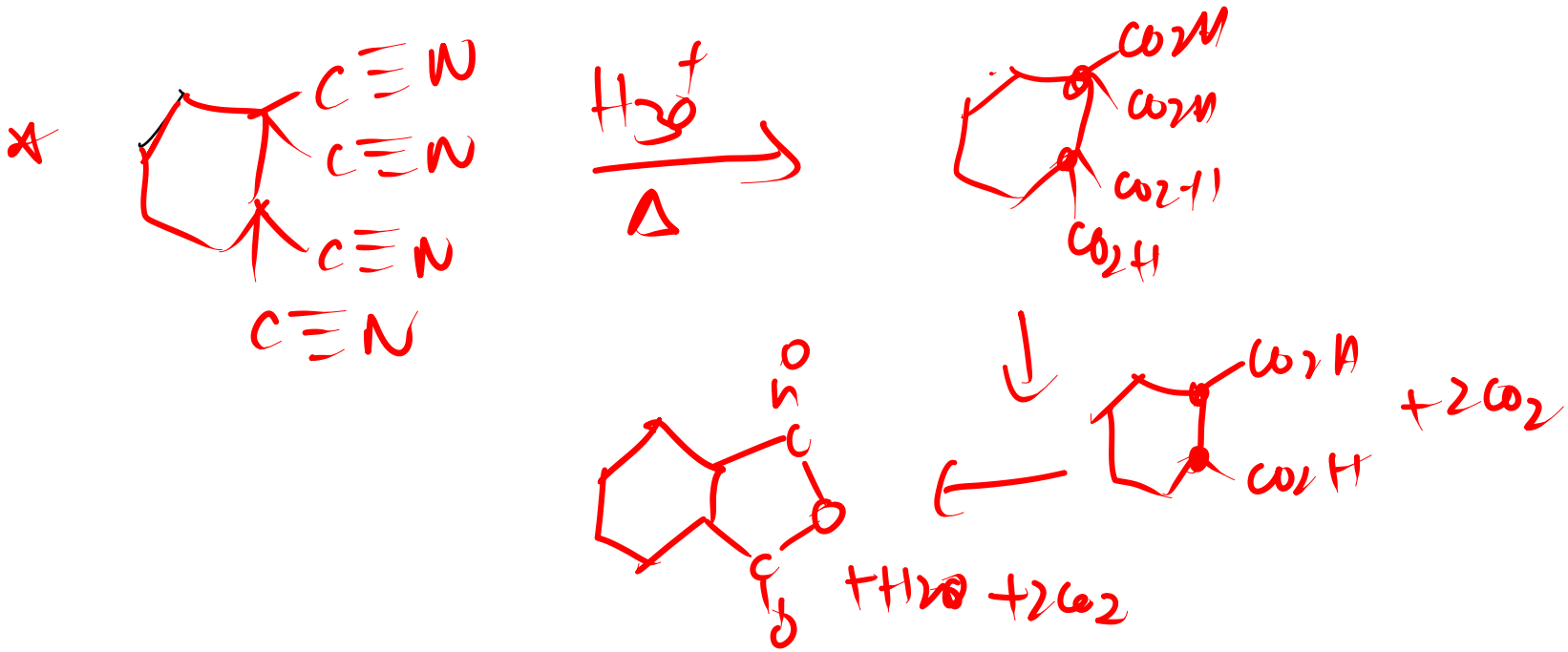
rate of decarboxylation α stability of anion formed

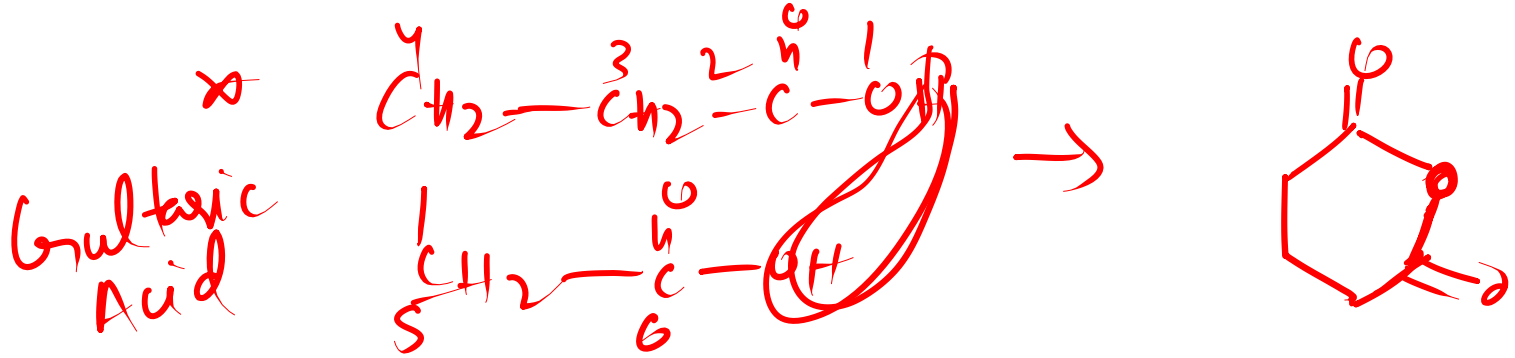
Q- Rate of decarboxylation






(b)
OMe
OMe
CO2H
CO2H
H3O+
Δ
CO2H
CO2H
Δ
2CO2 +
(A)
α
β
α
CO2H
CO2H
CO2H
CO2H
O
O
O
Δ
4CO2 +
O
O
O


A
C≡N
C≡N
C≡N
C≡N
H3O+
Δ
CO2H
CO2H
CO2H
CO2H
O
O
O
+H2O +2CO2
CO2H
CO2H
+2CO2



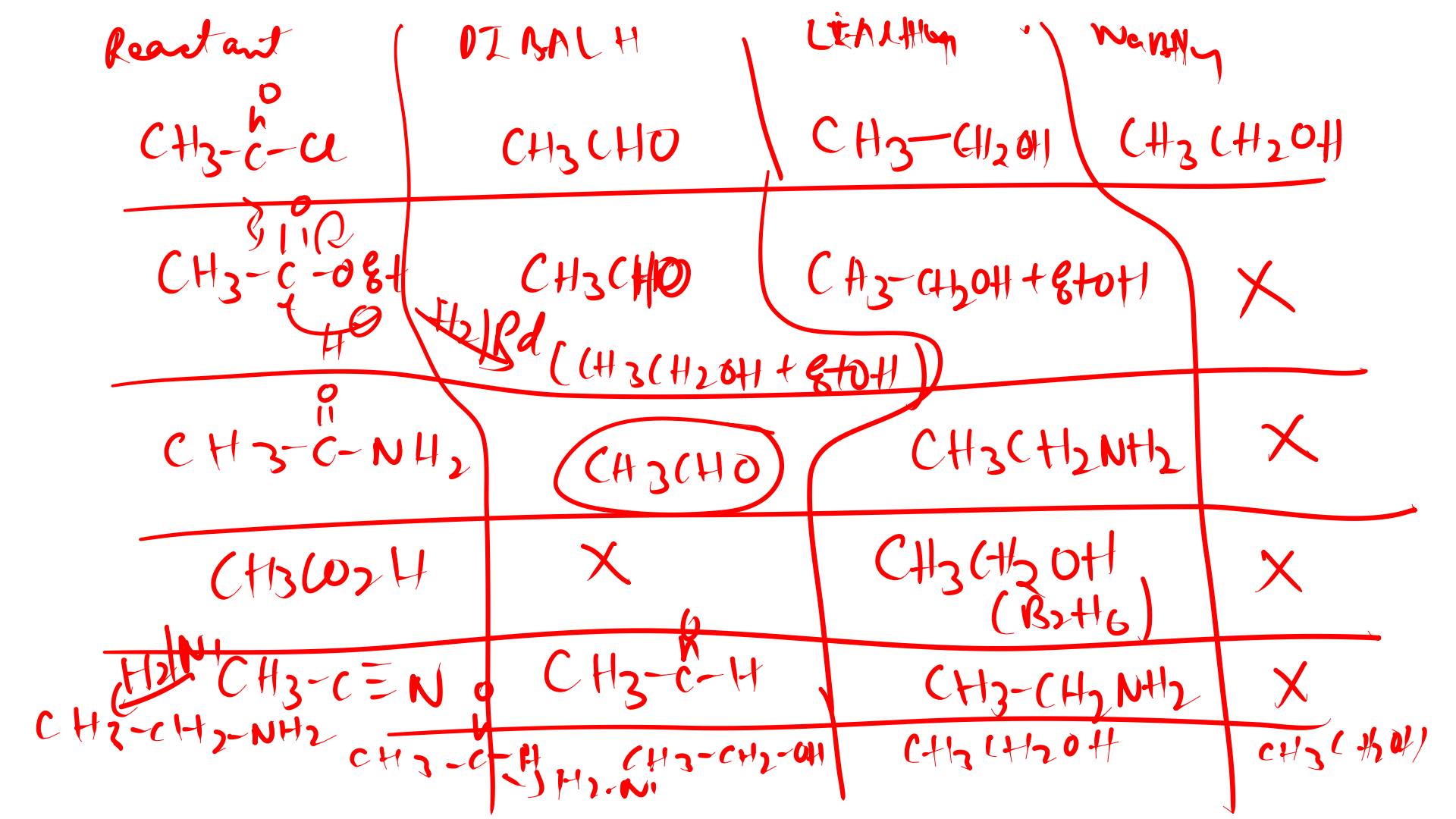
Blanc's rule

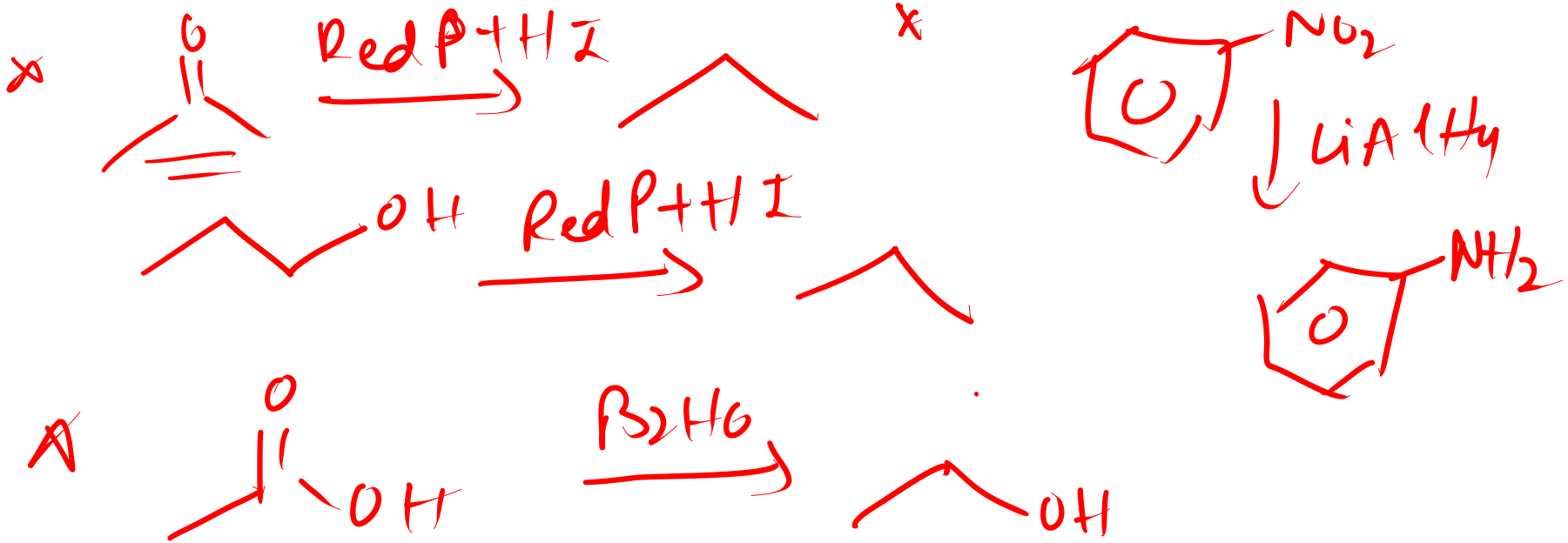
$CO_2H-(CH_2)_4-CO_2H$

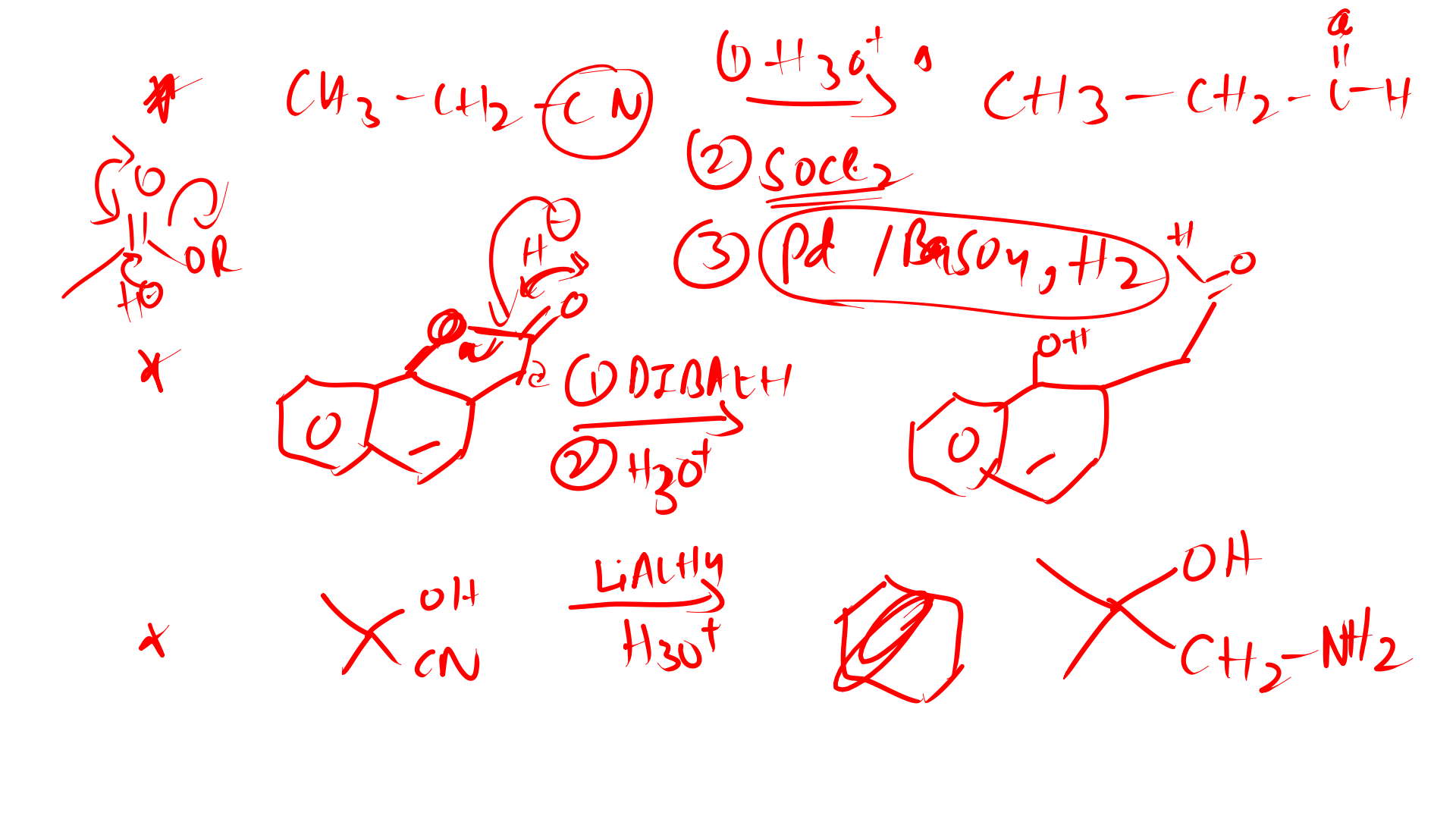
Adipic acid

$+CO_2$

$+H_2O$


Reactant
DIBAL H
LiAlH4
NaBH4
CH3-C(=O)-Cl
CH3CHO
CH3-CH2OH
CH3CH2OH
CH3-C(=O)-OEt
CH3CHO
CA3-CH2OH + EtOH
X
H2/Pd
(CH3CH2OH + EtOH)
CH3-C(=O)-NH2
CH3CHO
CH3CH2NH2
X
CH3CO2H
X
CH3CH2OH
(B2H6)
X
H2/Ni
CH3-C≡N
CH3-C(=O)-H
CH3-CH2NH2
X
CH3-CH2-NH2
CH3-C(=O)-H
CH3-CH2-OH
CH3CH2OH
CH3CH2OH


Red P + HI
OH
Red P + HI
A
O
OH
B2H6
OH
NO2
LiAlH4
NH2


CH3-CH2-CN
1) H3O+
CH3-CH2-CHO
2) SOCl2
3) Pd / BaSO4, H2
DIBALH
1) DIBALH
2) H3O+
LiAlH4
H3O+
OH
CN
OH
CH2-NH2