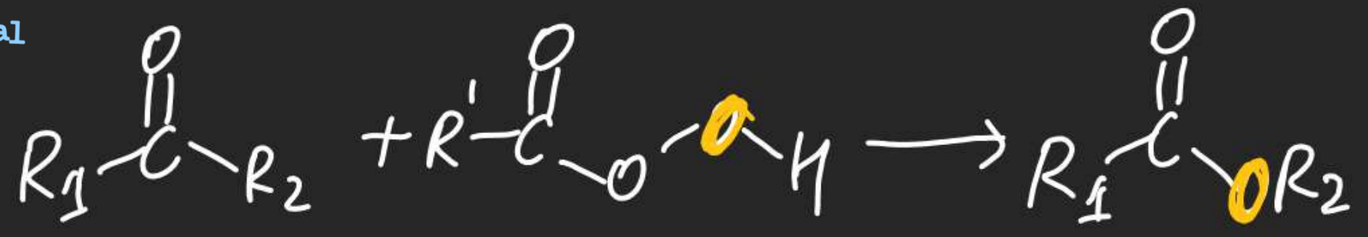
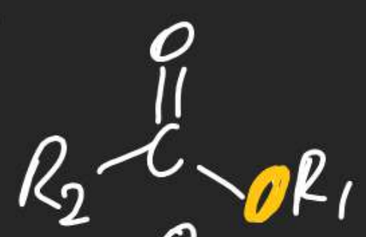
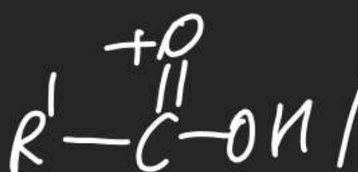
Nishant Jindal

(2) 





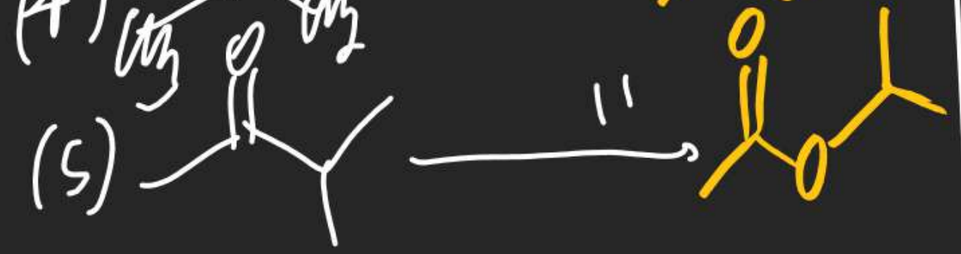
Note (i) Migratory aptitude order

$-H > 3^{\circ} > 2^{\circ} > Ar > 1^{\circ} > CH_3$

(ii) **Per Acid** CF_3-CO_3H, CH_3-CO_3H,  (m-CPBA)

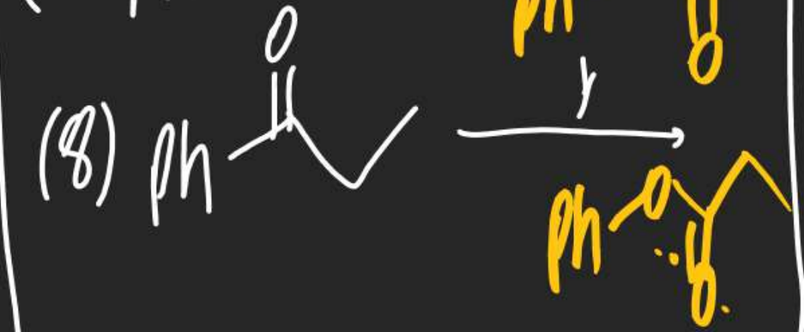
(3) 

(4) 

(5) 

(6) 

(7) 

(8) 

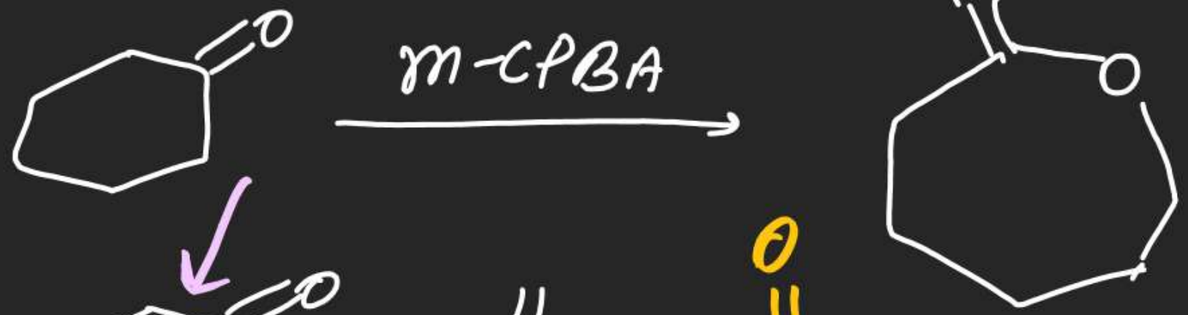
(9) 

(10) 

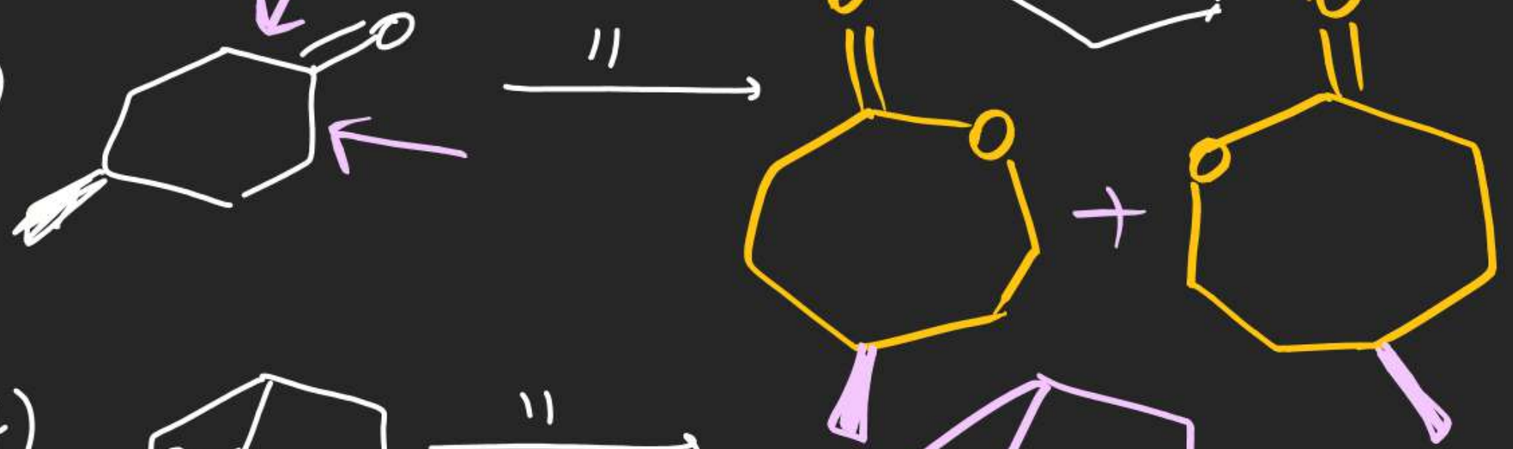
(11) 

Nishant Jindal

(12)

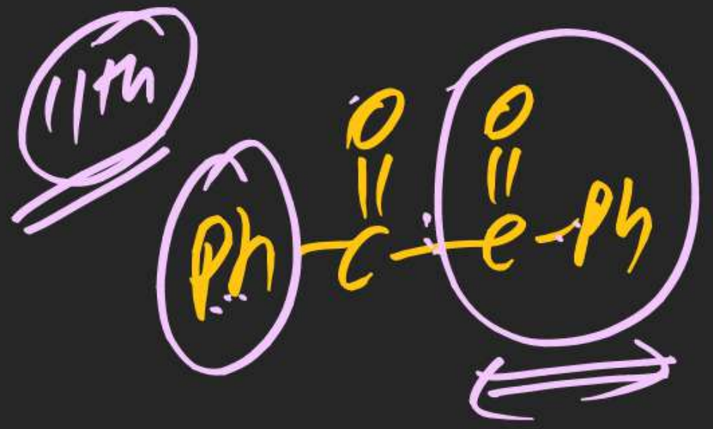


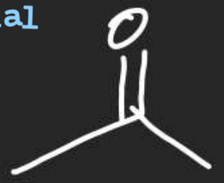
(13)

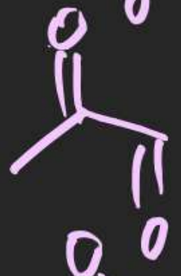


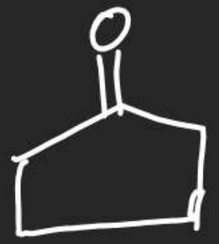
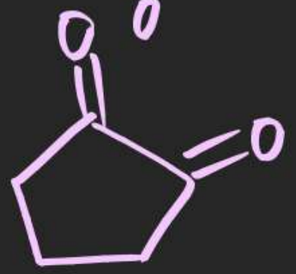
(14)

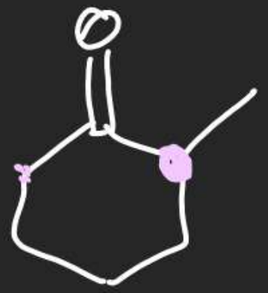
(15)



(3)  $+SeO_2 \longrightarrow$ 

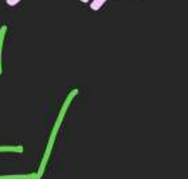
(4)  $+SeO_2 \longrightarrow$ 

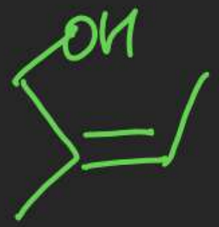
(5)  $+SeO_2 \longrightarrow$ 

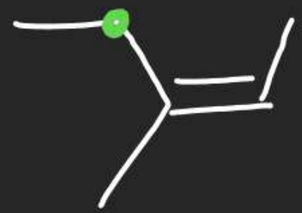
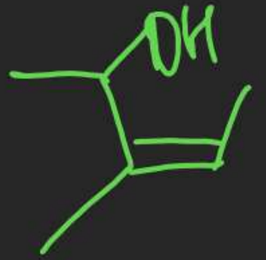
(6)  $+SeO_2 \longrightarrow$ 

(7) $H_2C(COOR)_2 + SeO_2 \longrightarrow O{=}C(COOR)_2$

(8) $H_3C-CH=CH-CH_3 \xrightarrow{SeO_2}$ 

(9) $H_3C-CH_2-CH=CH-CH_3 \xrightarrow{SeO_2}$ 

(10)  $\xrightarrow{SeO_2}$ 

(11)  $\xrightarrow{SeO_2}$ 

(12)  $\xrightarrow{[O]}$ 

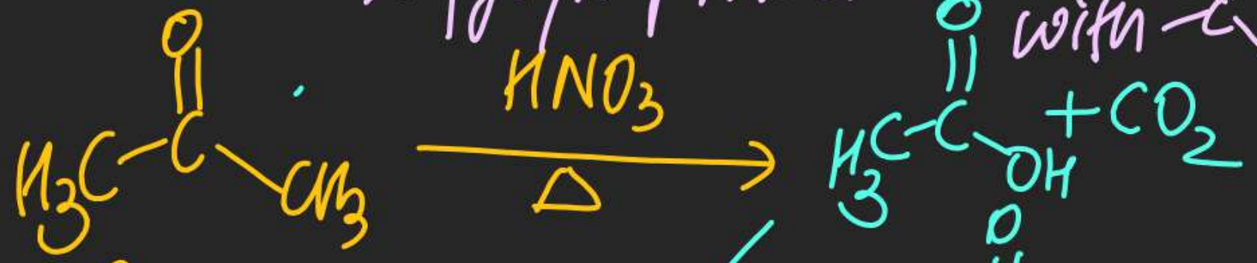
(13)  $\xrightarrow{[O]}$ 

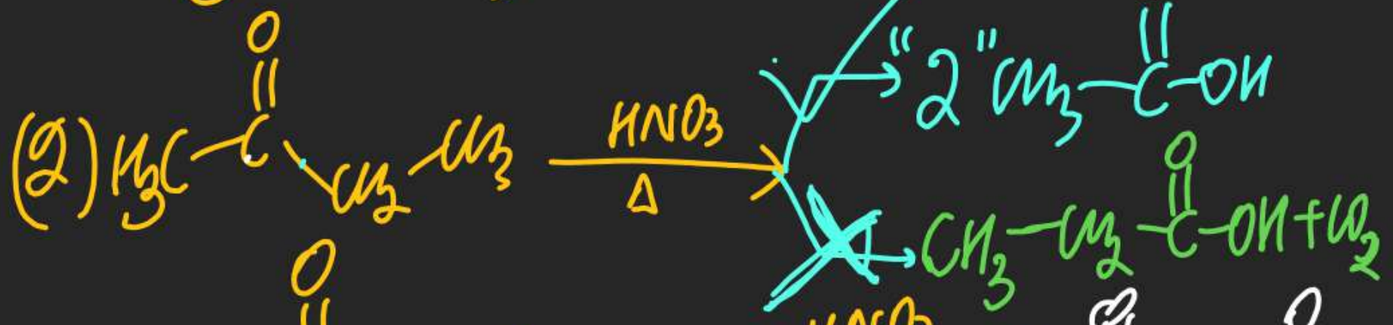
(14)  $\xrightarrow{[O]}$ 

Nishant Jindal

(#) Oxidation of $\overset{}{\underset{}{>}C=O}$ in Drastic Condition:

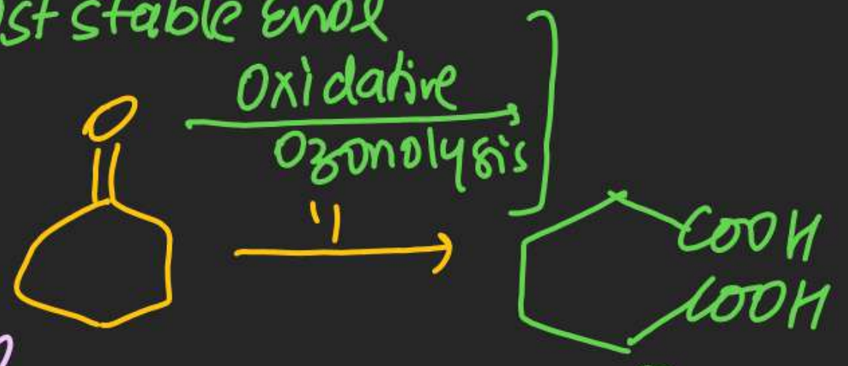
Popoff's Rule: Acc. to this Rule smaller Alkyl group must be present with $\overset{}{\underset{}{>}C=O}$

(1) 

(2) 

(3) 

(4) 

(5) 

Carbon in product.

(6) 

(7) 

$CH_3-COOH + HOOC-CH_2-CH_2-CH_3 + HOOC-CH_2-CH_3$

(11) $Ph-NH-OH \xrightarrow{Ag_2O} Ph-N=O + 2Ag + H_2O$

(12)

Tartaric Acid → Tartonic Acid

(13) By Ammonical $AgNO_3$ Solution:-

⇒ It gives white ppt with Terminal alkyne

(i) $H-C\equiv C-H + 2AgNO_3 + 2NH_4OH \longrightarrow AgC\equiv CAg + 2H_2O + 2NH_4NO_3$

Di Silver Acetylide (white ppt)

(ii) $R-C\equiv C-H + AgNO_3 + NH_4OH \longrightarrow R-C\equiv CAg + NH_4NO_3 + H_2O$

(iii) $R-C\equiv C-R' + AgNO_3 + NH_4OH \longrightarrow$ No Rxn

(14) By Ammonical Cuprous chloride :-

$\Rightarrow$ Terminal alkynes give Red colour ppt.

(i) $H-C\equiv C-H + Cu_2Cl_2 + 2NH_4OH \longrightarrow \underset{\text{Di Copper Acetylide (Red ppt)}}{CuC\equiv CCu} + 2H_2O + 2NH_4Cl$

(ii) $2R-C\equiv C-H + Cu_2Cl_2 + 2NH_4OH \longrightarrow \underset{\text{(Red ppt)}}{2R-C\equiv CCu} + 2H_2O + 2NH_4Cl$

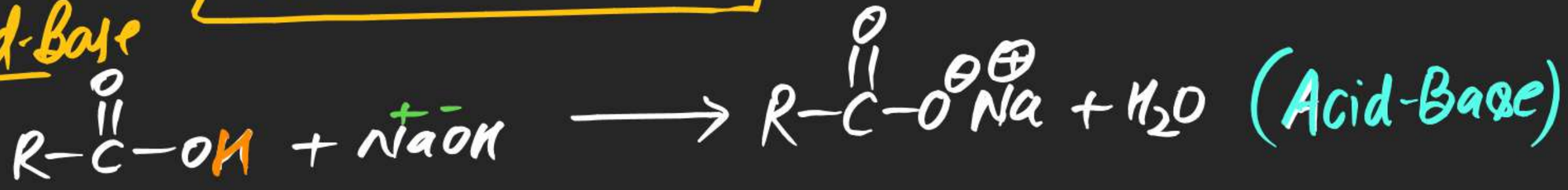
(iii) $R-C\equiv C-R + Cu_2Cl_2 + 2NH_4OH \longrightarrow$ No Rxn.

Note: Ammonical $AgNO_3$ & Ammonical Cu_2Cl_2 Both can be used for distinguishion b/w Terminal & Non Terminal alkyne.

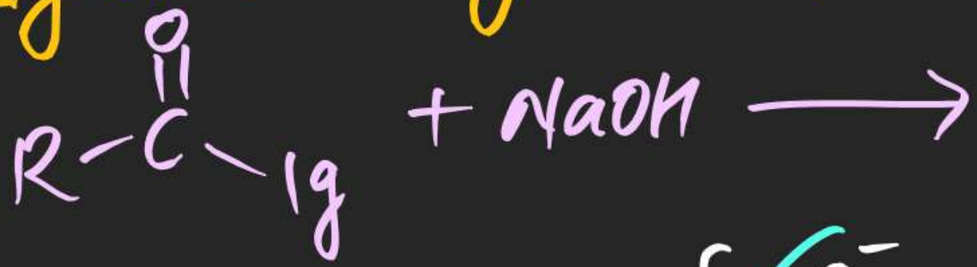
Nishant Jindal

Named Reaction

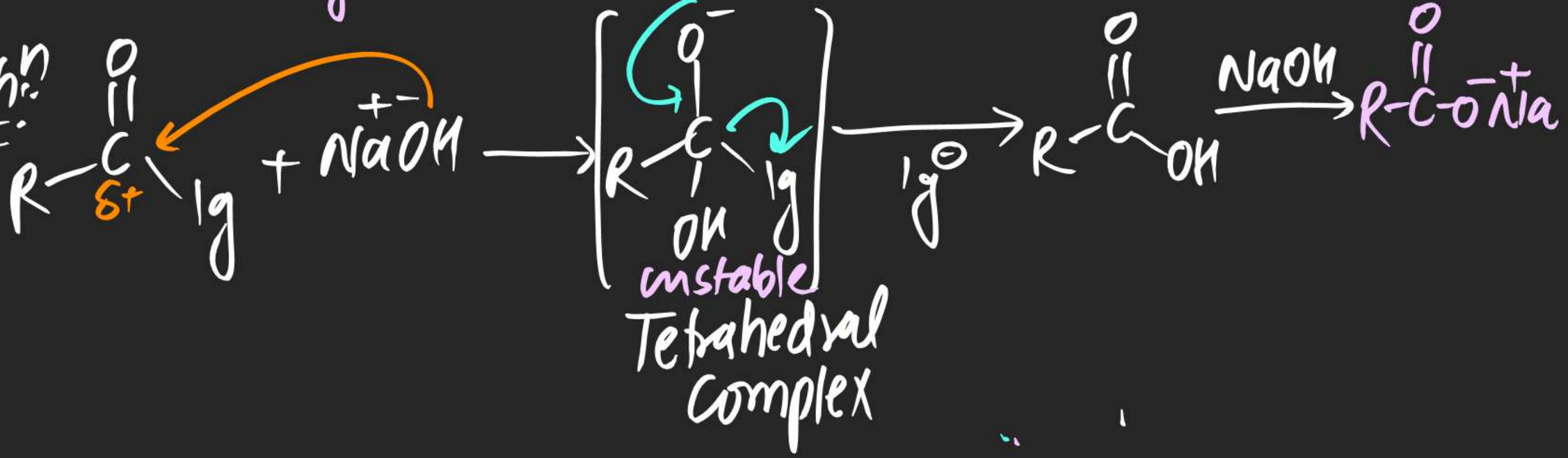
Case (i) Acid-Base



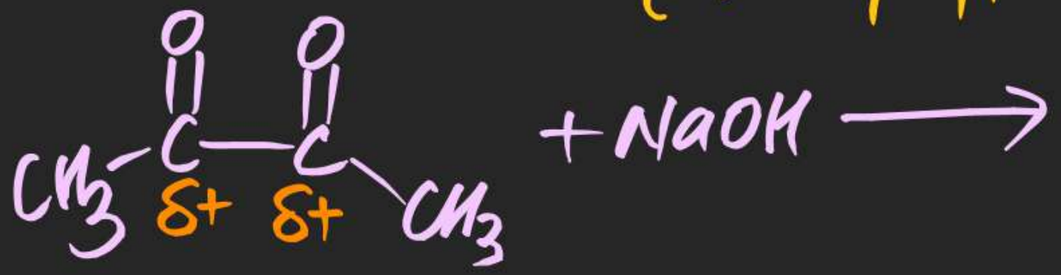
Case (ii) lg at Carbonyl Carbon



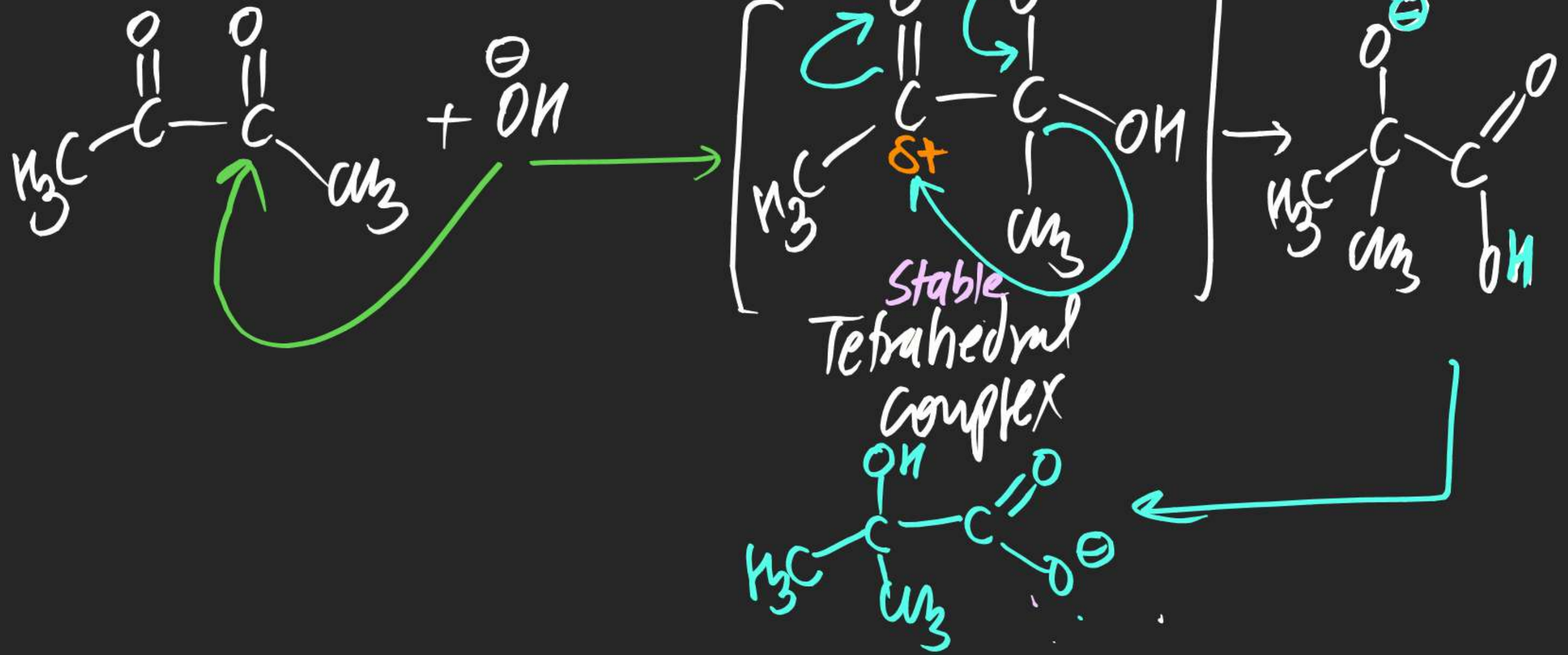
Mechn:



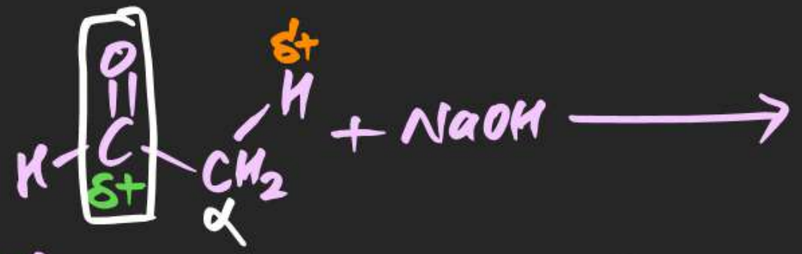
Case(iii) In case of 1,2 di Carbonyl compound. (Aldehyde/Ketone)

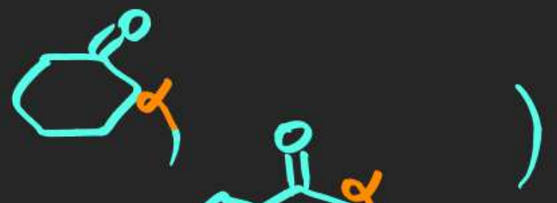


mechn:

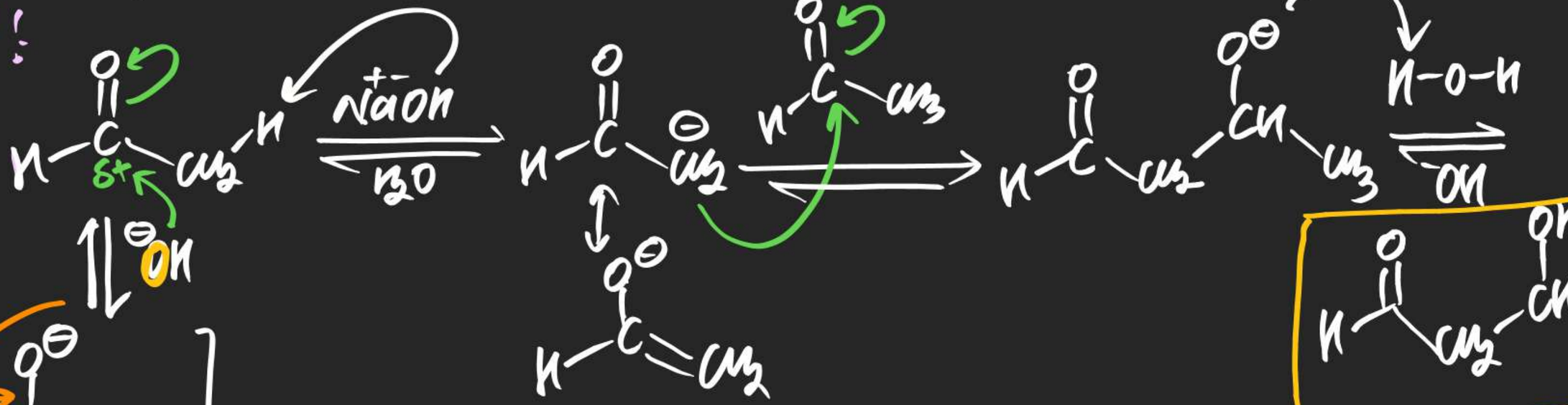


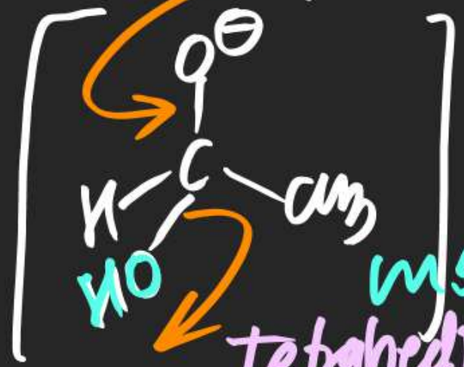
Case (IV) when α "H" is present



[ , )

Soln:

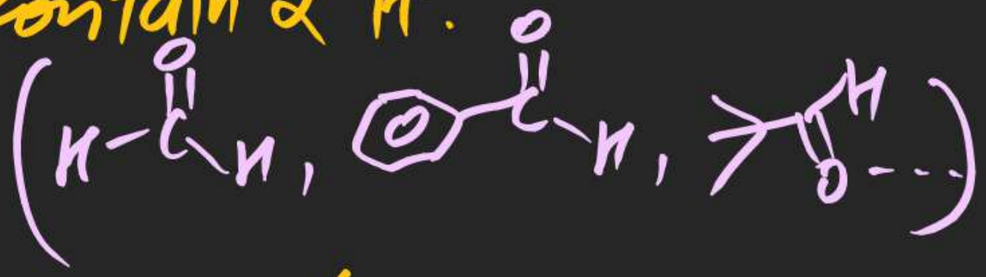




(Aldol Rxn)

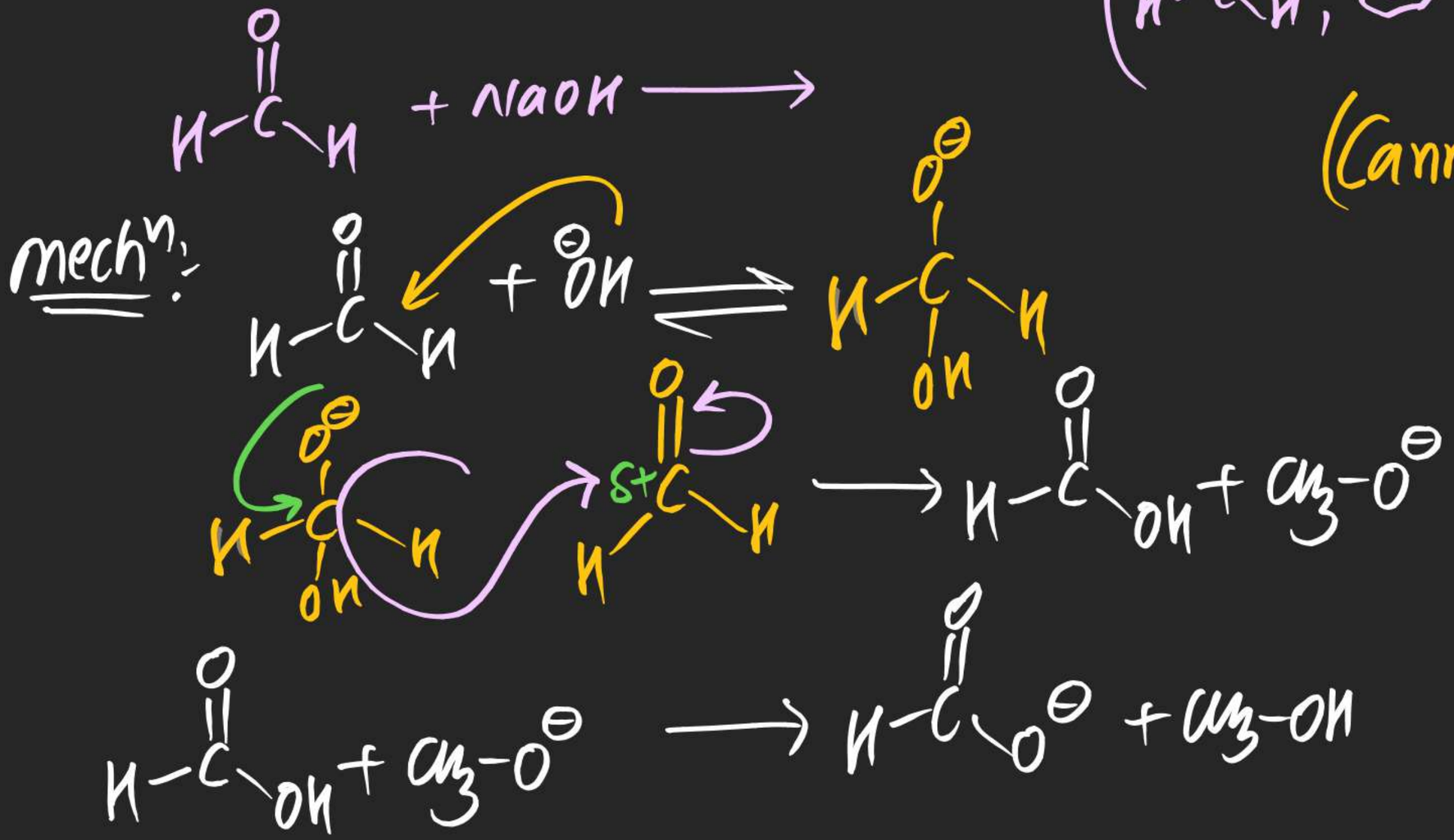
Nishant Jindal

Case(V): When Carbonyl Compound doesn't Contain α 'H'.

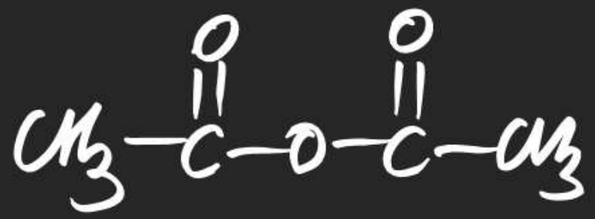


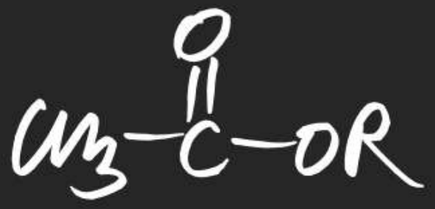
(Cannizaro's Rxn)

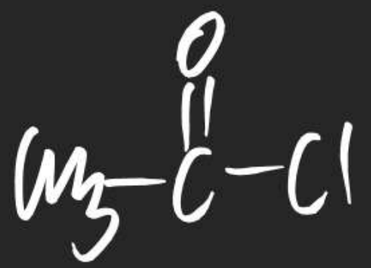
Mechn:



(1) 

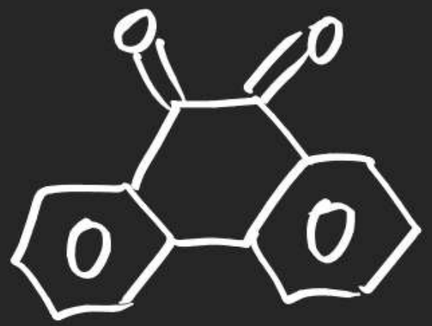
(2)  

(3)  

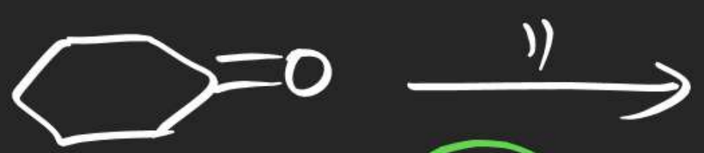
(4)  

(5)  $\xrightarrow{NaOH}$

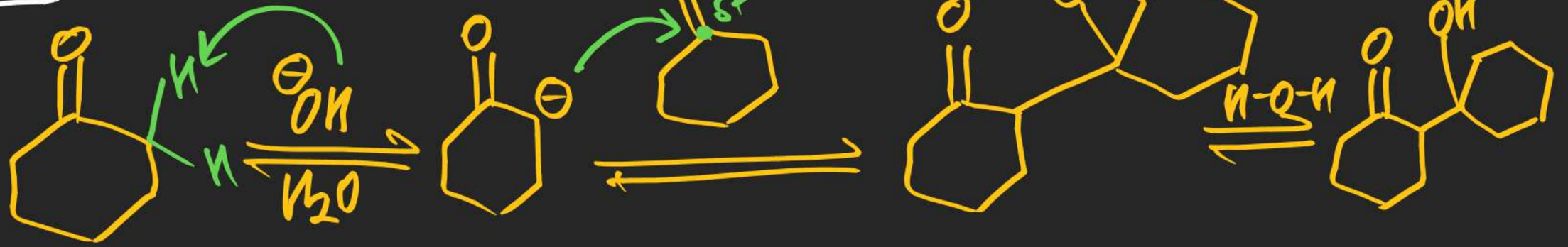
(6)  $\xrightarrow{NaOH}$

(7)  $\xrightarrow{//}$

(8) $CH_3-CH_2-\overset{\overset{O}{\|}}{C}-H \xrightarrow{NaOH}$

(9) 

mechn:

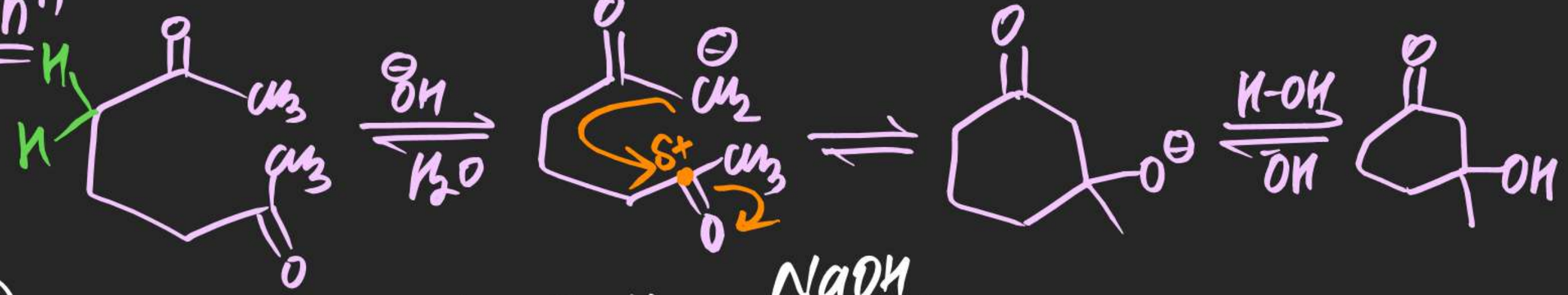


(10) 

$\xrightarrow{NaOH}$

Nishant Jindal

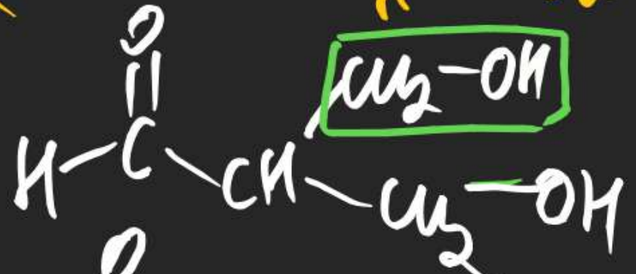
Mechⁿ



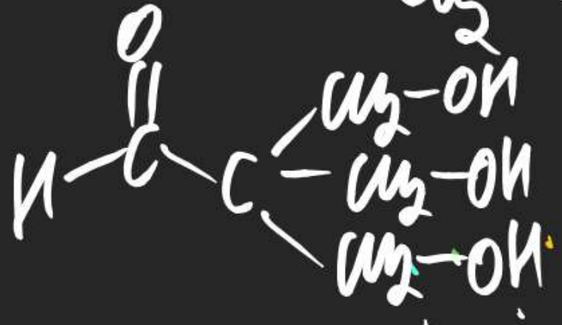
(11) $H_3C-\underset{\underset{O}{\|}}{C}-H + H-\underset{\underset{O}{\|}}{C}-H \xrightarrow{NaOH}$

Mechⁿ

(12) $H_3C-\underset{\underset{O}{\|}}{C}-H + H-\underset{\underset{O}{\|}}{C}-H \xrightarrow{NaOH}$ (1 : 2)



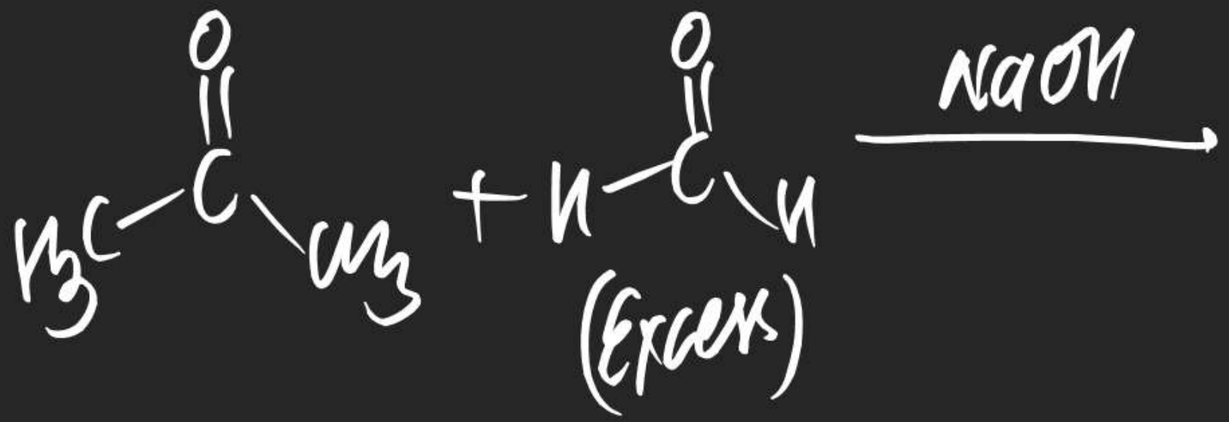
(13) $H_3C-\underset{\underset{O}{\|}}{C}-H + H-\underset{\underset{O}{\|}}{C}-H \xrightarrow{NaOH}$ (1 : 3)



Nishant Jindal

(14) 

1 : 4

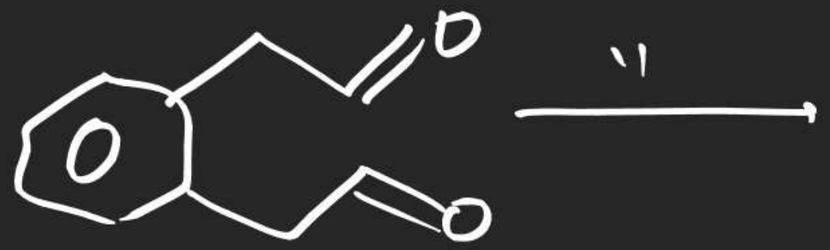
(15) 

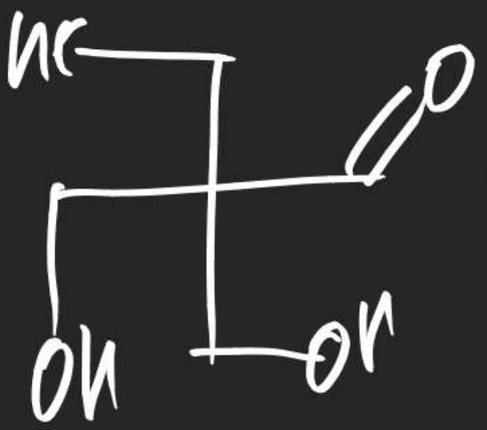
(16)  + H–C(=O)–H $\xrightarrow{NaOH}$

1 : 4

(17) $CH_3-C(=O)-H + Ph-C(=O)-H \xrightarrow{NaOH}$

(18)  + H–C(=O)–OEt $\xrightarrow{NaOEt}$

(19)  $\xrightarrow{H^+}$

(20)  $+ H-\overset{\overset{O}{\|}}{C}-H \xrightarrow{NaOH}$

(A) Carbonyl sheat Complete Except - (Named Reaction)

(B) BB (Alkyl Halide) Complete.