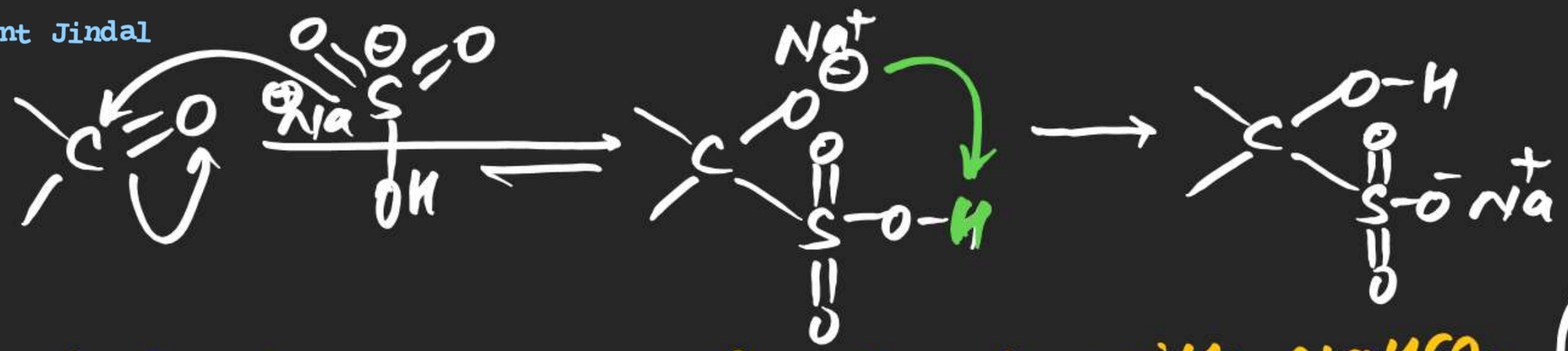
Nishant Jindal



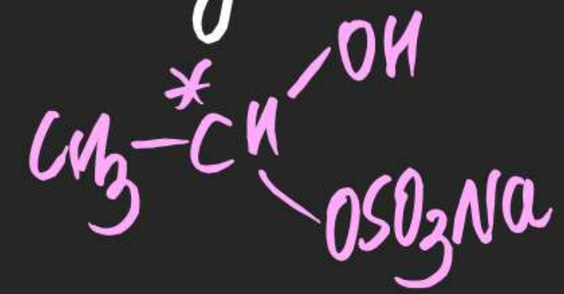
Note :- (i) All aldehydes Reacts with $NaHSO_3$

(ii) only methyl ketones show Rxn with $NaHSO_3$

(iii) Rxn is used for distinguishion b/w methyl & non methyl ketones

(iv) Cyclic ketones show positive Rxn

(v) Adduct in Basic medium gets decomposed in to

(2) $CH_3-\overset{O}{\overset{\|}{C}}-H \xrightarrow{NaHSO_3}$  2(±)

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(3)  $\xrightarrow{NaHSO_3}$ 

(4)  $\xrightarrow{''}$  2 (±)

(5)  $\xrightarrow{''}$  2(±)

(6)  $\xrightarrow{''}$ No Rx^n

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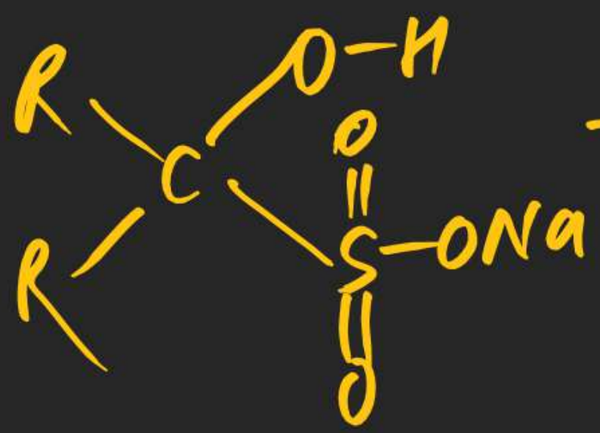
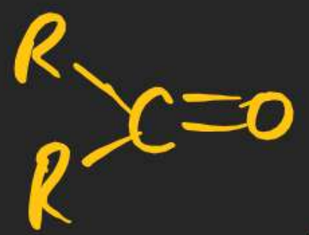
(7)  $\xrightarrow{NaHSO_3}$ 

(8)  $\xrightarrow[\Delta]{NaOH}$ 

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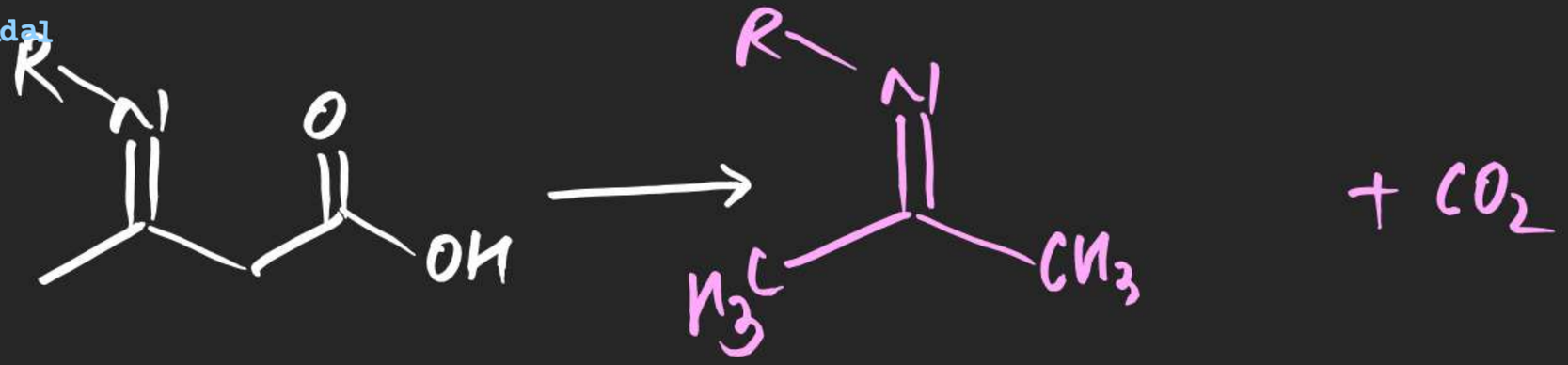
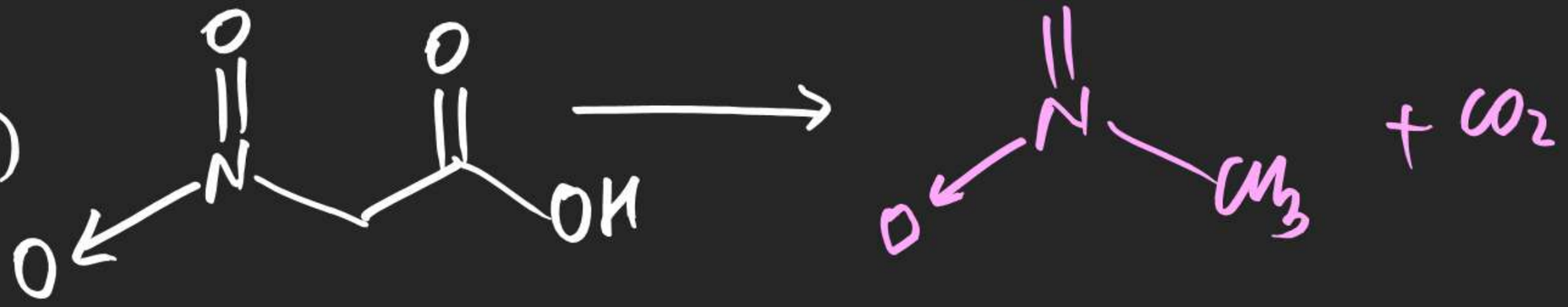
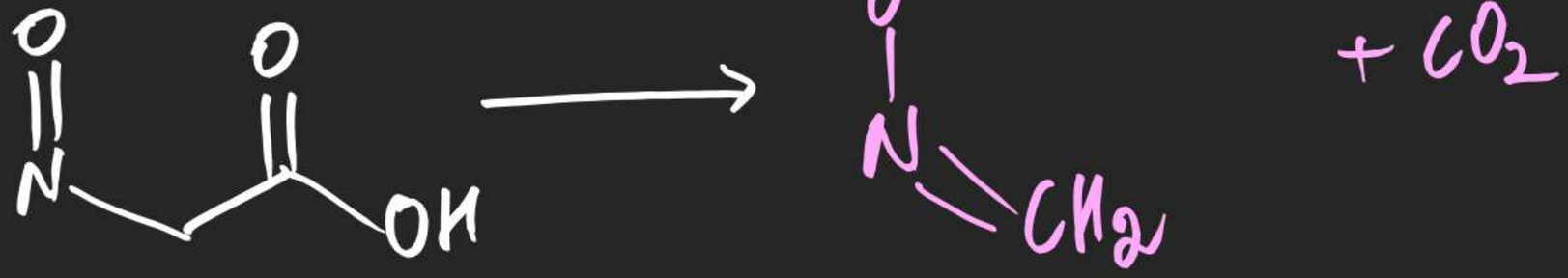
(3) 

+ CO_2

(4) 

+ CO_2

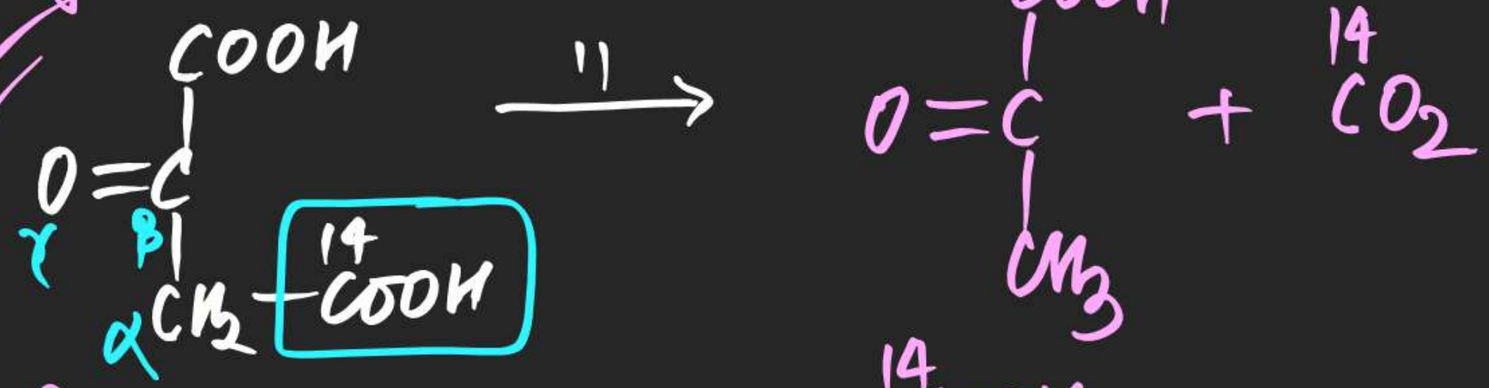
(5) 

+ CO_2

Nishant Jindal

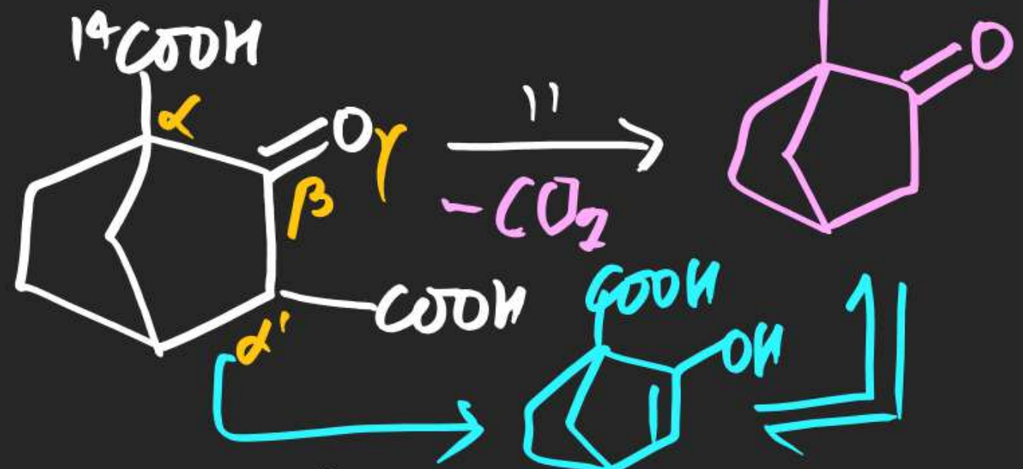
M.Imp

(9)

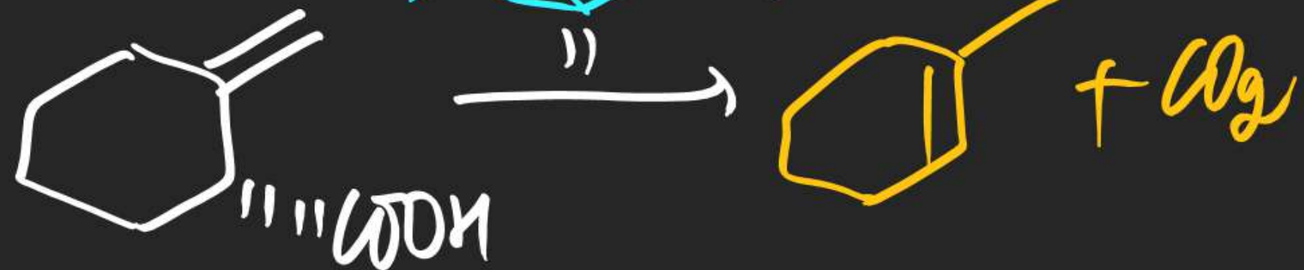


M.Imp

(10)



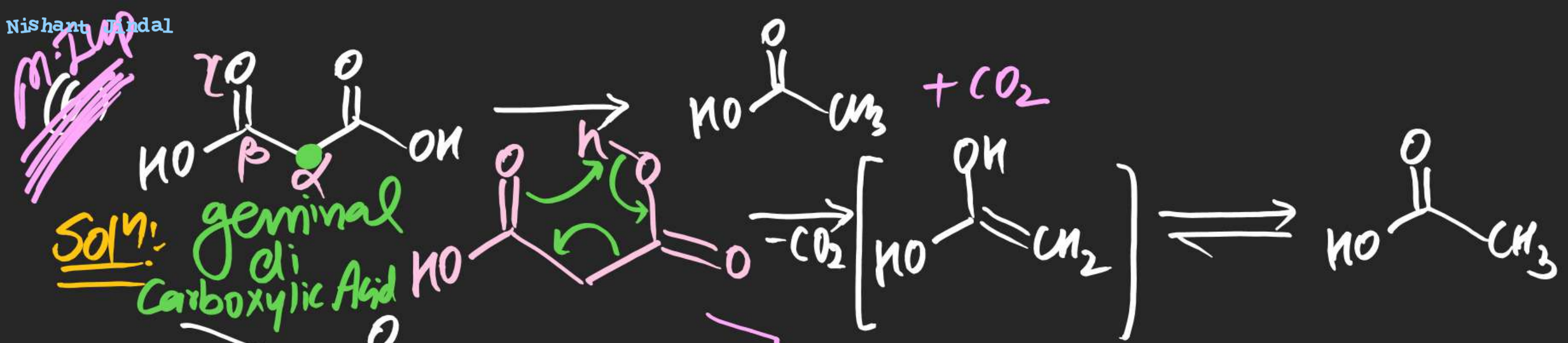
(11)



Nishant Jindal

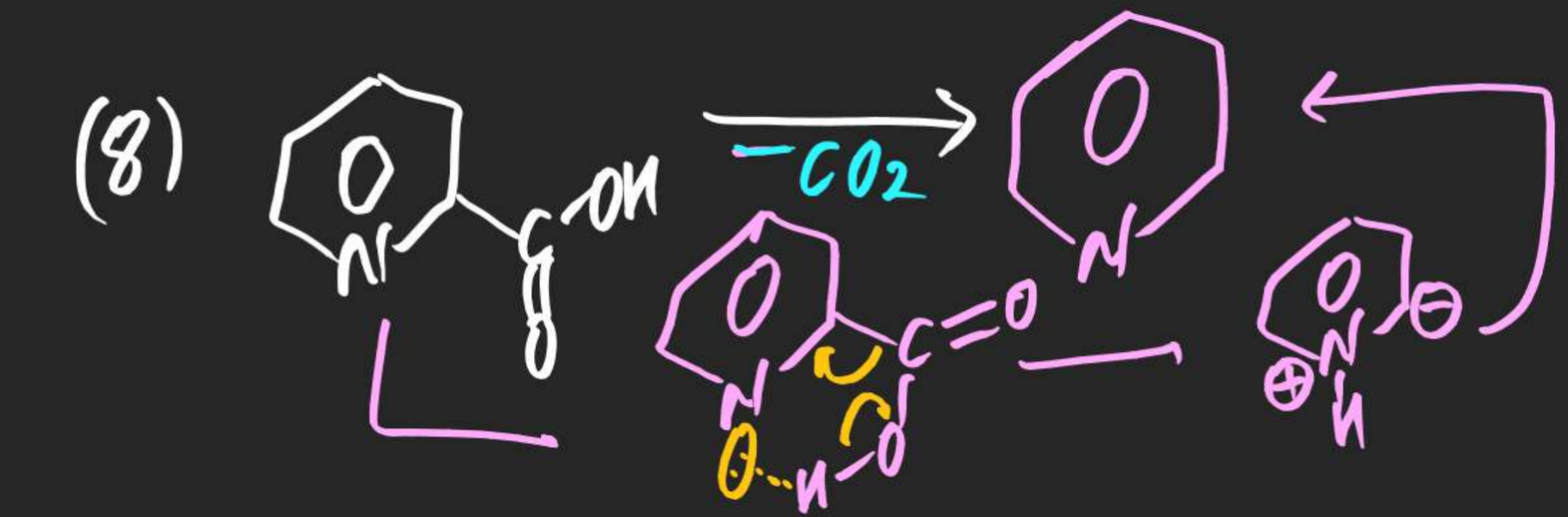
M.Imp

Soln: geminal di Carboxylic Acid



(7)

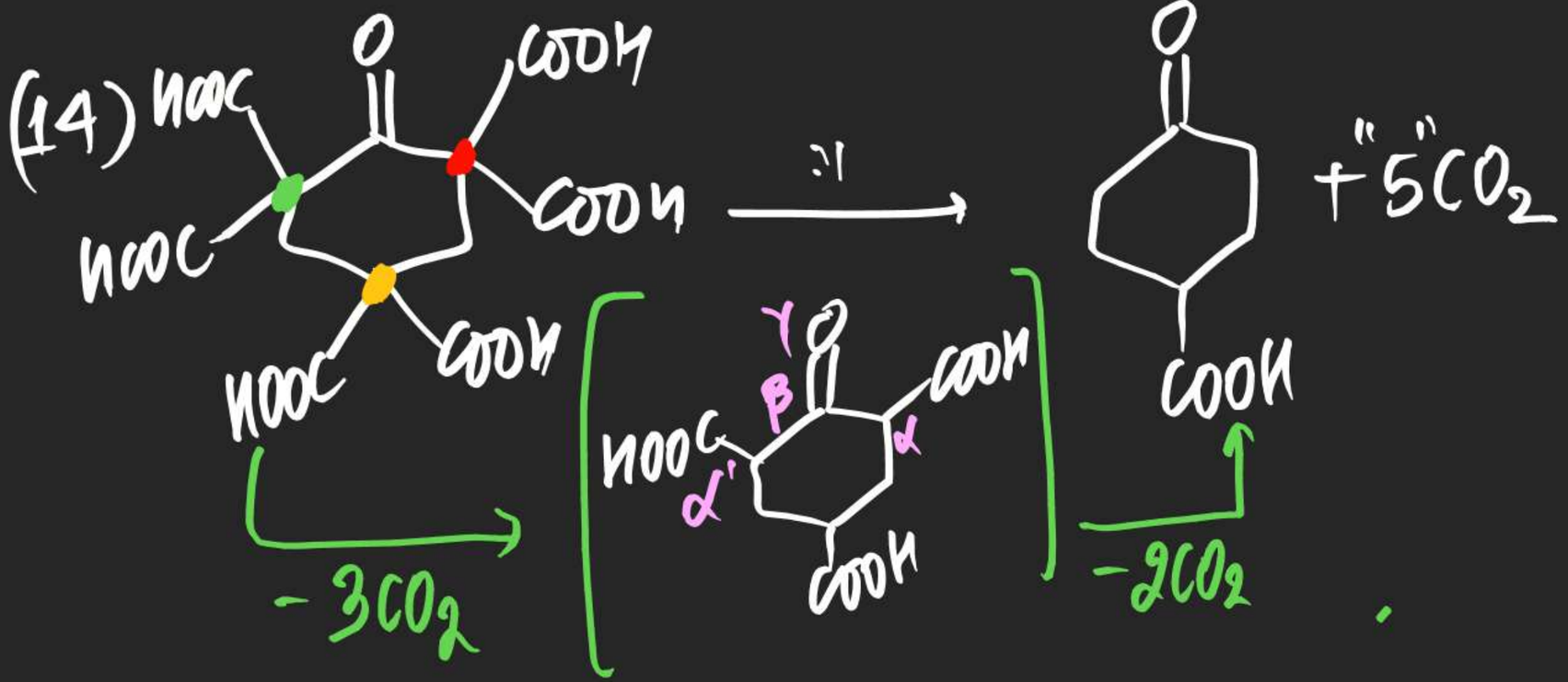
(8)



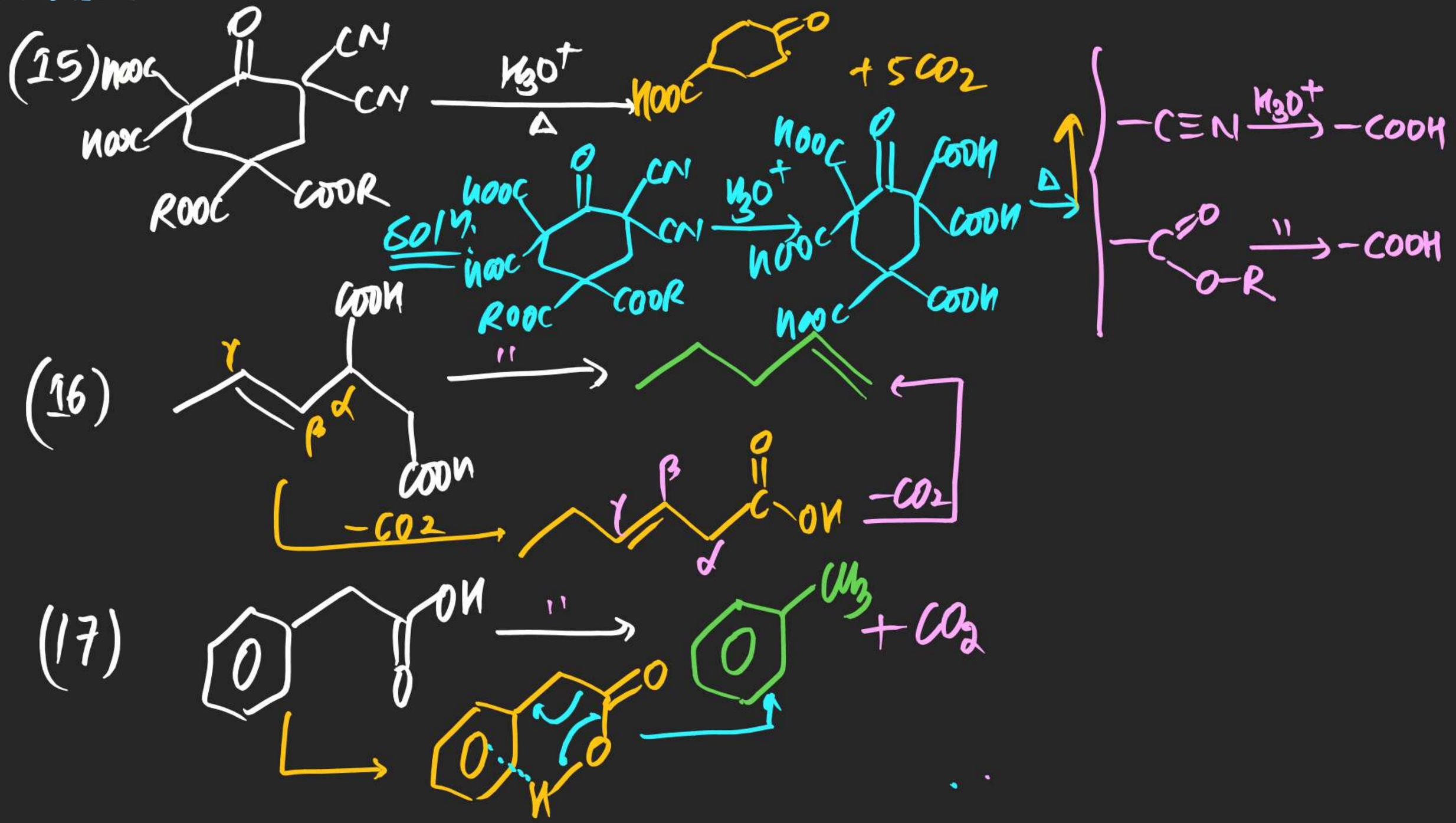
Nishant Jindal

(12) 

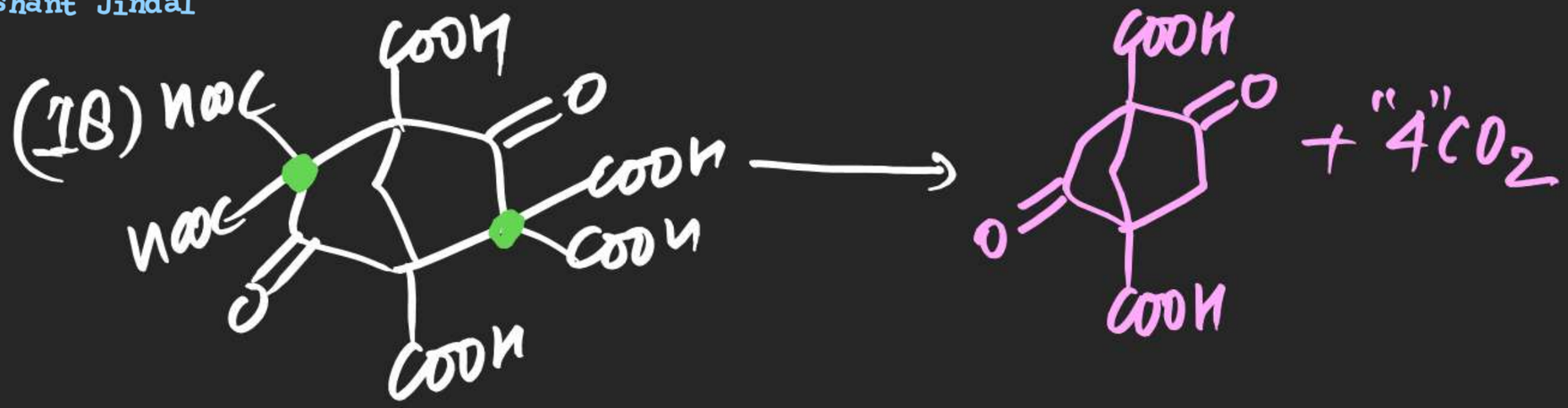
(13) 

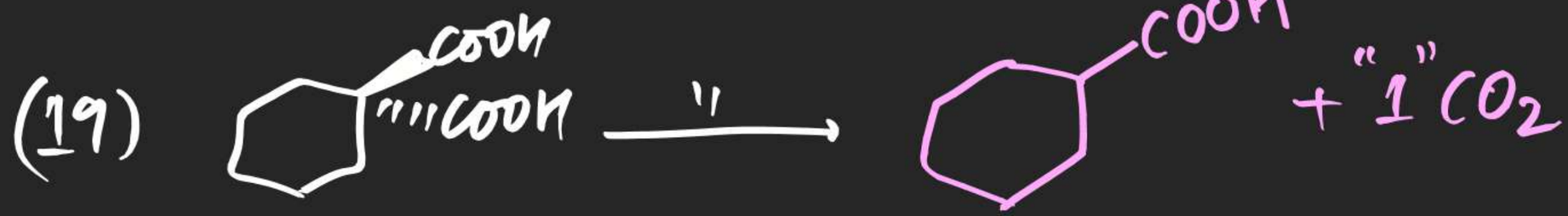
(14) 

Nishant Jindal

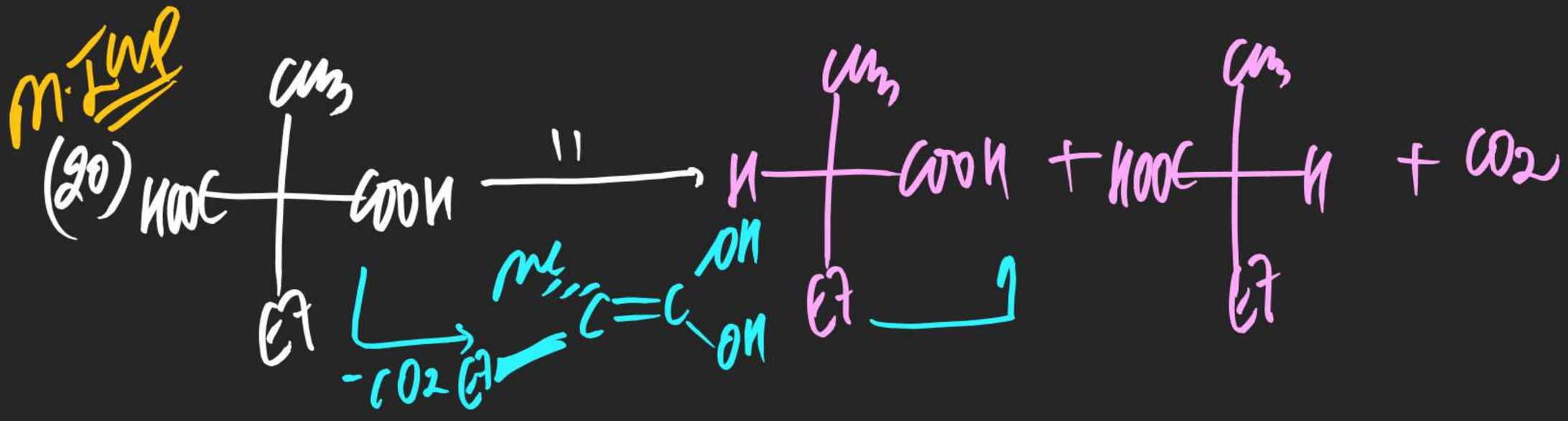


Nishant Jindal

(18) 

(19) 

M.I.M.P

(20) 

Nishant Jindal

(#) Heating of Di Carboxylic Acid :

	O	M	S	G	A	P
H_2O			✓	✓	✓	✓
CO_2	✓	✓			✓	✓

(1) $\begin{matrix}COOH\\|\\COOH\end{matrix}$ $\xrightarrow{\Delta}$ $HCOOH + CO_2$

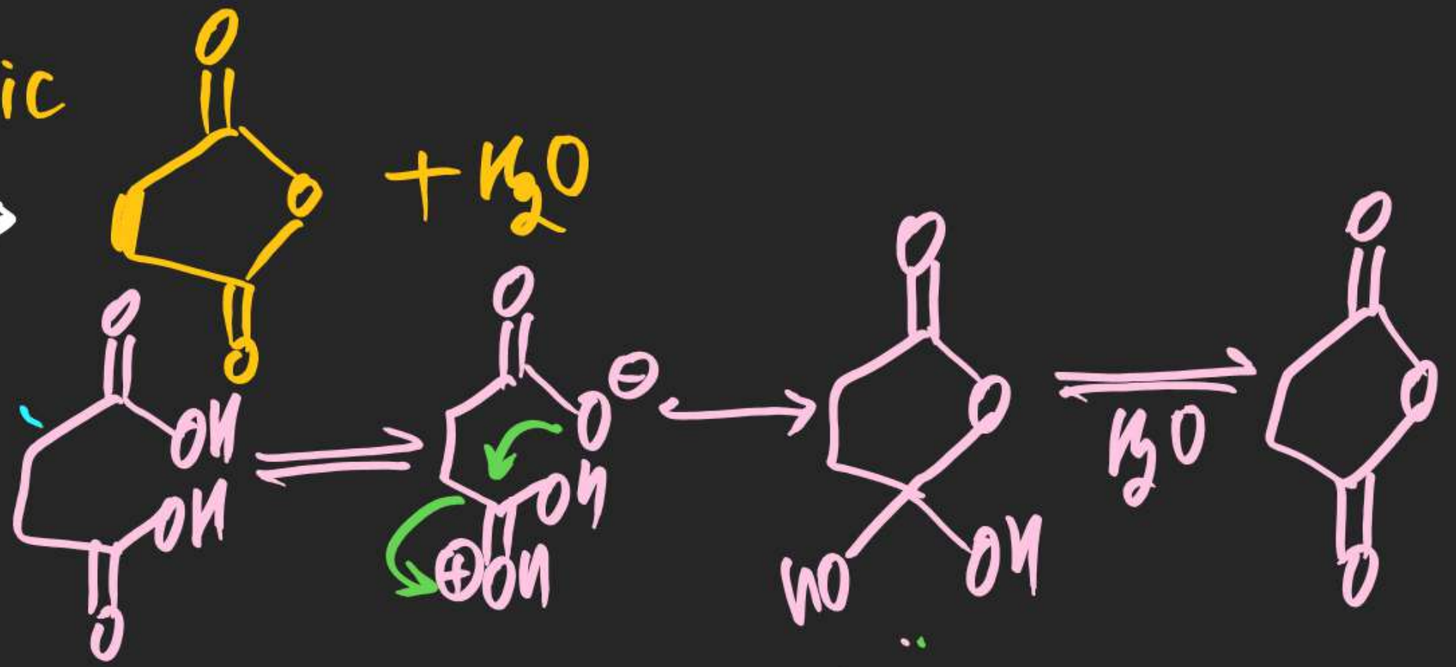
Oxalic Acid

mImp

(2) $\overset{*}{1}CH_2(COOH)_2$ $\xrightarrow{\Delta}$ $CH_3-COOH + CO_2$

Geminal di Carboxylic

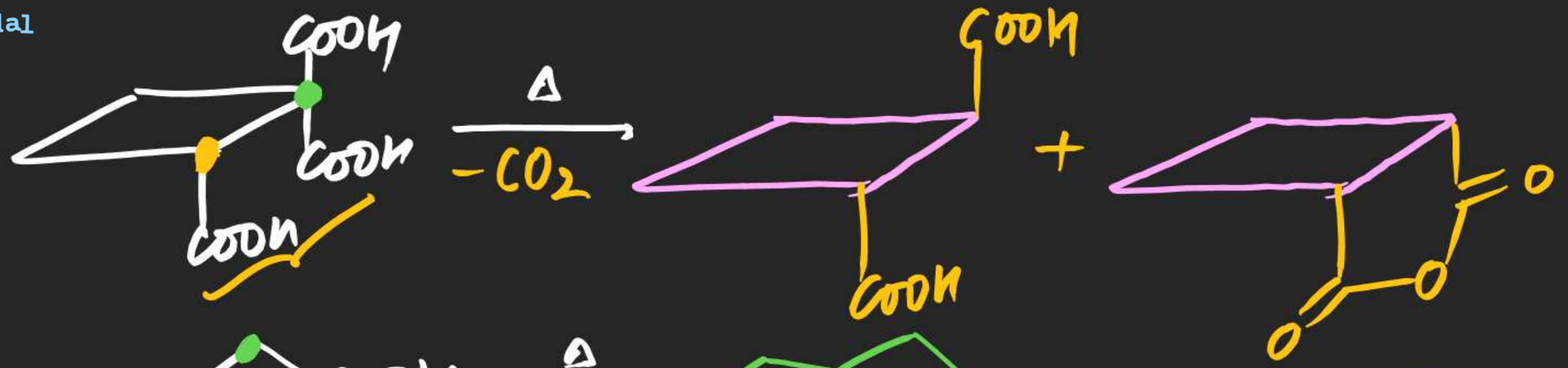
mImp

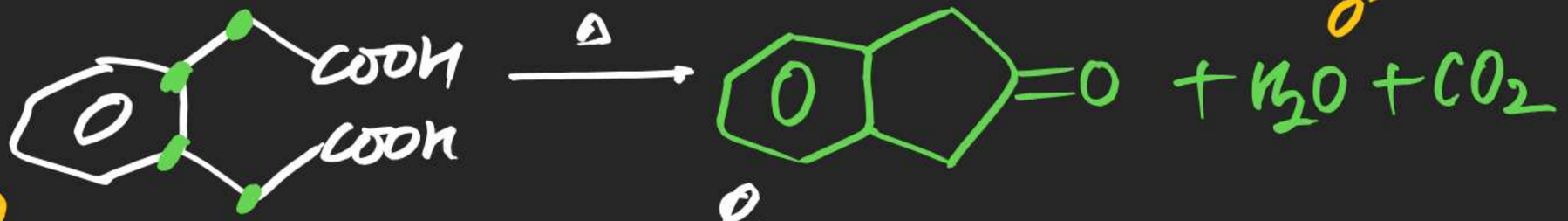
(3) $\begin{matrix}1CH_2-COOH\\|\\2CH_2-COOH\end{matrix}$ $\xrightarrow{\Delta}$  $+ H_2O$

Vicinal di Carboxylic

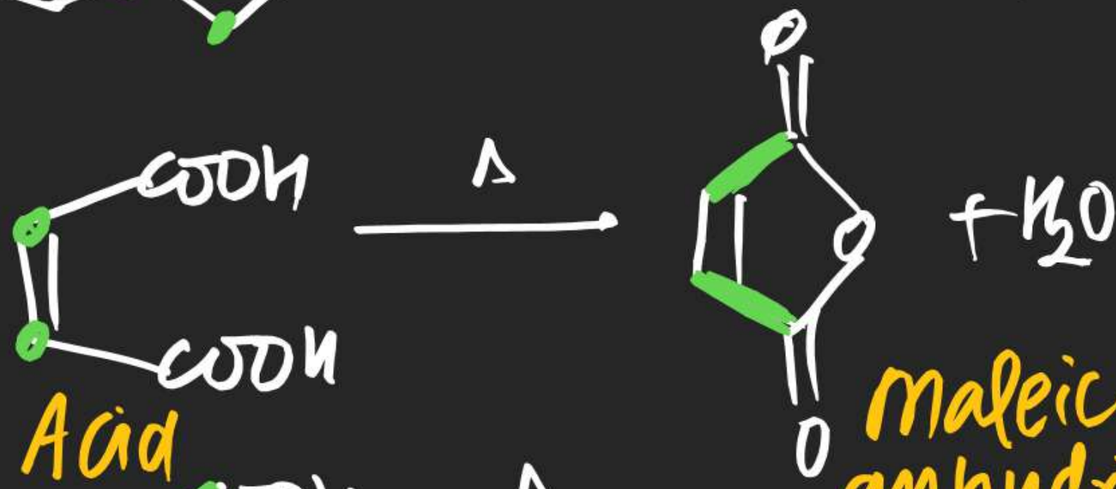
mechn!

Nishant Jindal

(8) 

(9) 

MIP

(10) 

Maleic Acid

maleic anhydride (cyclic anhydride)

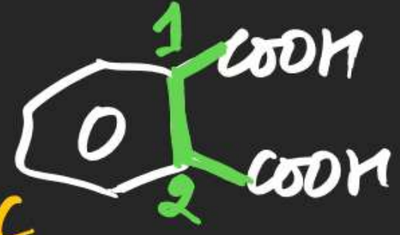
MIP (11) 

fumeric Acid

No cyclic anhydride formation.

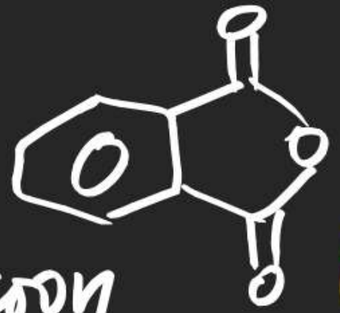
Nishant Jindal

M.P. (12)



Phthalic Acid

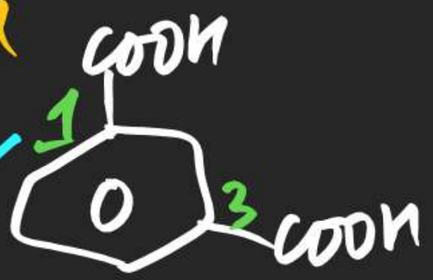
$\xrightarrow{\Delta}$

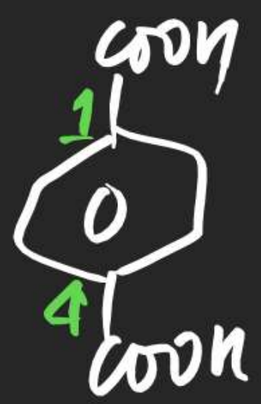


$+ H_2O$

Phthalic anhydride (Cyclic anhydride)

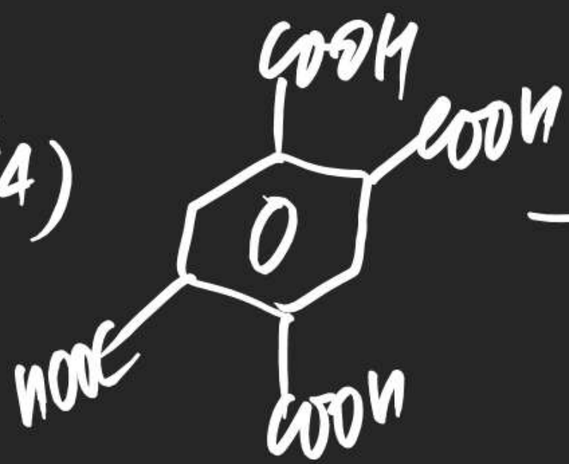
M.P. (13)



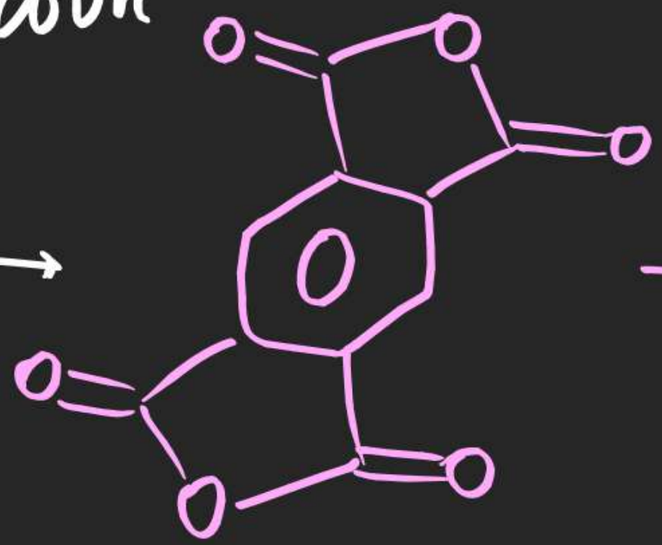


$\xrightarrow{\Delta}$ No Cyclic anhydride formation

(14)



$\xrightarrow{\Delta}$



$+ 2H_2O$

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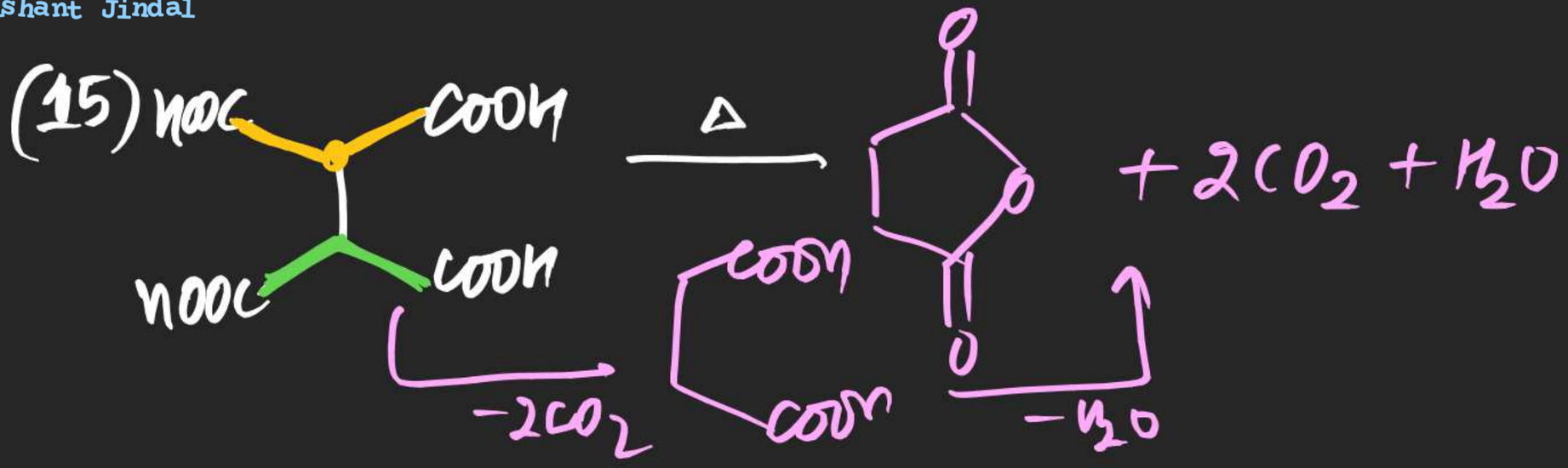
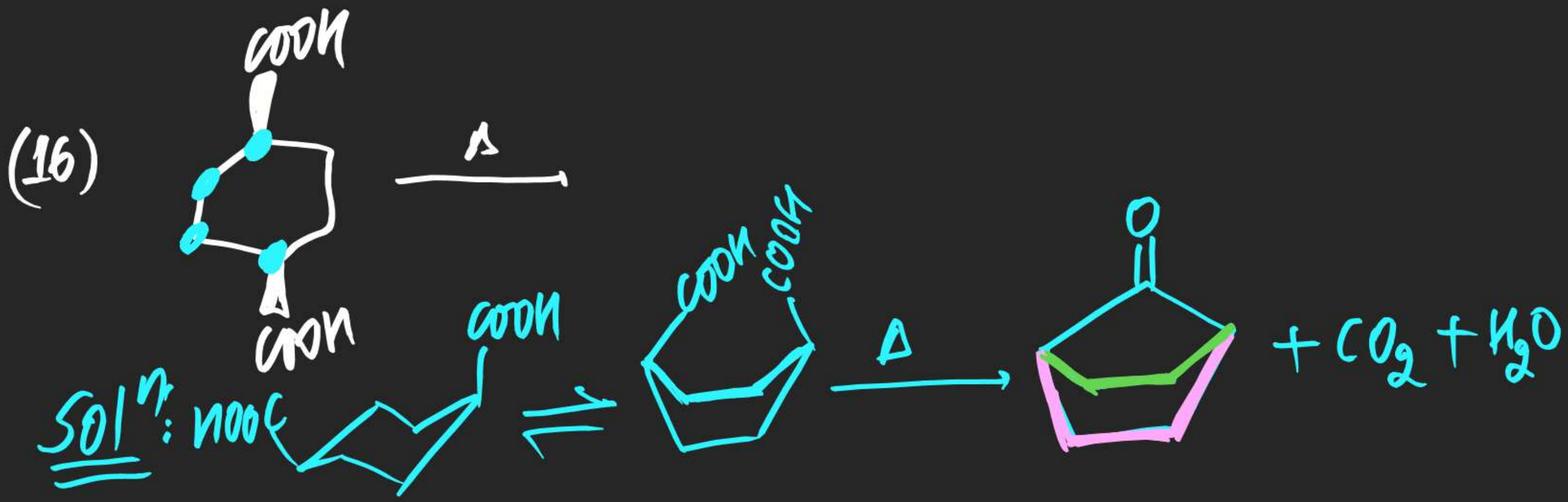
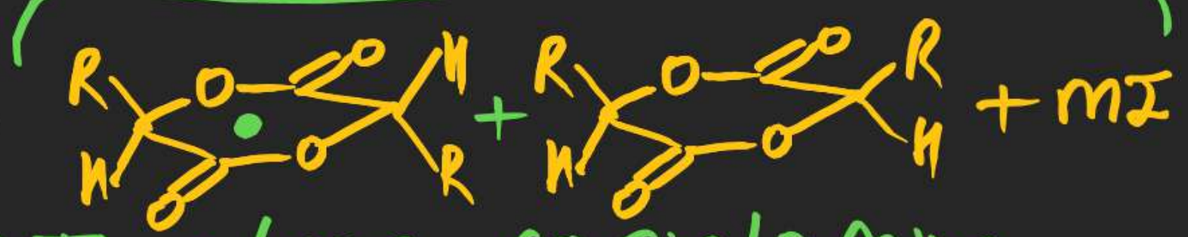
(15) 

(16) 

Nishant Jindal

(#) Heating of Hydroxy Acid :

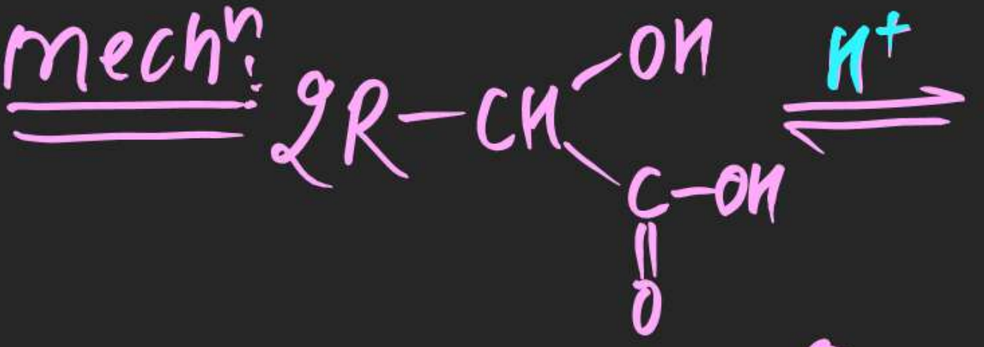
(1) α-Hydroxy Acid :-

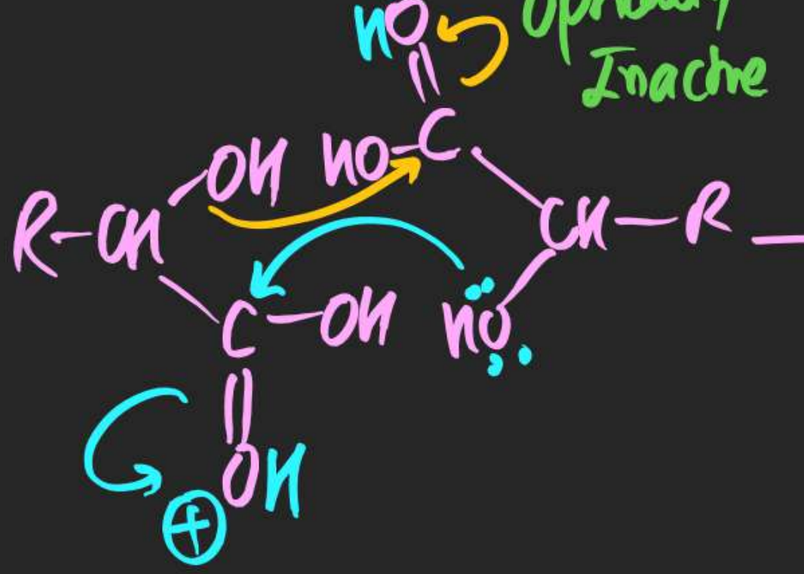


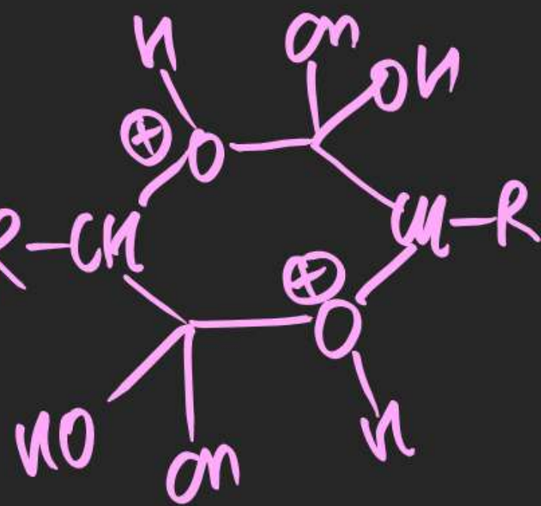
(*) Trans / cos (*) Cis / o-Active

Optically Inactive

Mechn :

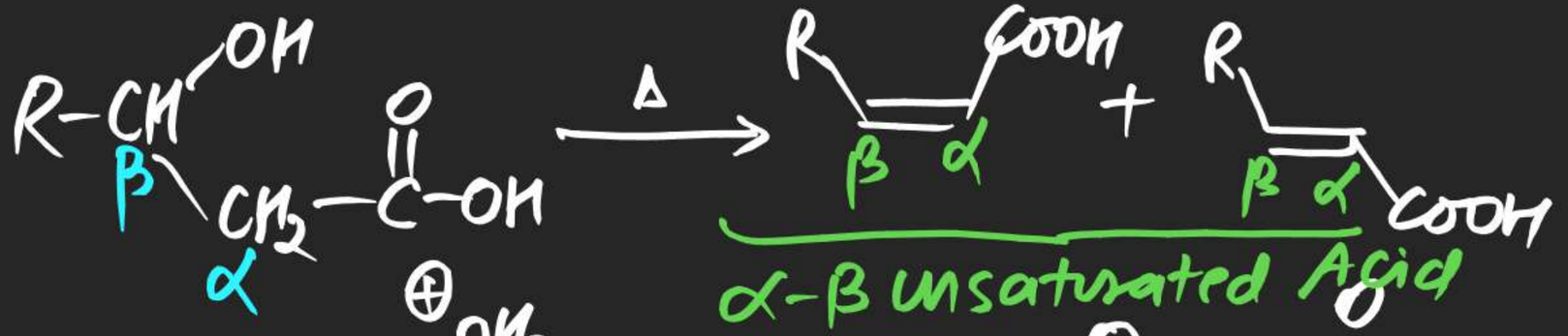




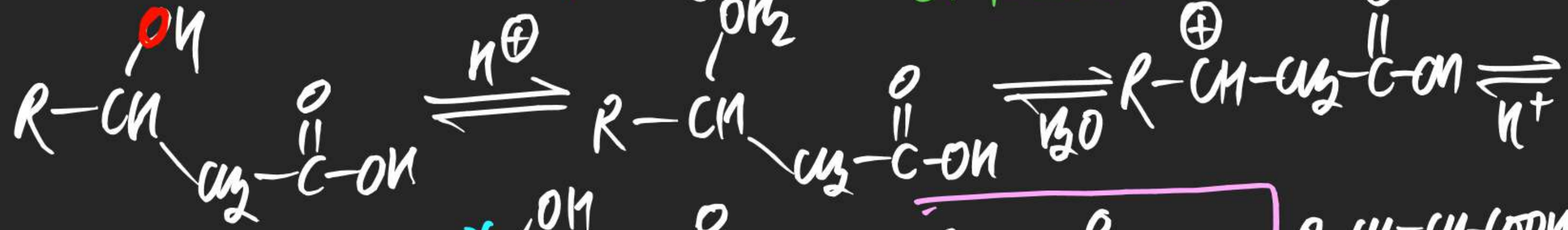


Nishant Jindal

(#) β-Hydroxy Acid

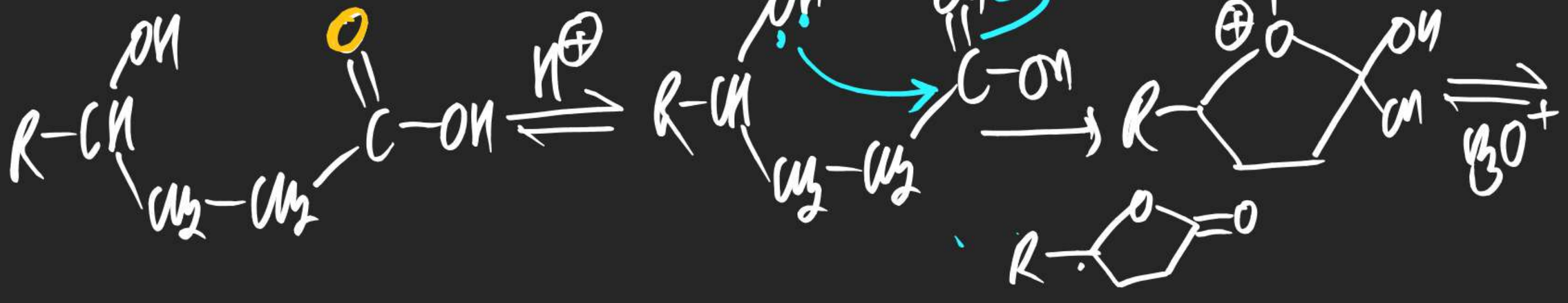


Mechⁿ



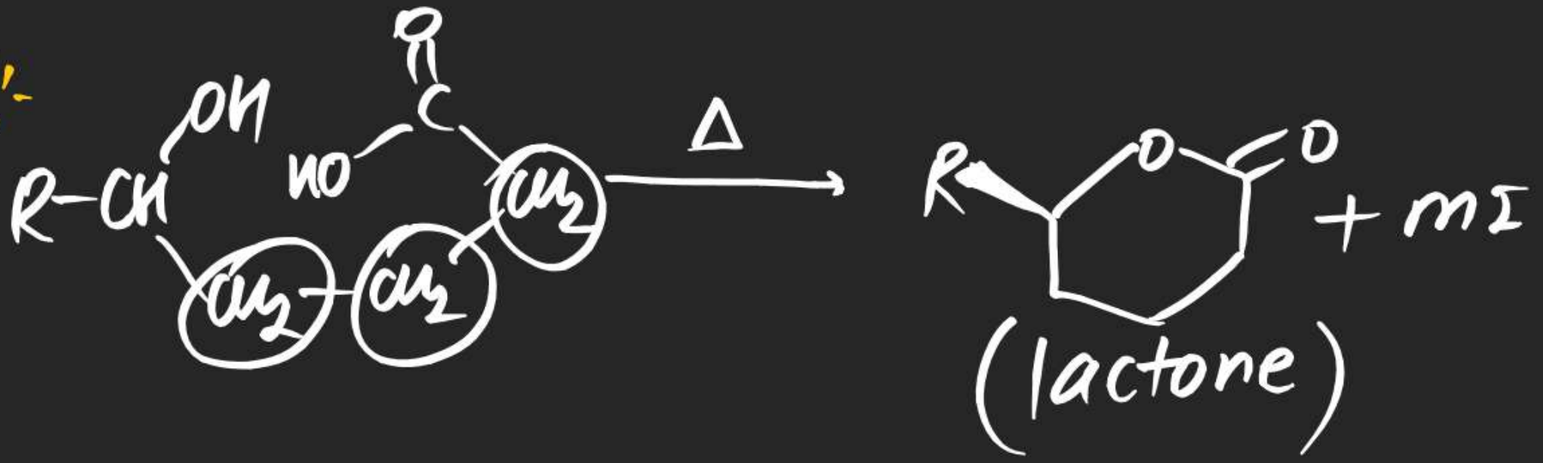
(#) γ-Hydroxy Acid:

Mechⁿ:



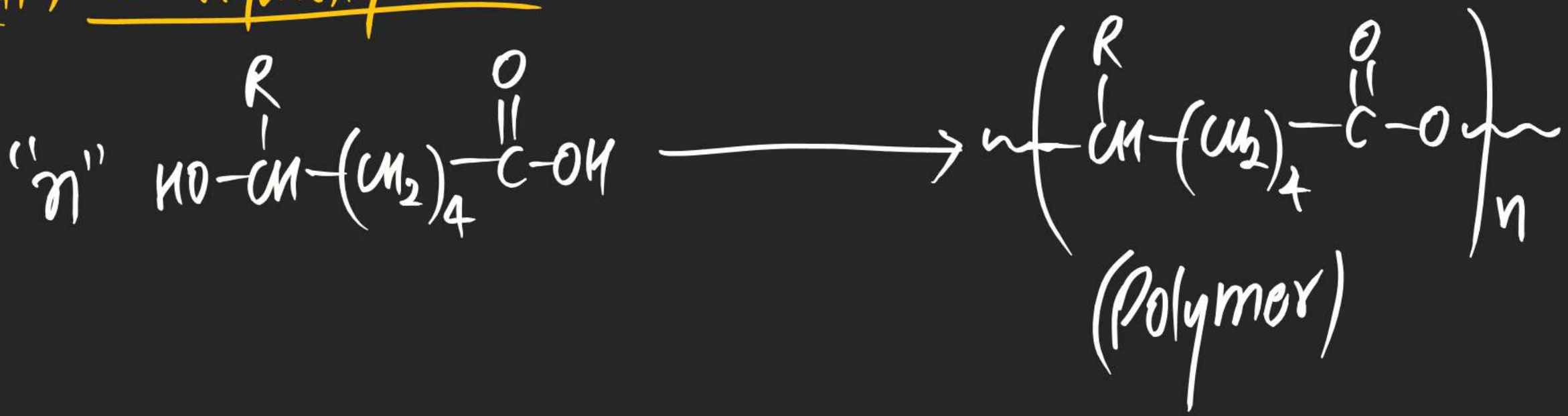
Nishant Jindal

(#) δ-Hydroxy Acid:-



Mechⁿ:-

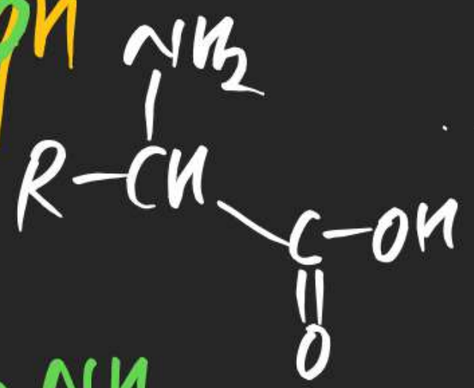
(#) ω-Hydroxy Acid:-



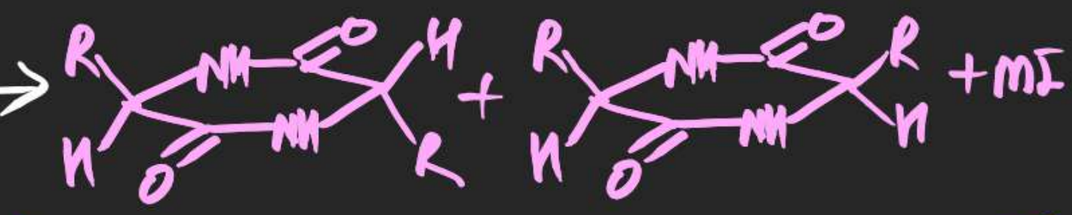
Nishant Jindal

(#) Heating of Amino Acid :

(1) α-Amino Acid :

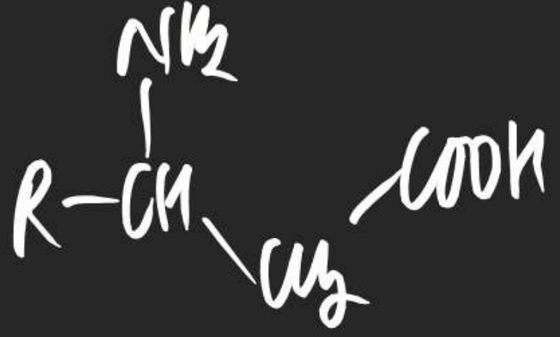


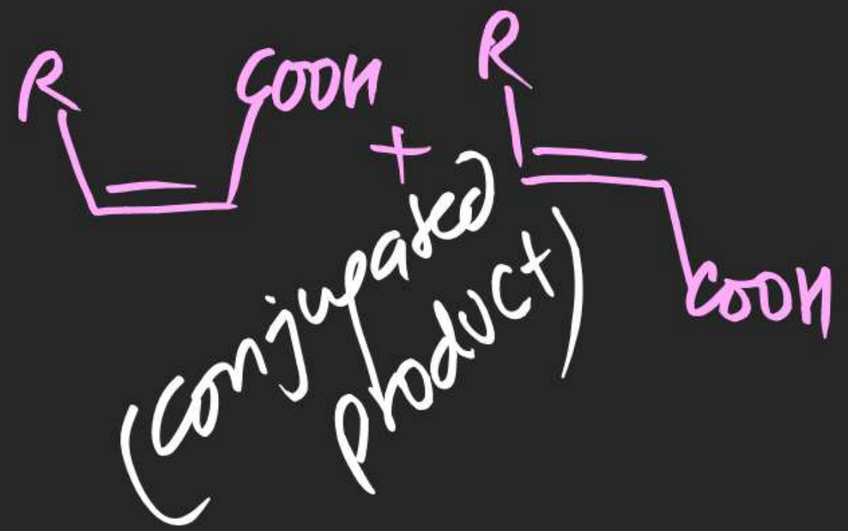
O → NH



lactim

(2) β-Amino Acid





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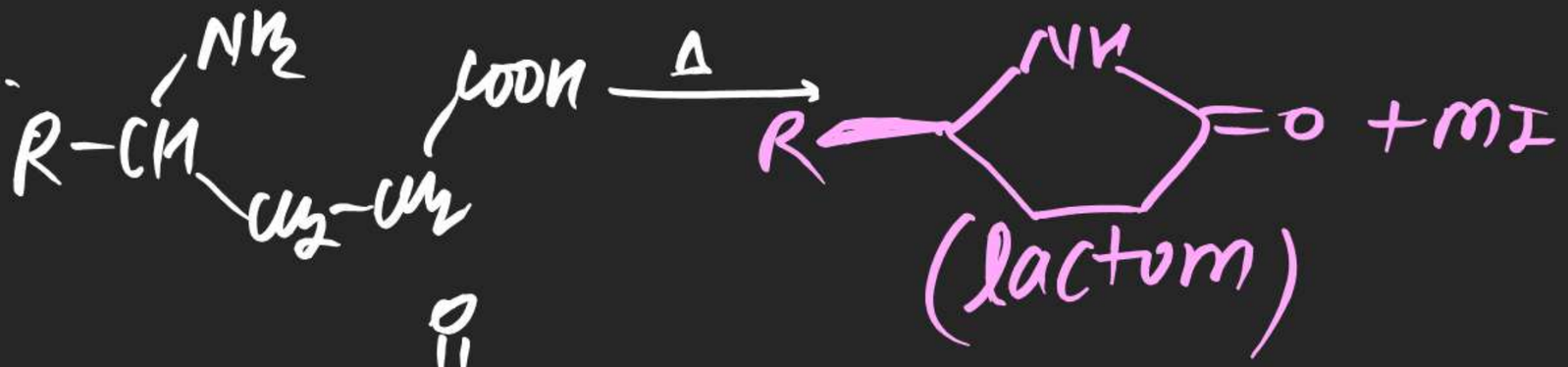
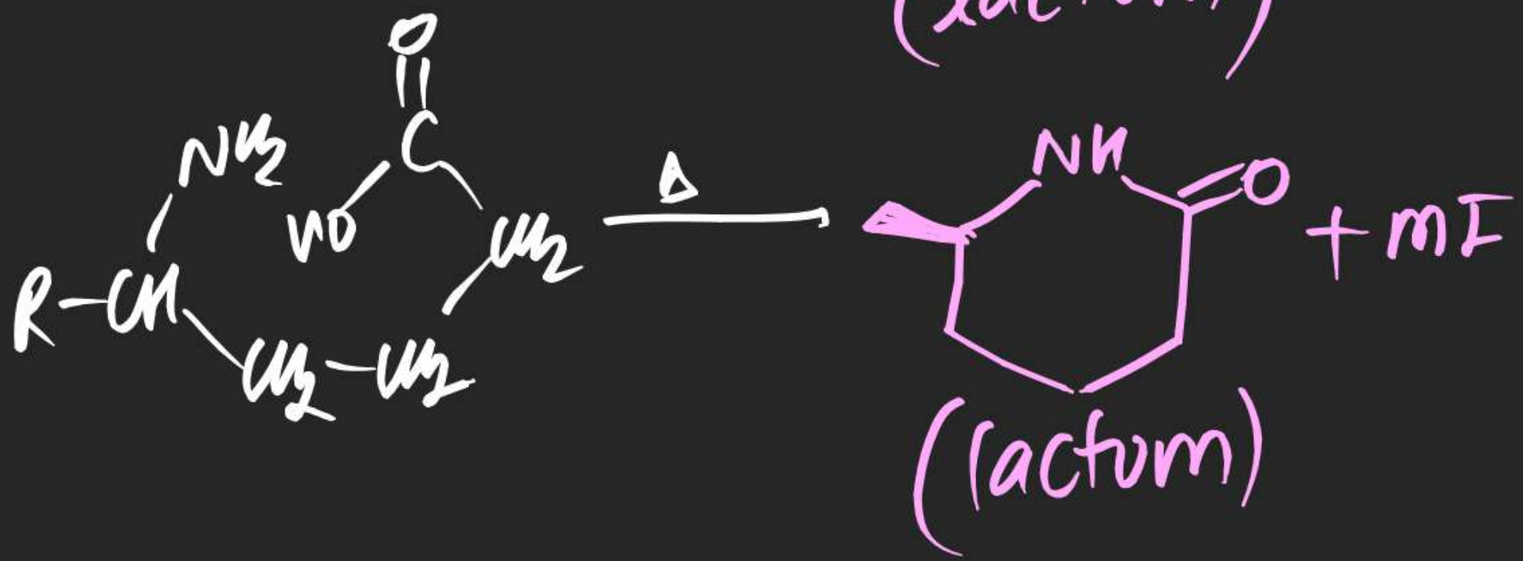
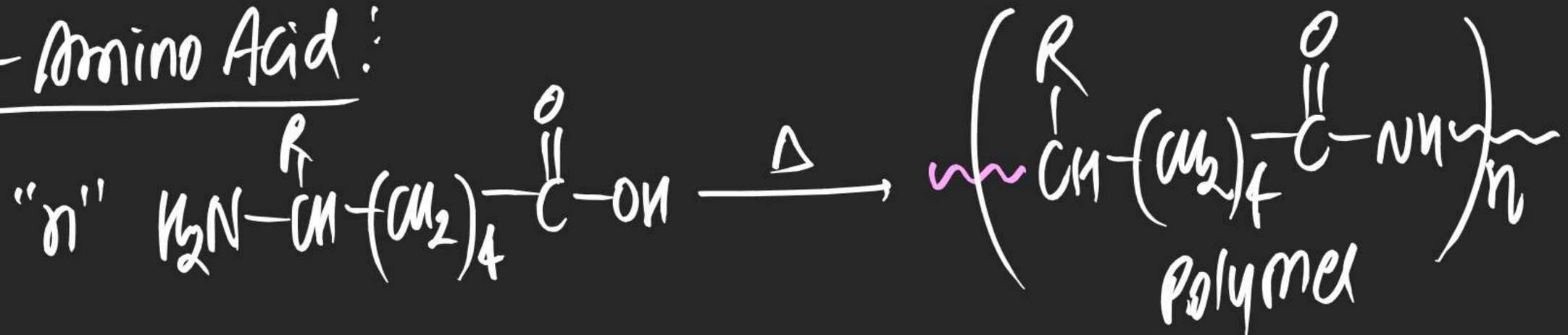
(3) γ-Amino Acid:-



(4) δ-Amino Acid:



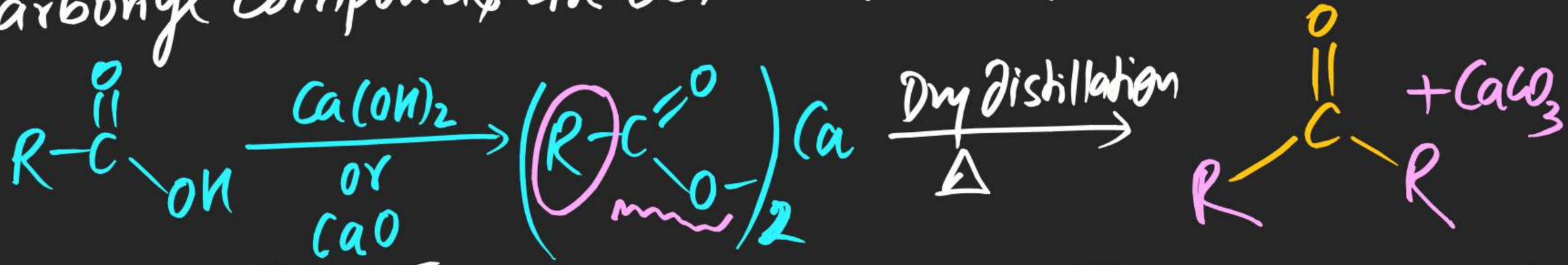
(5) ω-Amino Acid:

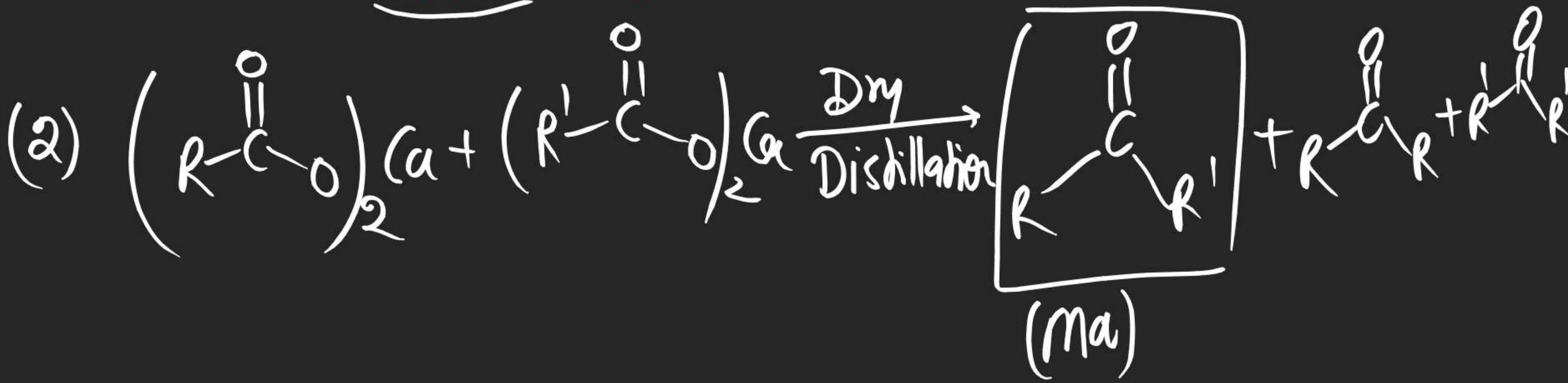


Nishant Jindal

(#) Dry Distillation of Calcium Salt Of Carboxylic Acid

⟹ On Dry Distillation of Calcium salt of Carboxylic Acid Carbonyl Compounds are obtained as a Product.

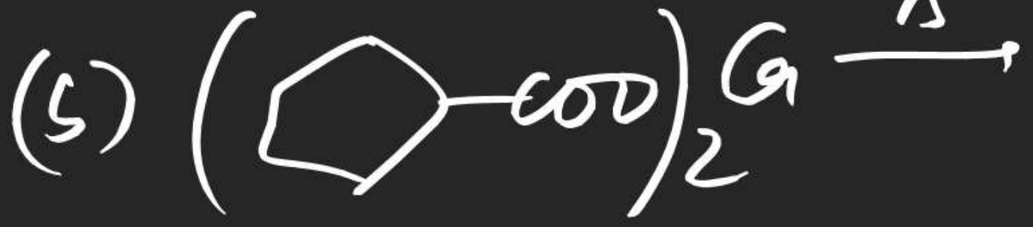
(1) 

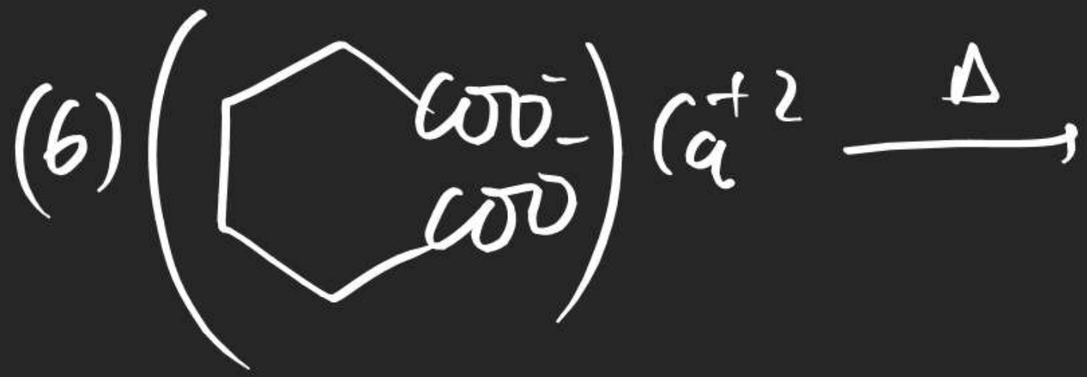
(2) 

Nishant Jindal

(3) $(CH_3-COO)_2Ca \xrightarrow{\Delta}$

(4) $(Ph-COO)_2Ca \xrightarrow{\Delta}$

(5)  $\xrightarrow{\Delta}$

(6)  $\xrightarrow{\Delta}$

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(7) $(CH_3-COO)_2Ca + (H-COO)_2Ca \xrightarrow{\Delta}$

(8) $(CH_3-COO)_2Ca + (Ph-COO)_2Ca \xrightarrow{\Delta}$

(9) $Ph-COOH \xrightarrow[\Delta]{MnO}$

(10) $CH_3-CH_2-COOH \xrightarrow[\Delta]{BaO}$

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(#) Soda lime decarboxylation (Oakwood degradation) :-