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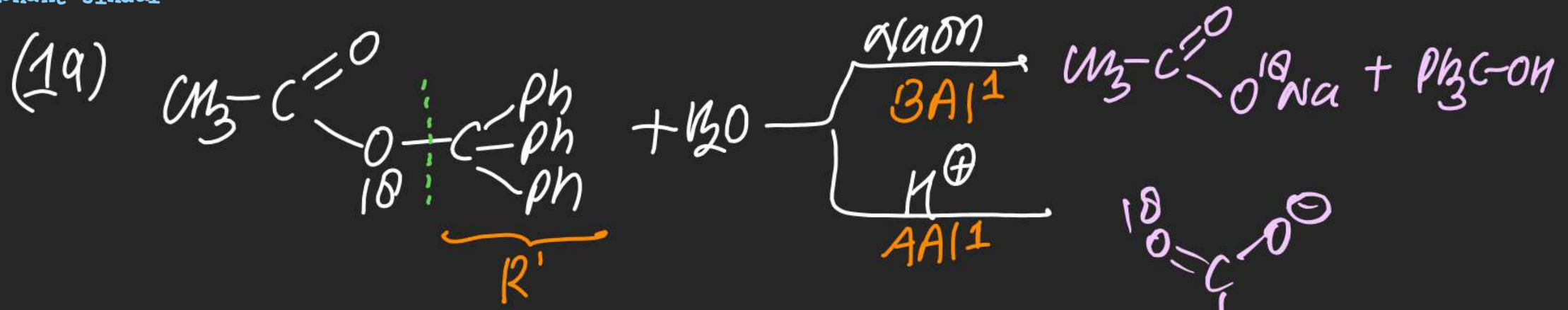
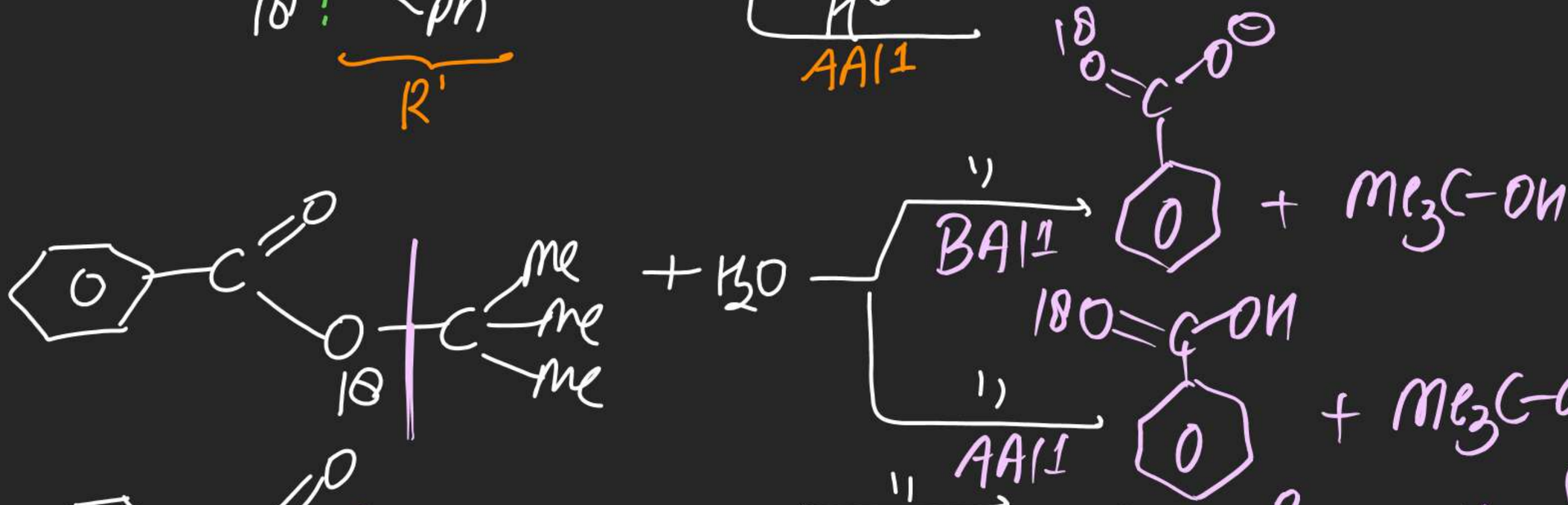
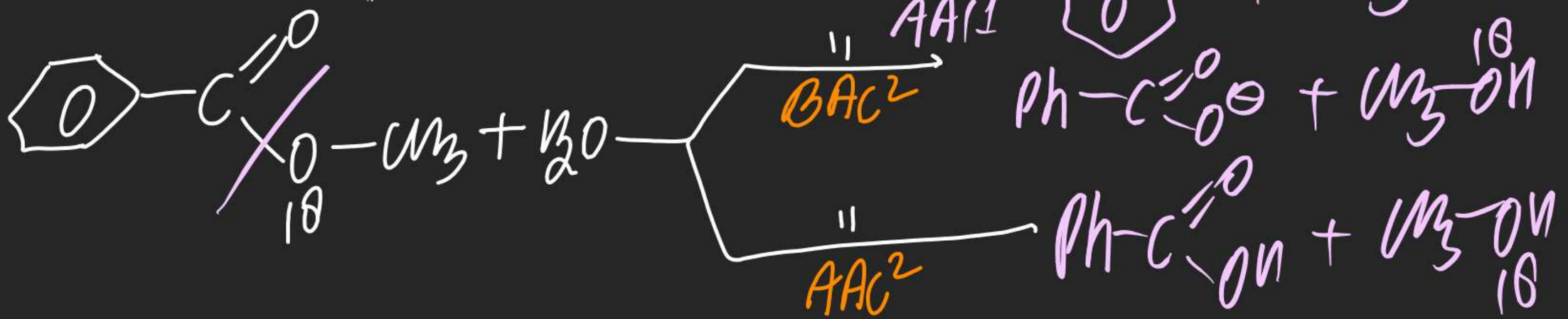
(19) 

(20) 

(21) 

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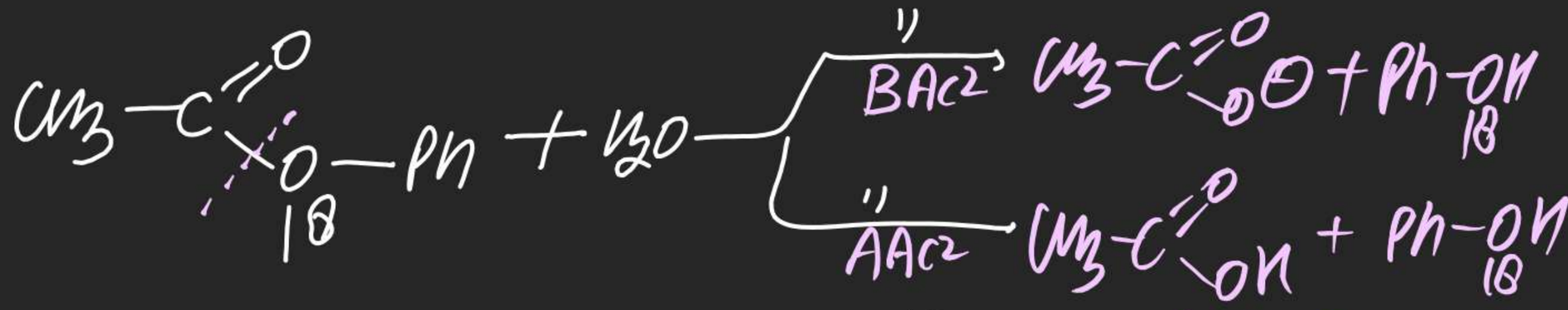
(22)



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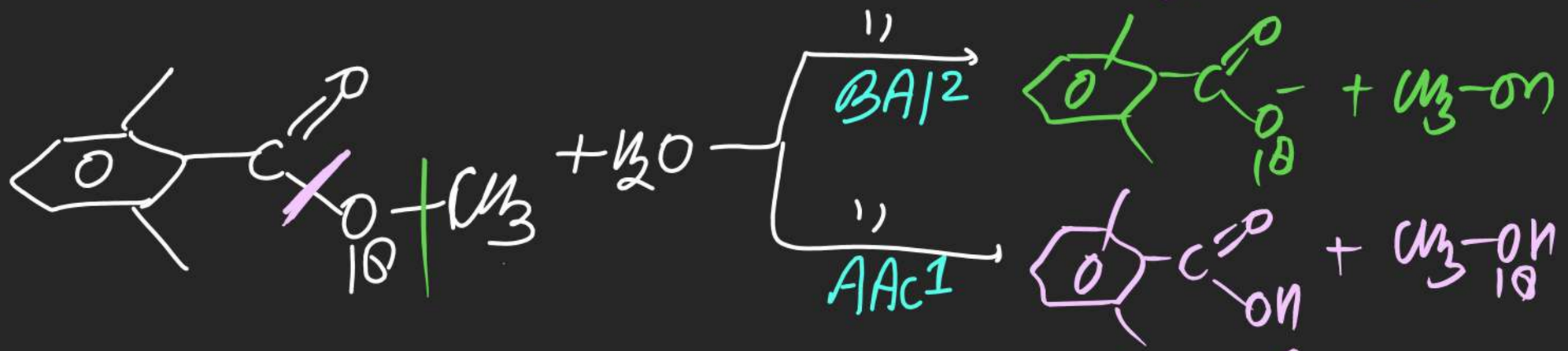
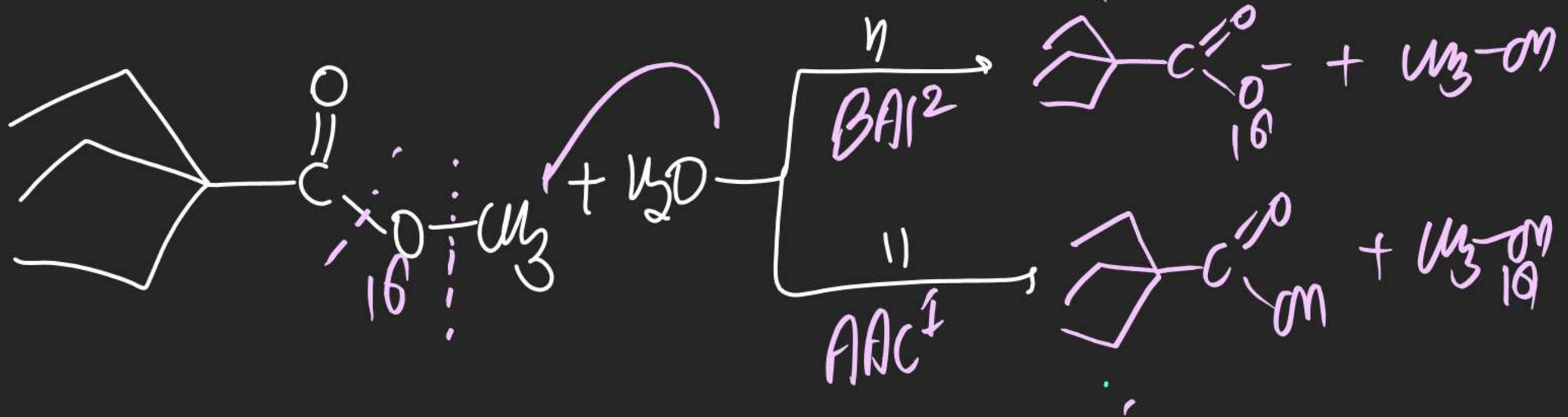


(24)



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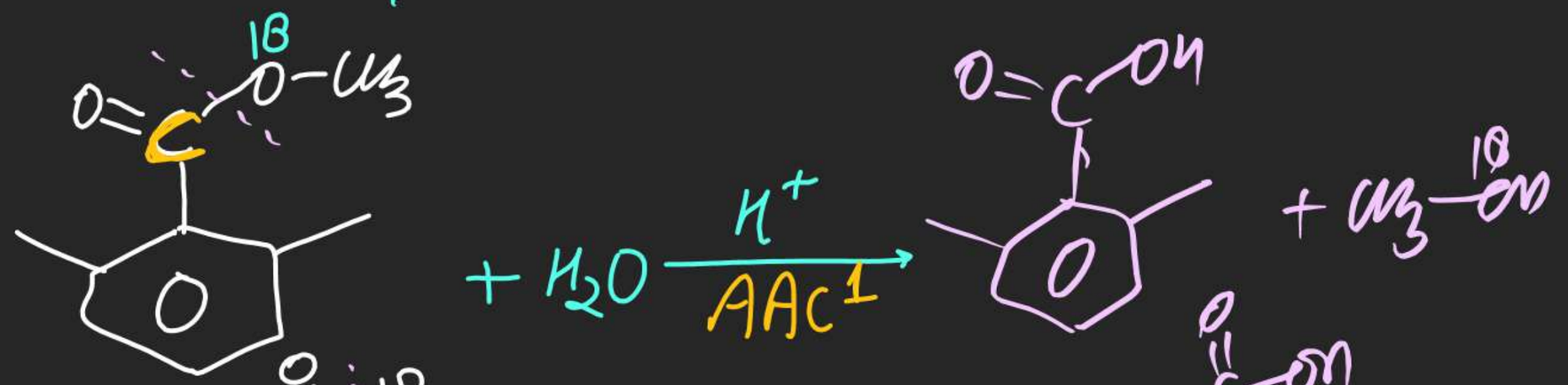
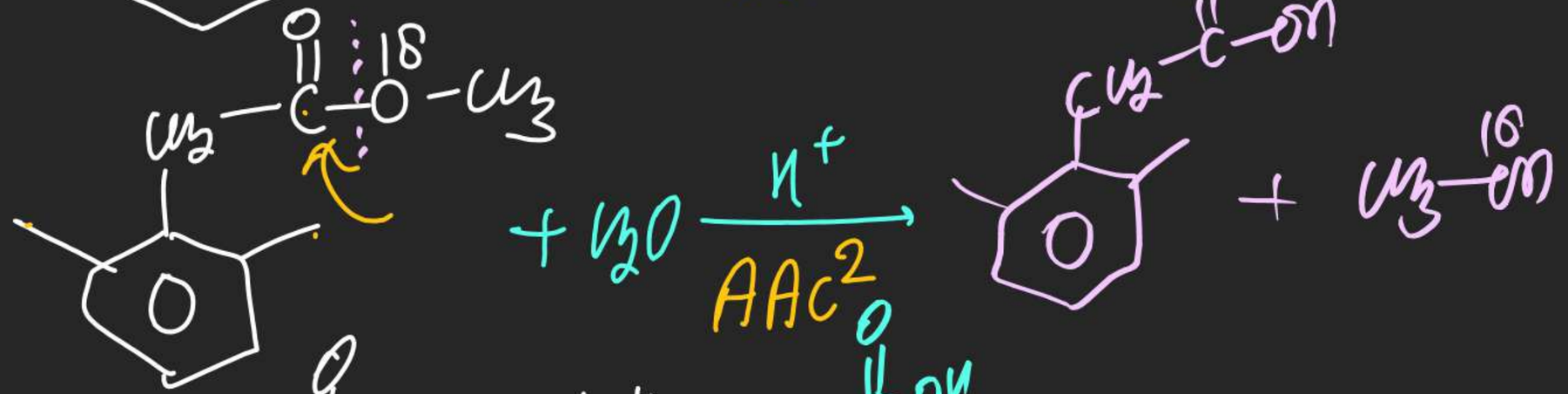
(25)

(26) NIMP



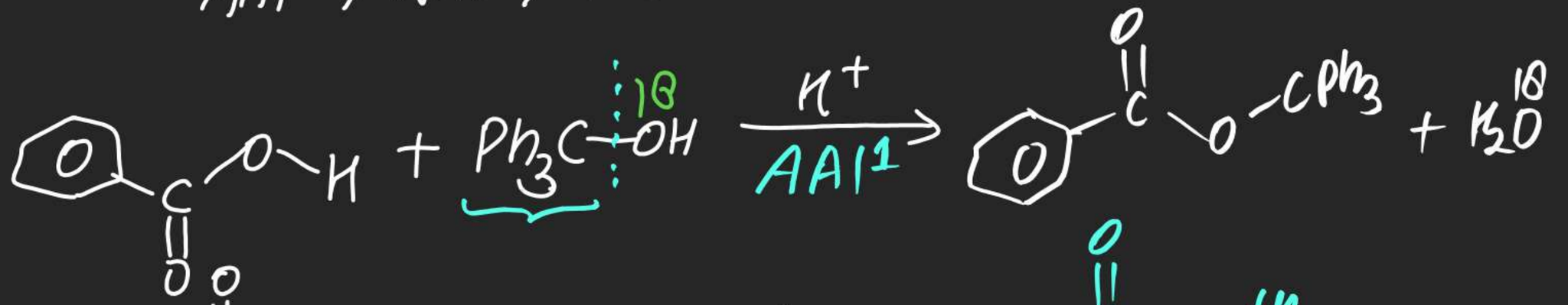
(27) NIMP

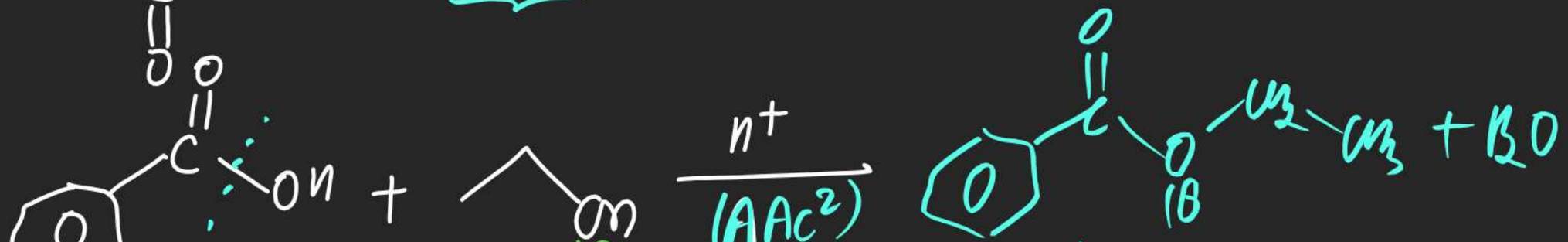


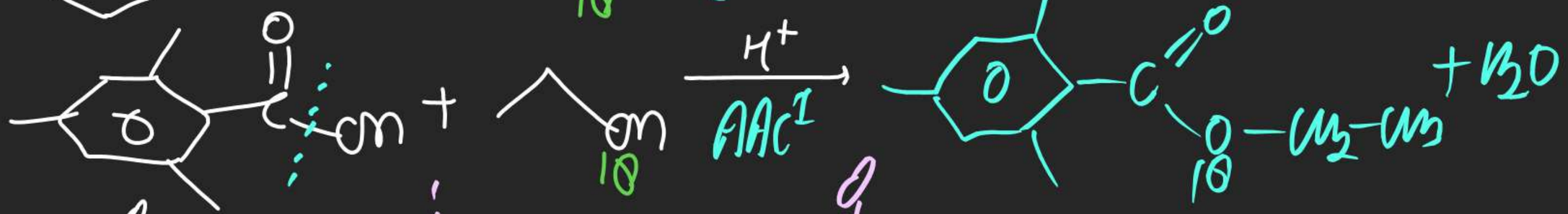
(28)

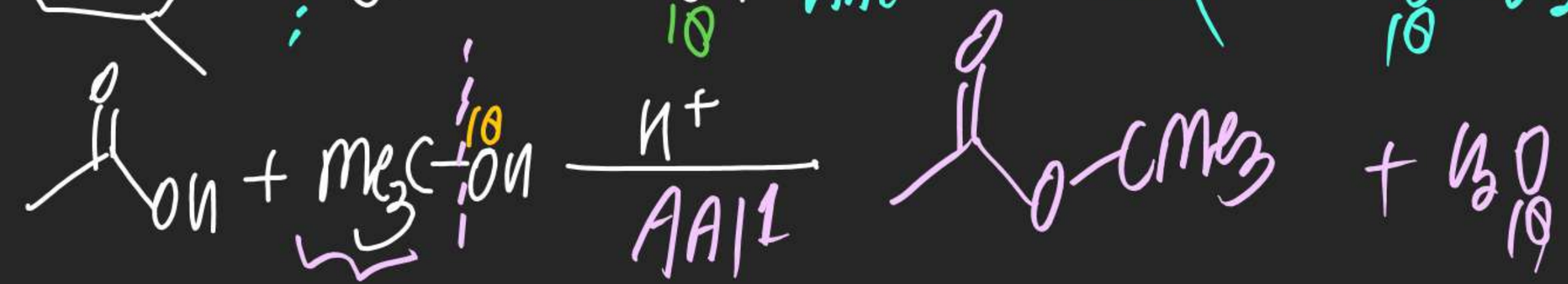
(iv) Mechanism Bzenic acid

$AAl^1 > AAc^2 > AAc^1$

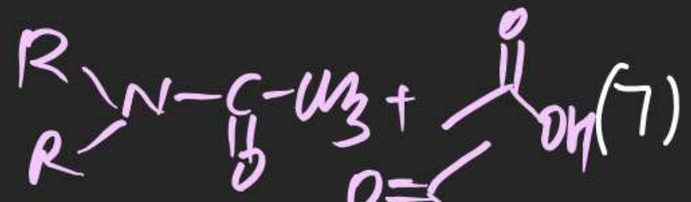
(2) 

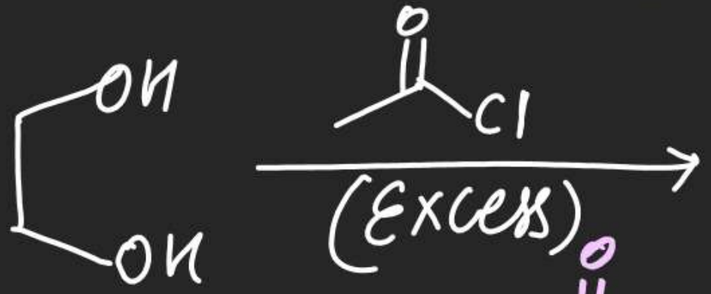
(3) 

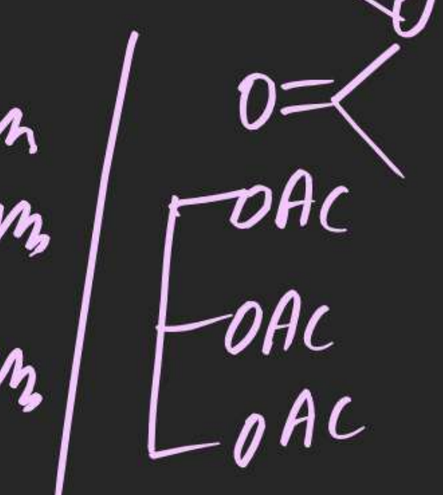
(4) 

(5) 

(3) R_2NH 



(4) 



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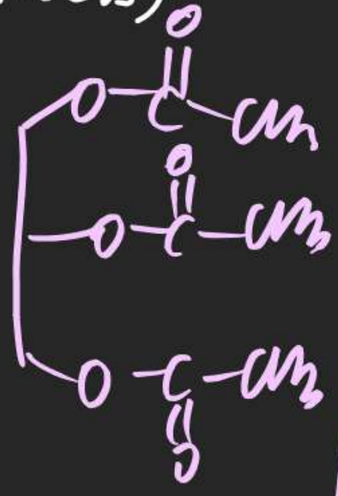

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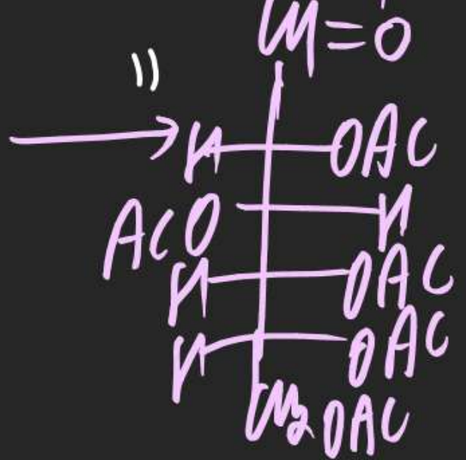
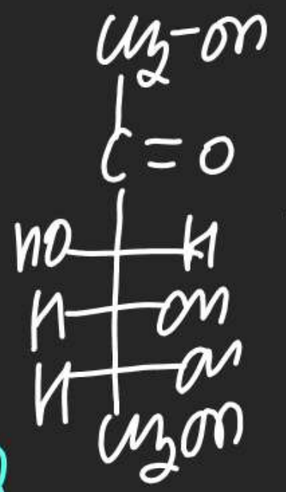
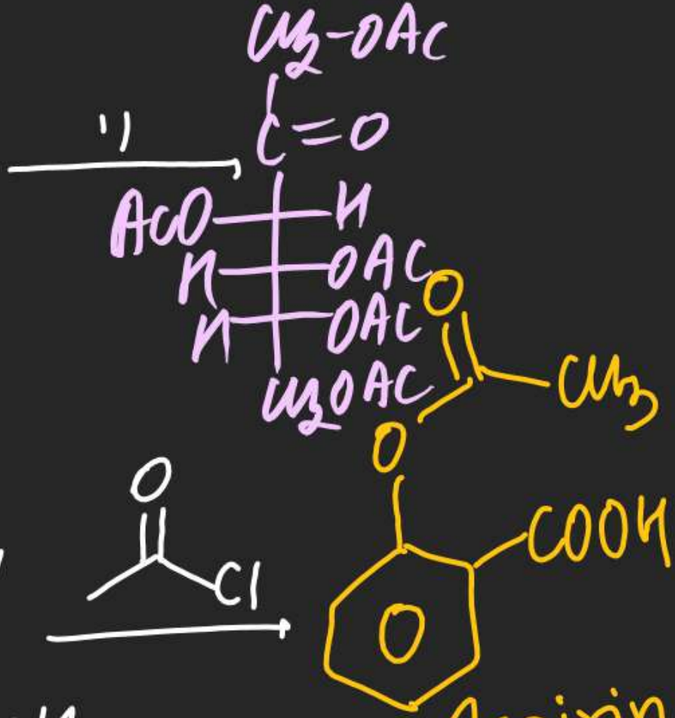
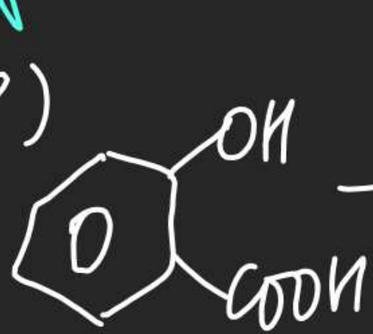


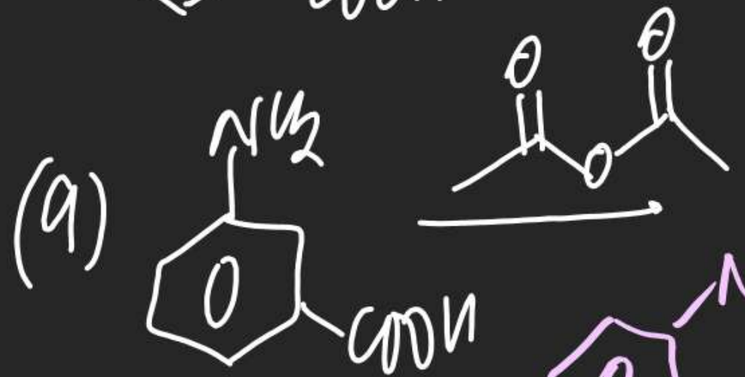


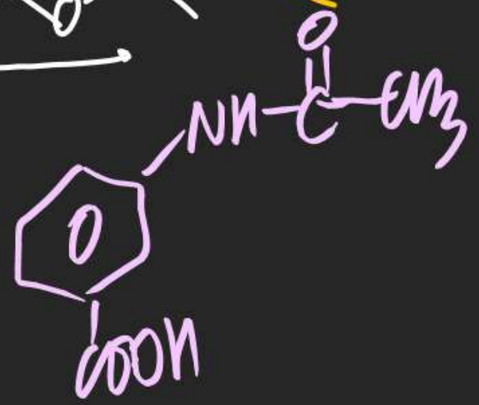


MIMP (8)



Aspirin (pain killer)

(9) 



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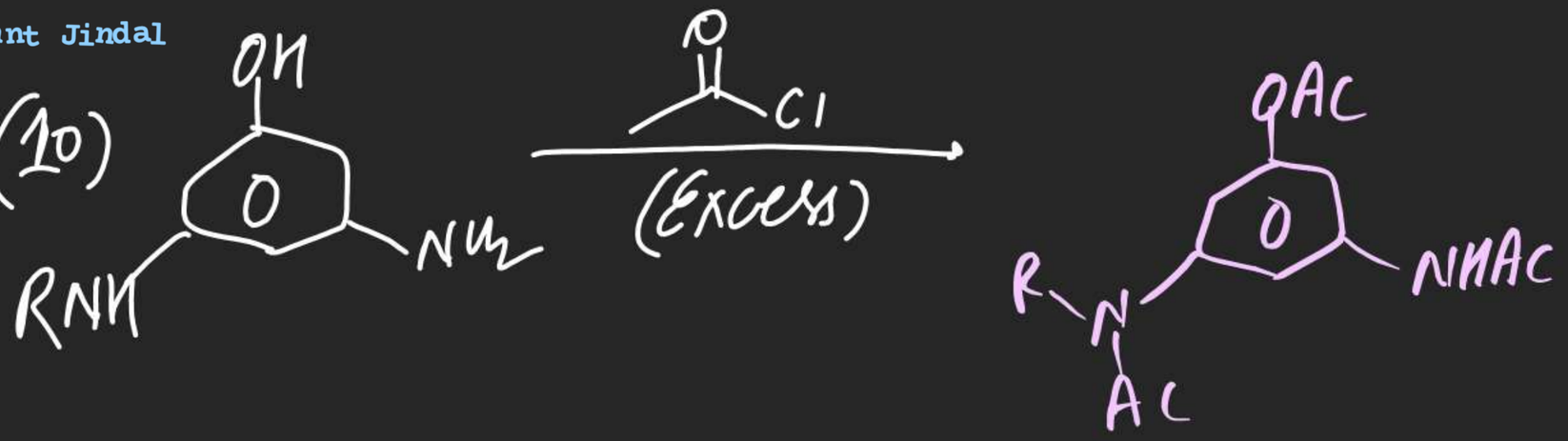

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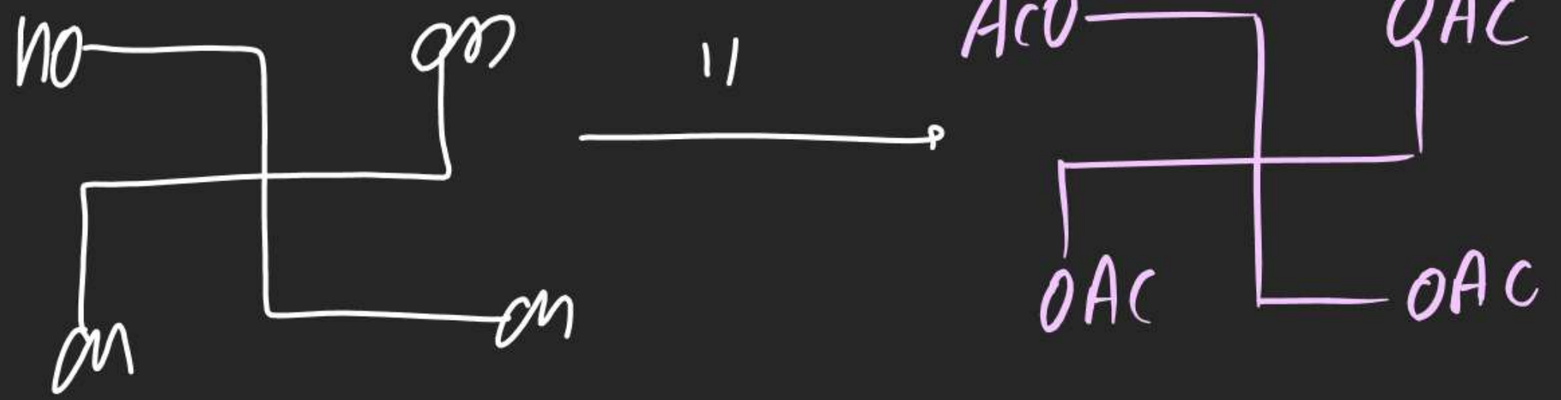
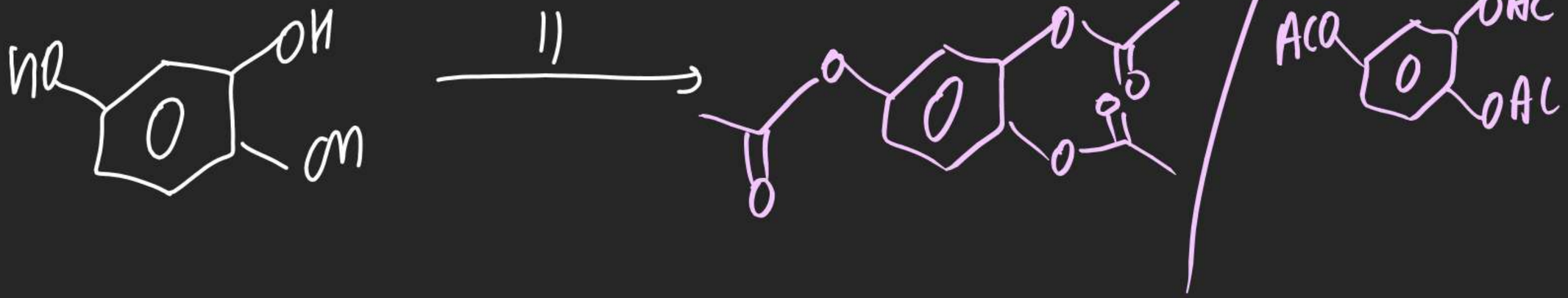
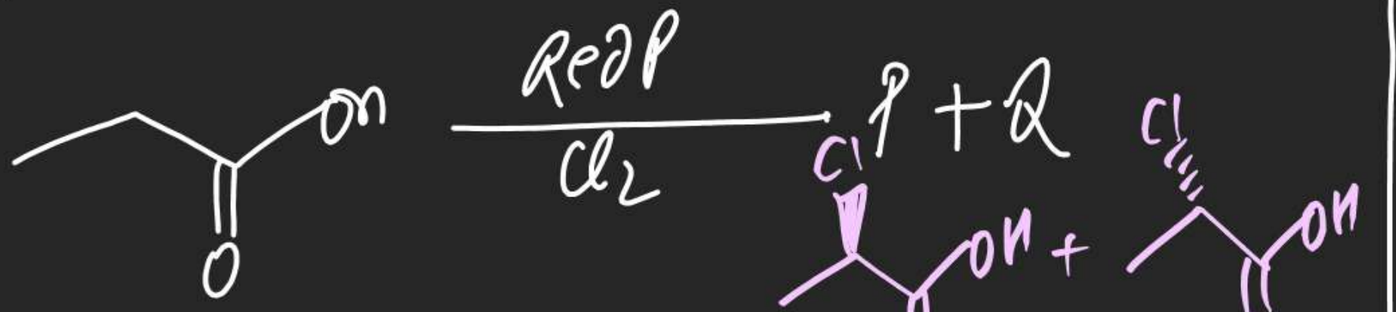


(12)



Note (i) Oxidn Rxn
(ii) Electrophilic substitution Rxn
(iii) Iodine can't be substituted By. HVZ

(2) 

(3) 

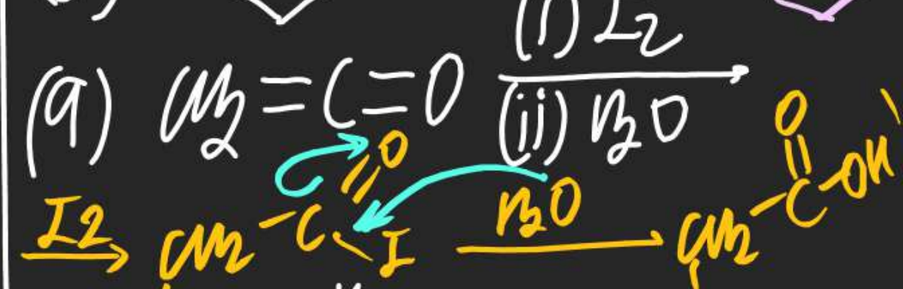
(4) 

(5) 

(6) 

(7) 

(8)

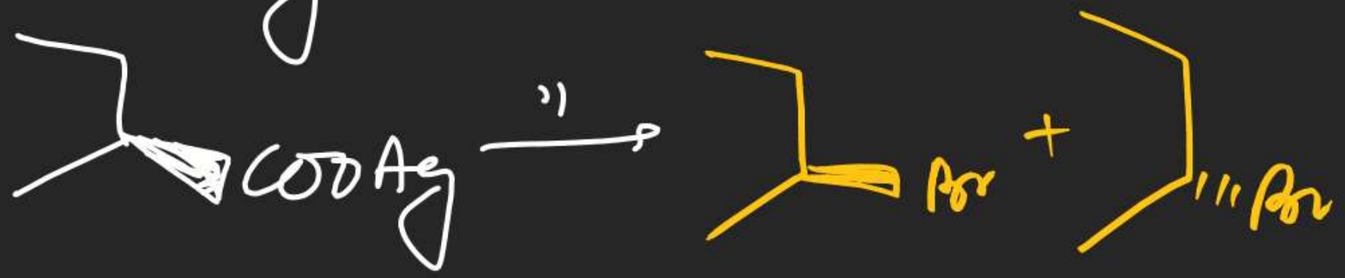
(9) 

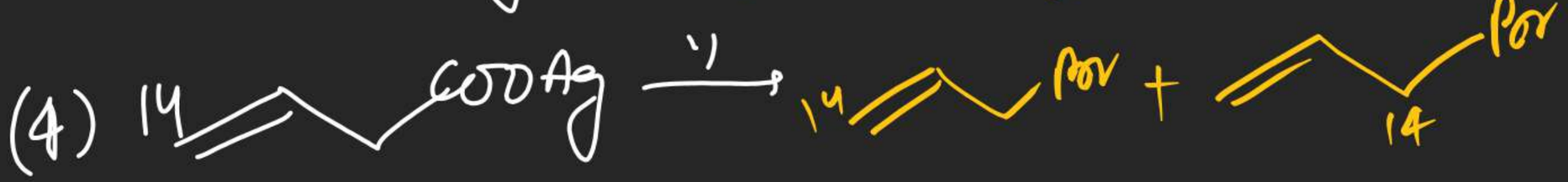
(10) 

Note (i) degradation Rxn

(ii) Ester is side product.

(2) $CH_3-C(=O)-OAg \xrightarrow[CCl_4]{Br_2} CH_3-Br$

(3) 

(4) 

(5) 

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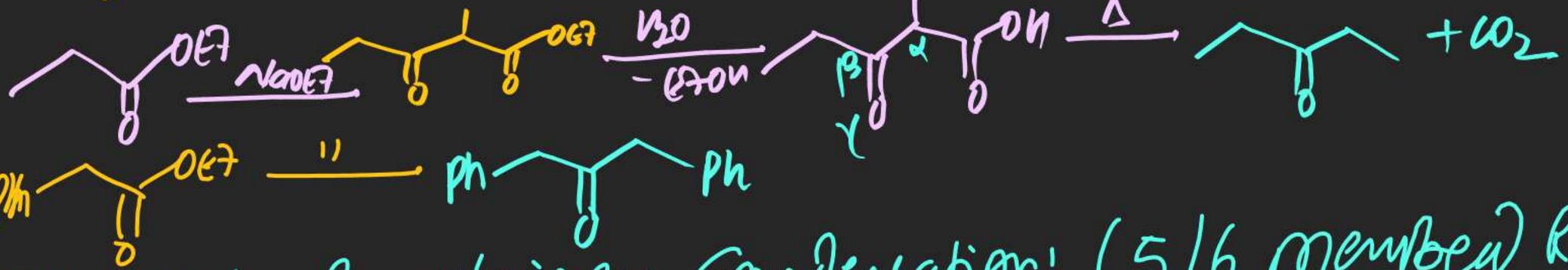
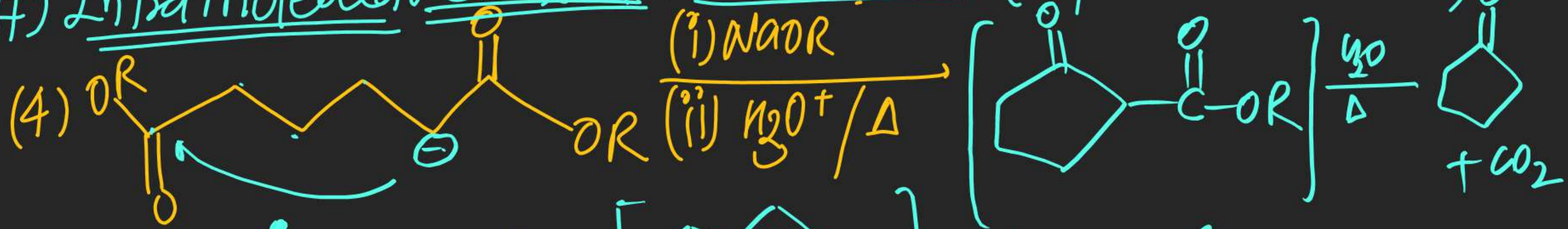
(2) 

Soln 

(3)

(#) Intra Molecular claisen condensation: (5/6 membered Ring)

(4) 

(5) 

(6) 

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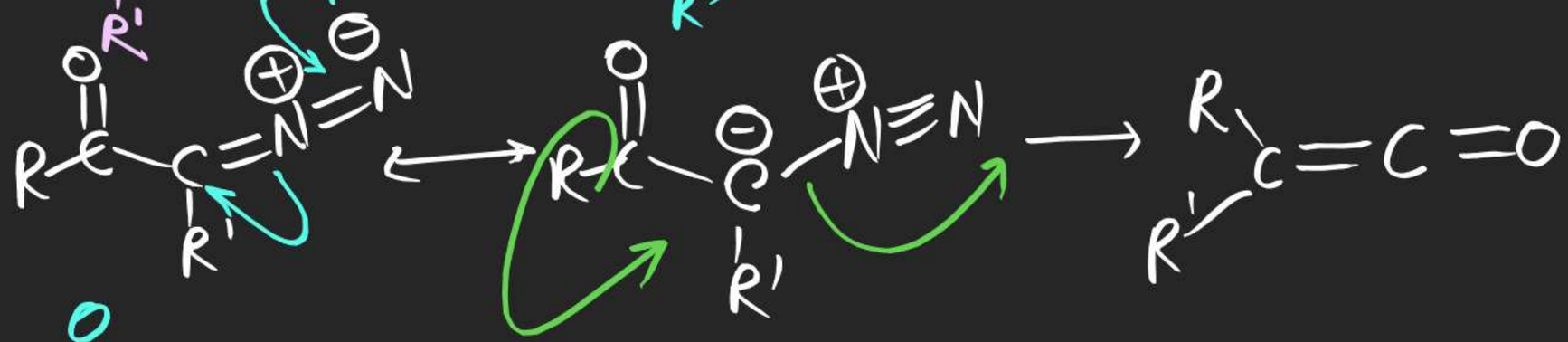
(#) WOLF Rearrangement:

⇒ Whenever α-diazo Carbonyl Compound or Acyl azide is treated with $\Delta/h\nu/Ag_2O$ it gives Ketene & isocyanate as product respectively.

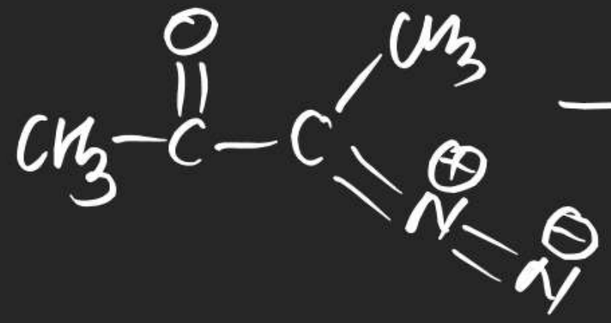
(1) $R-\overset{O}{\overset{\|}{C}}-\underset{R'}{\underset{|}{C}}N_2 \xrightarrow{\Delta/h\nu/Ag_2O} \underset{R'}{\overset{R}{}}C=C=O + N_2$

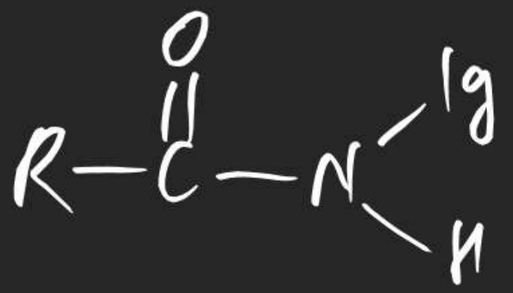
Mechⁿ:



(2) $R-\overset{O}{\overset{\|}{C}}-N_3 \xrightarrow{\Delta/h\nu/Ag_2O} R-N=C=O + N_2$

(3)  $\xrightarrow{\Delta}$

(4)  $\xrightarrow{h\nu}$

(5)  $\xrightarrow[\Delta]{\text{Base}}$ $R-N=C=O$

(#) Rxn of Ketene:

(6) $R-\underset{\text{Nu}}{CH}=\underset{E}{C}=O + H_2O \xrightarrow{H^+} R-CH_2-C(=O)-OH$

(7) $R-CH=C=O + H_2O \xrightarrow{\ominus OH}$

(8) $R-CH=C=O + ROH \xrightarrow{H^+}$

(9) $R-CH=C=O + RNH_2 \xrightarrow{H^+}$

(10) $R-CH=C=O \xrightarrow{HCl}$

M.M.Imp

(11) $R-N=C=O + H_2O \xrightarrow{H^+} R-NH_2 + CO_2 + H_2O$

M.M.Imp

(12) $R-N=C=O + H_2O \xrightarrow{\ominus OH} R-NH_2 + CO_3^{2-} + H_2O$

(#) Arndt-Eistert Synthesis :-

⇒ In this Reaction next homologues of Carboxylic Acid is obtained.

(I) $R-COOH \xrightarrow[\text{(ii) } CH_2N_2 \\ \text{(iii) } Ag_2O \\ \text{(iv) } H_2O]{\text{(i) } SOCl_2} R-CH_2-COOH$

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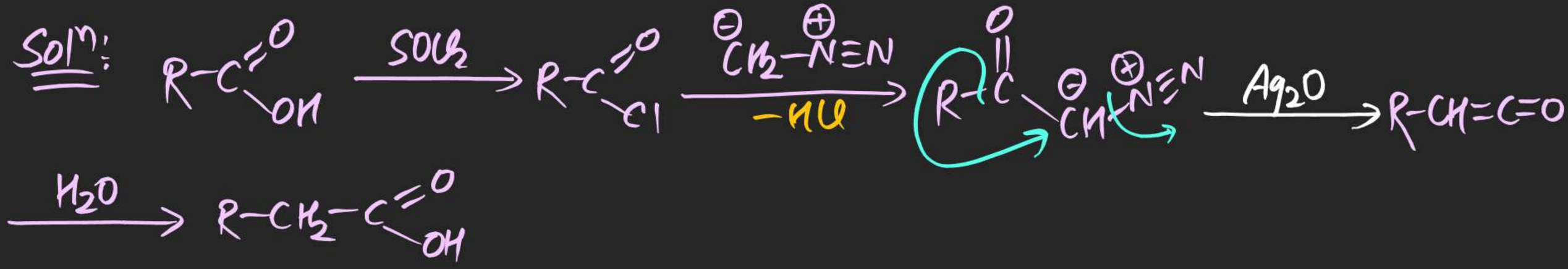
Soln:



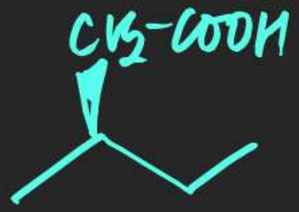
Note (i) Upgradation Rxn

(ii) Configuration never chayes during Reyerent.

(2) $CH_3-COOH \xrightarrow{\text{''}}$

(3) 

(4) 

$\xrightarrow{\text{''}}$ 

(5) 

$\xrightarrow{\text{''}}$

(6) 

$\xrightarrow{\text{''}}$

(7) $CH_3-COOH \xrightarrow[\text{(ii) } CH_2N_2]{\text{(i) } SOCl_2} \text{(iii) } H_2O$

(8) 

$\xrightarrow[\text{(ii) } CH_2N_2]{\text{(i) } SOCl_2} \text{(iii) } Ag_2O \text{ (iv) } H_2O$

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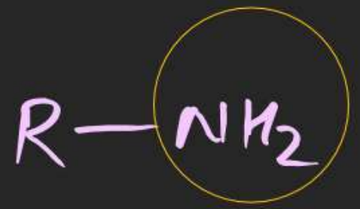
Amine

(*) Types of Amine

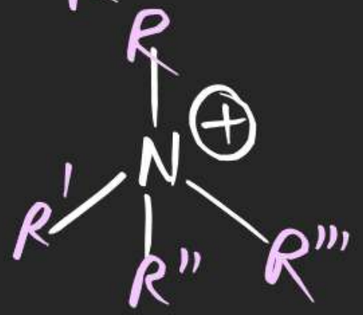
Primy Amine



Sec. Amine

Tertiary Amine

Qutcary Amine



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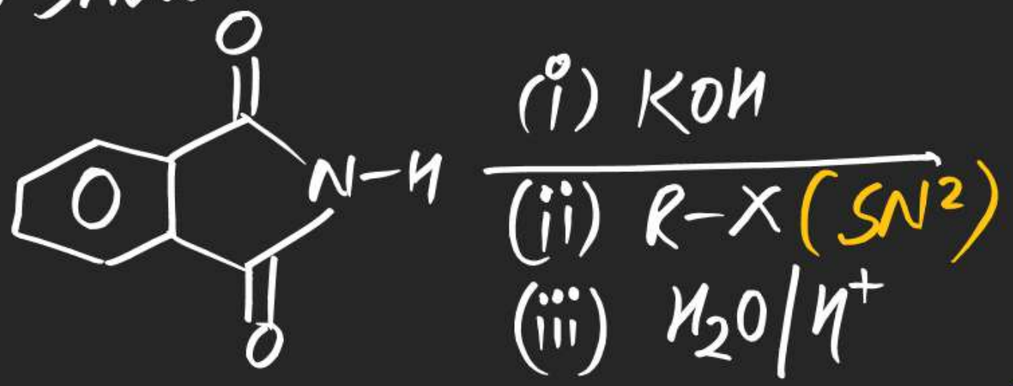
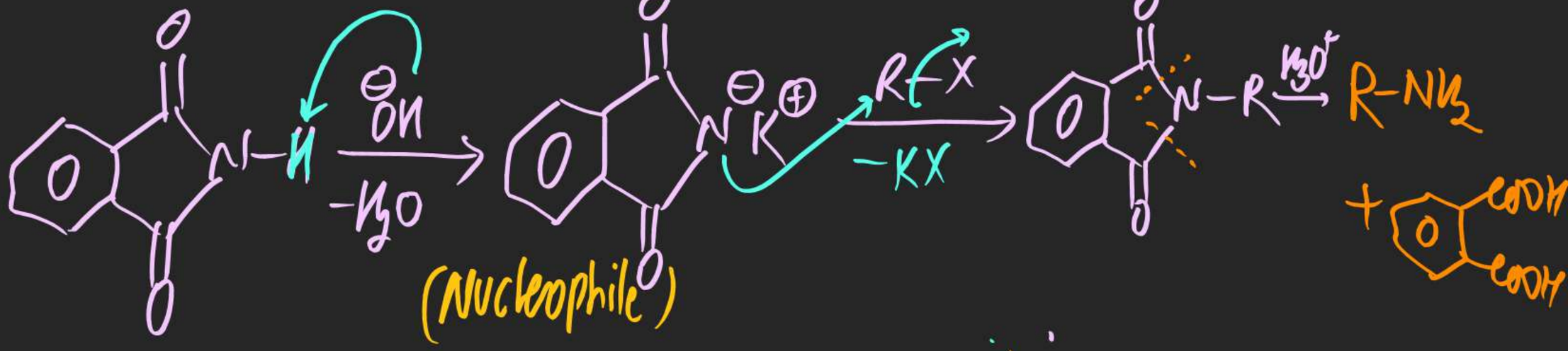
(#) Method of Preparation :

(1) Gabriel phthalimide Amine synthesis :

⇒ In this Reaction phthalimide is used for preparation of primy Amine as shown.

(1) 

Mechⁿ :



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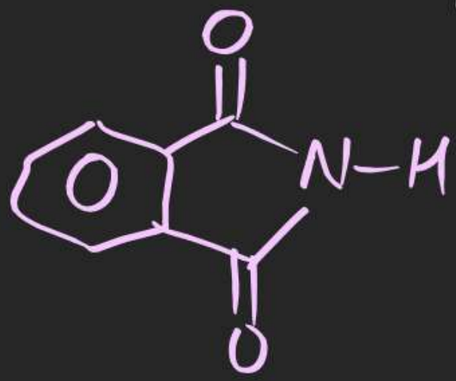
Note (i) Primary Amine formation only.

R–X must show SN^2 otherwise Required primary Amine is not obtained.

		Primary Amine
R–X	3°	X
	Bridgehead	X
	Aryl C	X

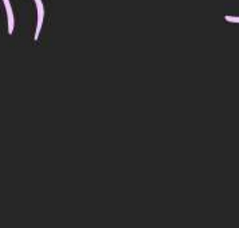
(E^2)

(2)

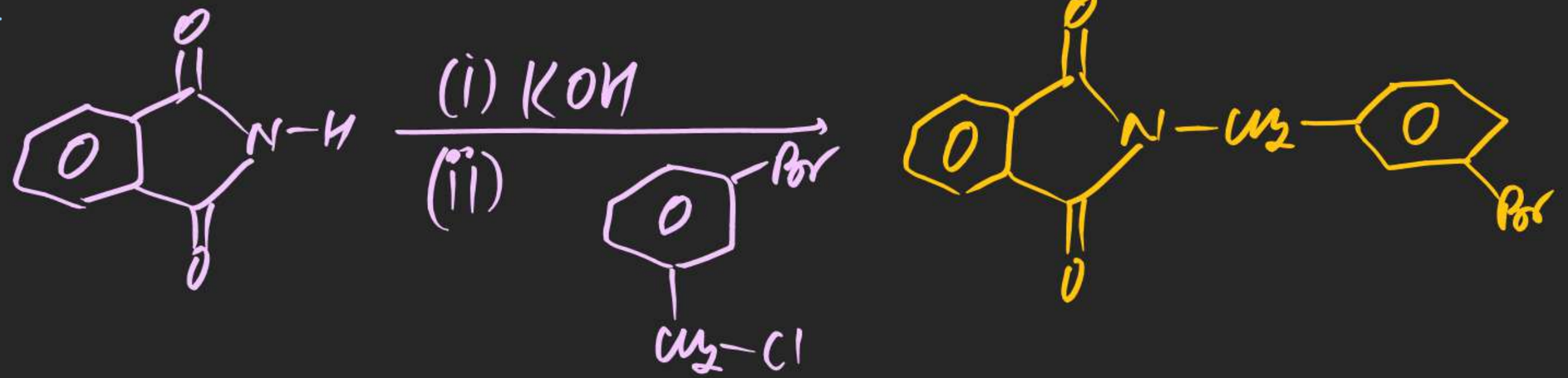


$\xrightarrow[\text{(ii) } R_3-Cl \\ \text{(iii) } H_2O]{\text{(i) KCN}}$

(3)



$\xrightarrow[\text{(ii)}]{\text{(i) KCN}}$  $\xrightarrow{\text{(iii) } H_2O}$

(4) 

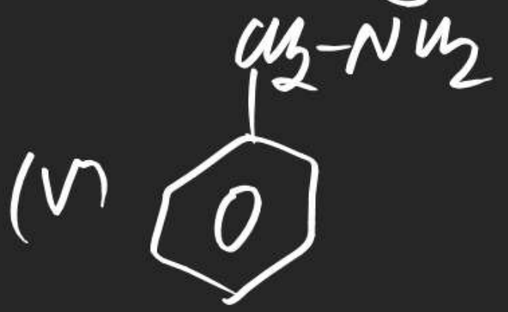
(5) which of the following can be obtained by Gabriel pthalimide synthesis

(i) 

(ii) 

(iii) 

(iv) 

(v) 

(vi) 

(vii) 

(viii) 

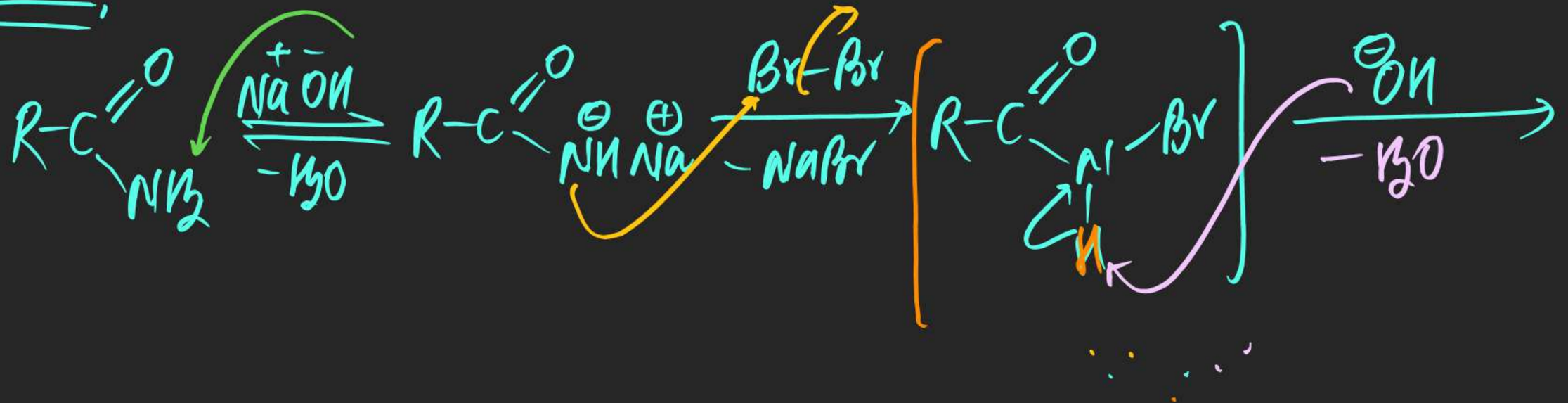
(#) Hofmann Bromoamide Degradation: (HBD)

⇒ In this Reaction Primy Acid Amide or Acid Imide is treated with NaOH/Br_2, so that Primy Amine is obtained as a Product.

(1) $R-C(=O)-NH_2 + \underbrace{Br_2 + 4NaOH}_{NaOBr} \longrightarrow R-NH_2 + 2NaBr + Na_2CO_3 + 2H_2O$

mechn:

$2NaOH + Br_2 \longrightarrow 2NaOBr + NaBr + H_2O$



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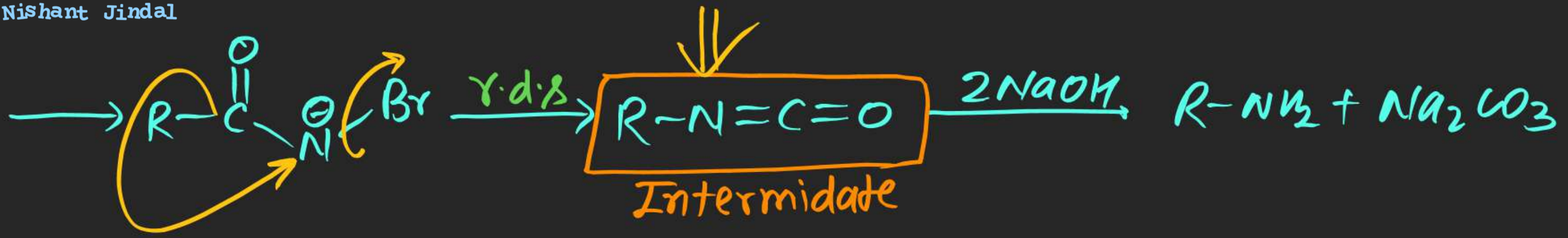


Note (i) Degradation Rxn

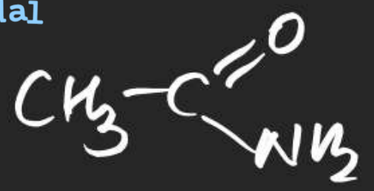
(ii) Rearrangement step is γ·d·s

(iii) Alkyl isocyanate R-NCO is intermidiate of Rxn

(iv) Configuration never changes during Rearrangement.

(v) Exclusively Primary Amine is obtained as a Product.

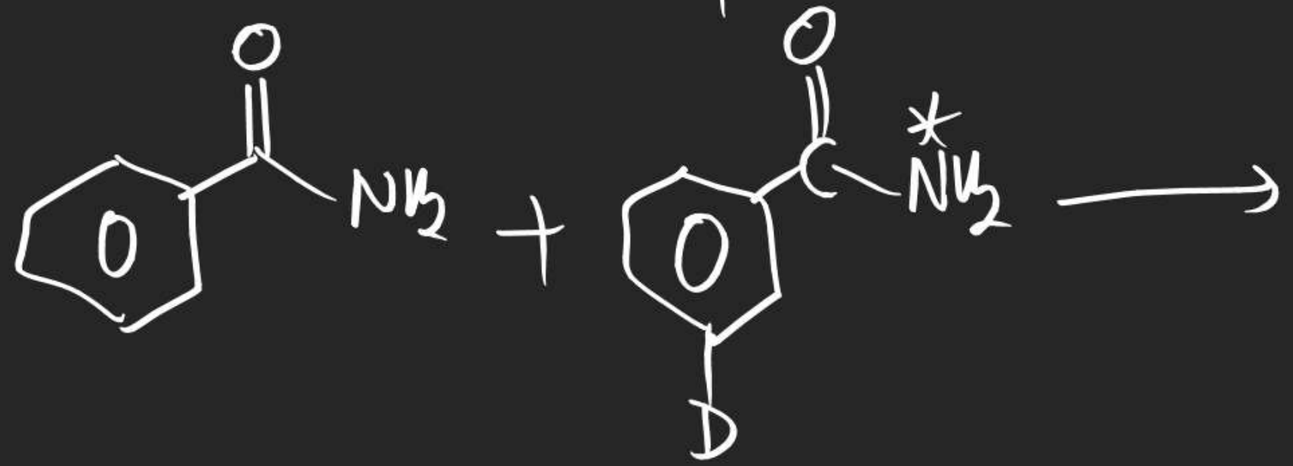
(vi) Rearrangement is Purely intramolecular.

(2)  $\xrightarrow{Br_2 + KOH}$

(3) 

(4) 

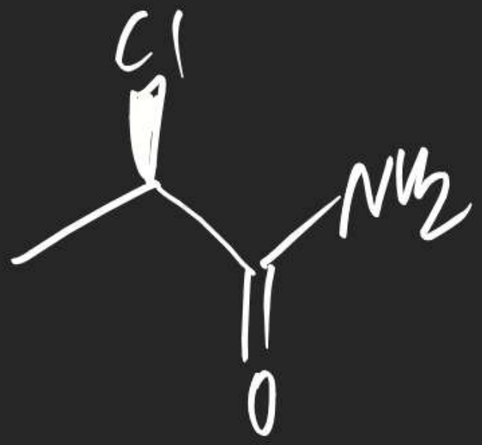
III

(5) 

(6) $CH_3-C(=O)-NH_2 + Br_2 + 4KOD \longrightarrow$

(7) $CH_3-C(=O)-NH_2 + Br_2 + 4KOH \longrightarrow$

(8) $CH_3-C(=O)-ND_2 + Br_2 + 4KOD \longrightarrow$

(9) 

$\xrightarrow{NaOBr}$

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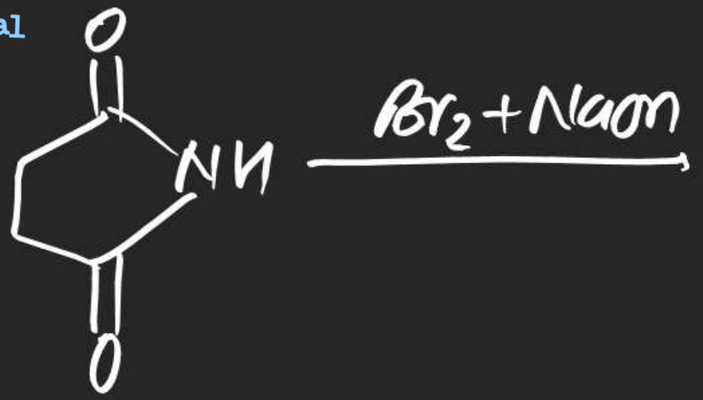
(10) $Ph-CH=CH-\underset{\underset{O}{\|}}{C}-NH_2 \xrightarrow[Br_2]{NaOH}$

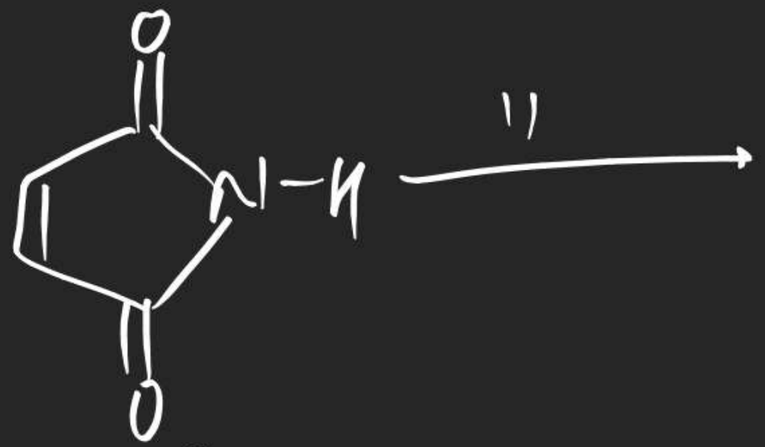
(11)  $+ Br_2 + 5KOH \longrightarrow R-NH_2 + R-COOK + K_2CO_3 + 2KBr + 2H_2O$

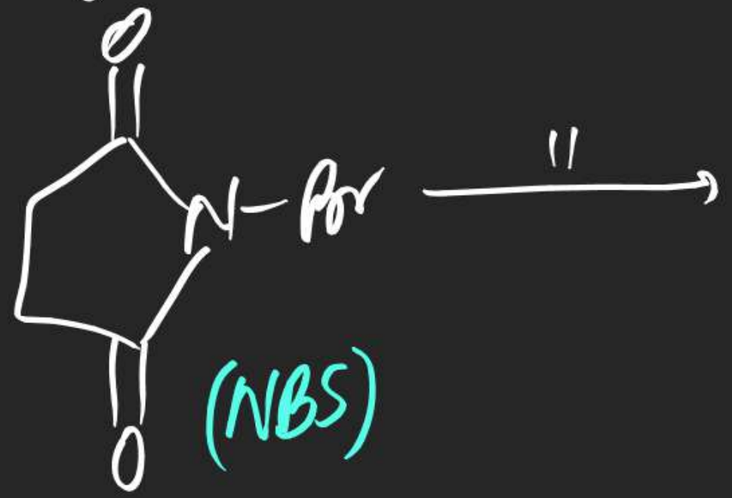
Acid Imide

mechⁿ :

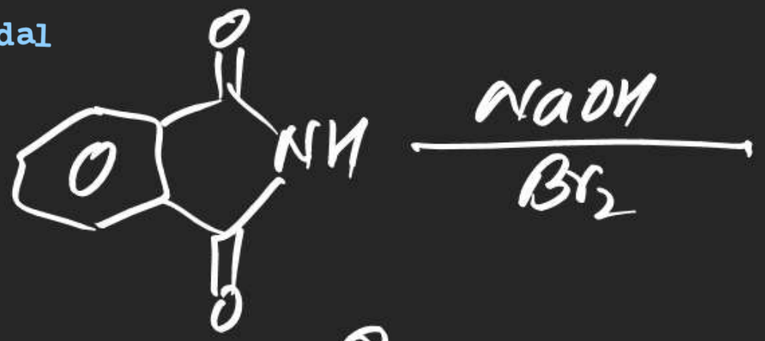
Nishant Jindal

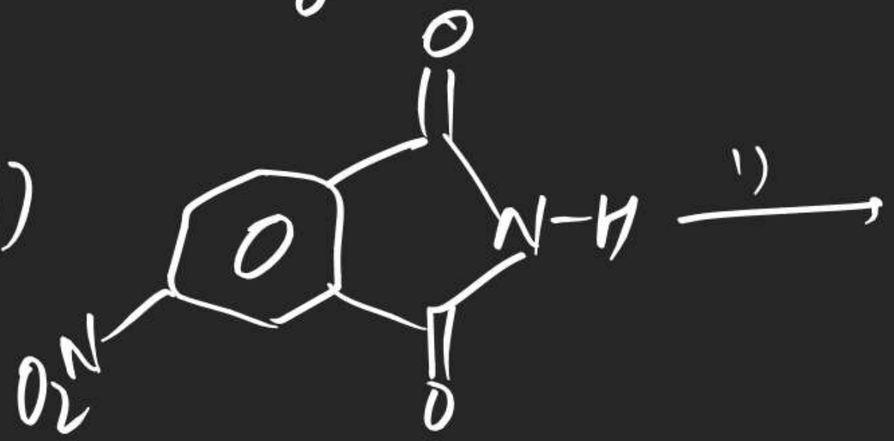
(12)  $Br_2 + NaOH$ ⟶

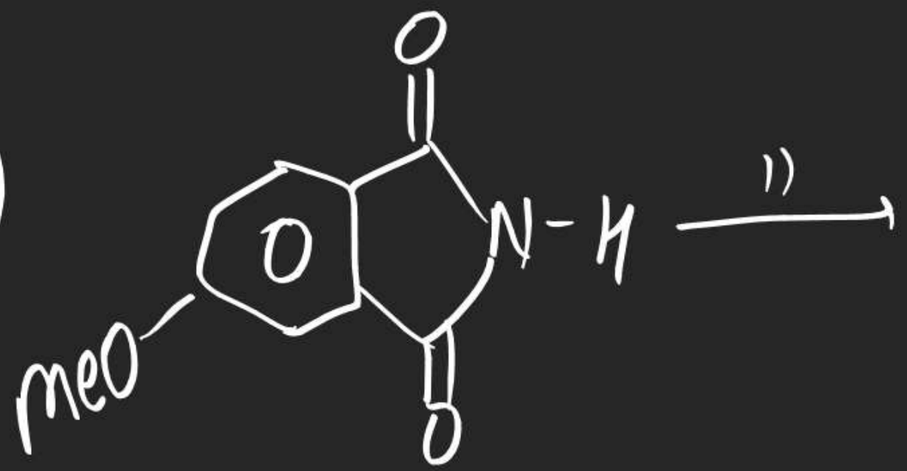
(13)  ⟶

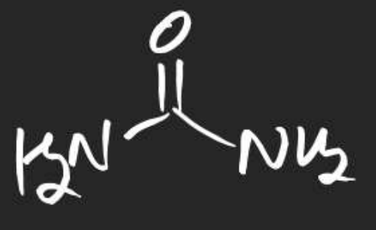
(14)  ⟶

(NBS)

(15)  $\xrightarrow[Br_2]{NaOH}$

(16)  $\xrightarrow{\text{''}}$

(17)  $\xrightarrow{\text{''}}$

(18)  $\xrightarrow[KOH]{Br_2}$