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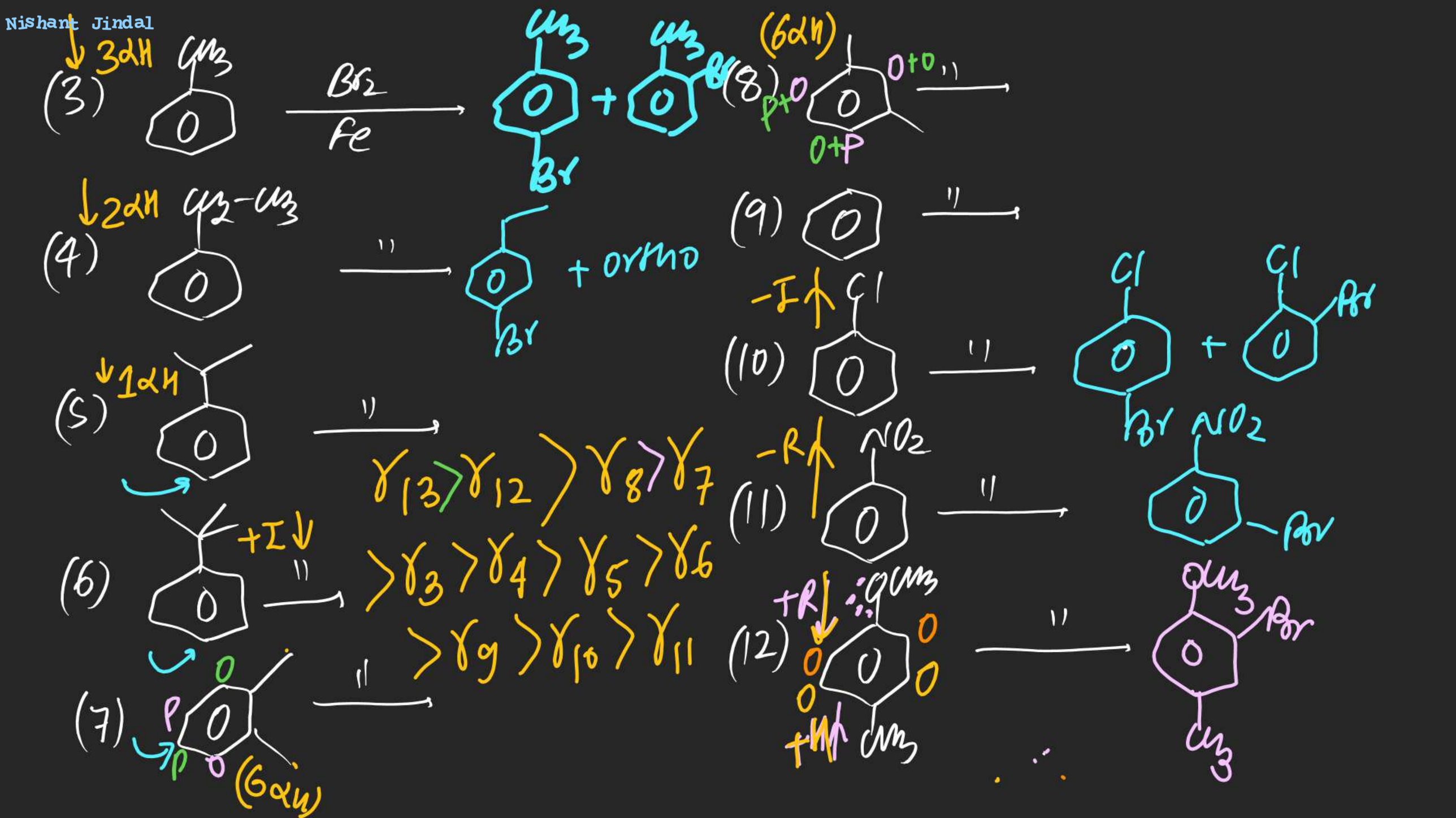

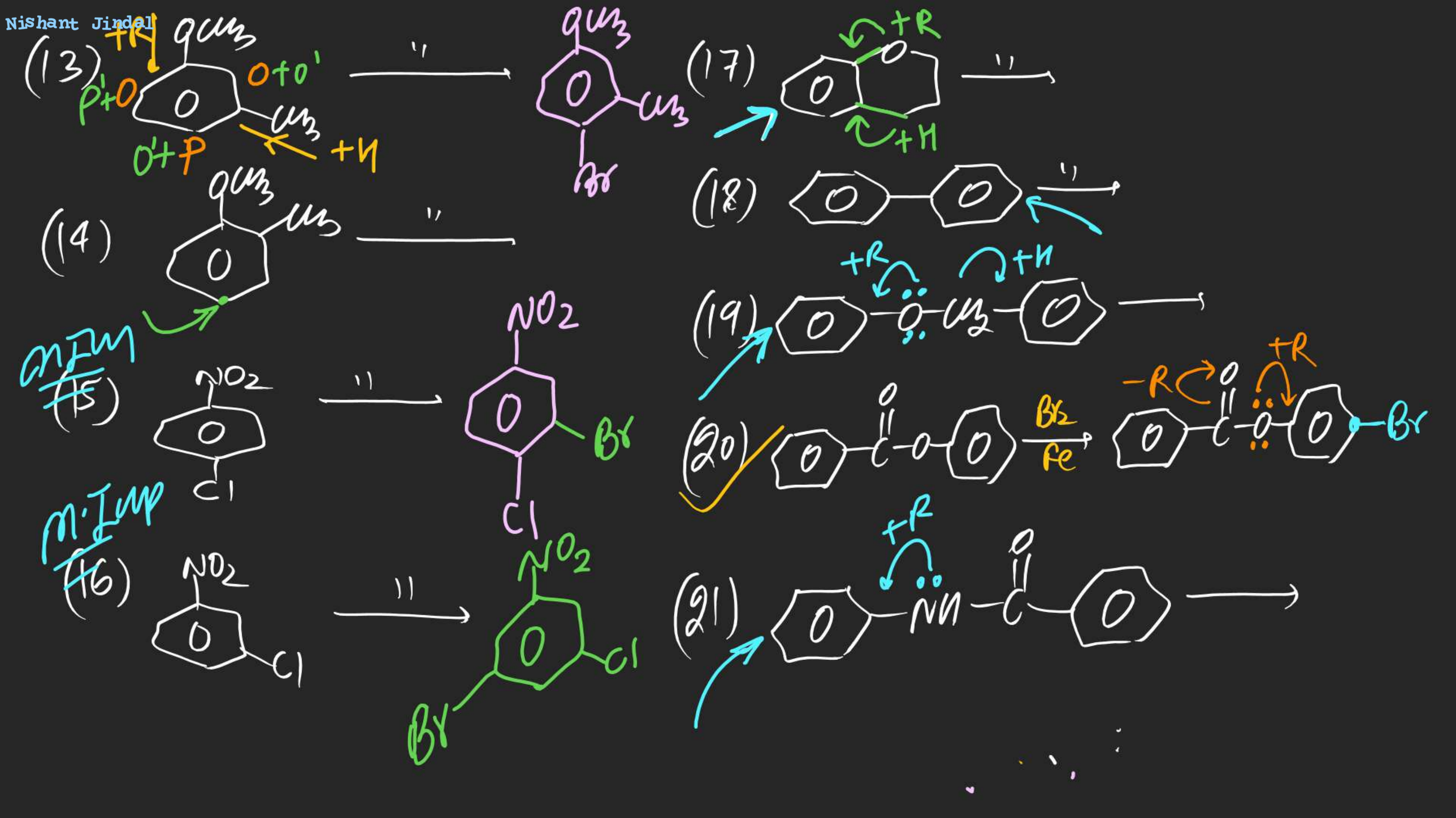

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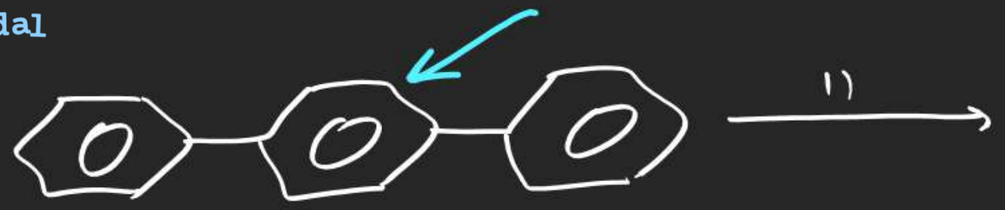
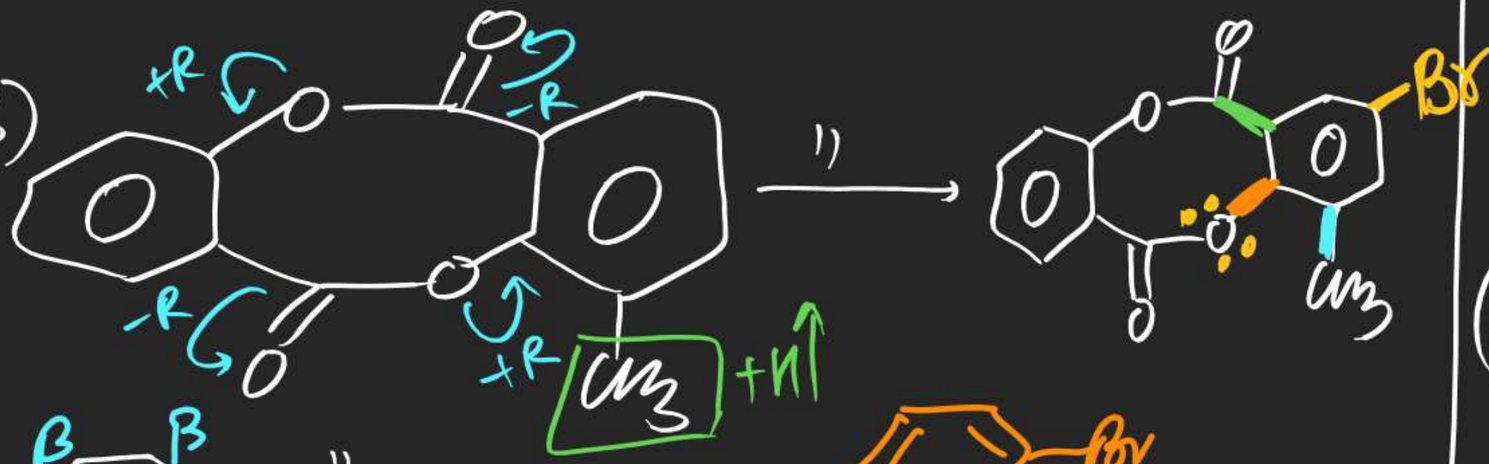
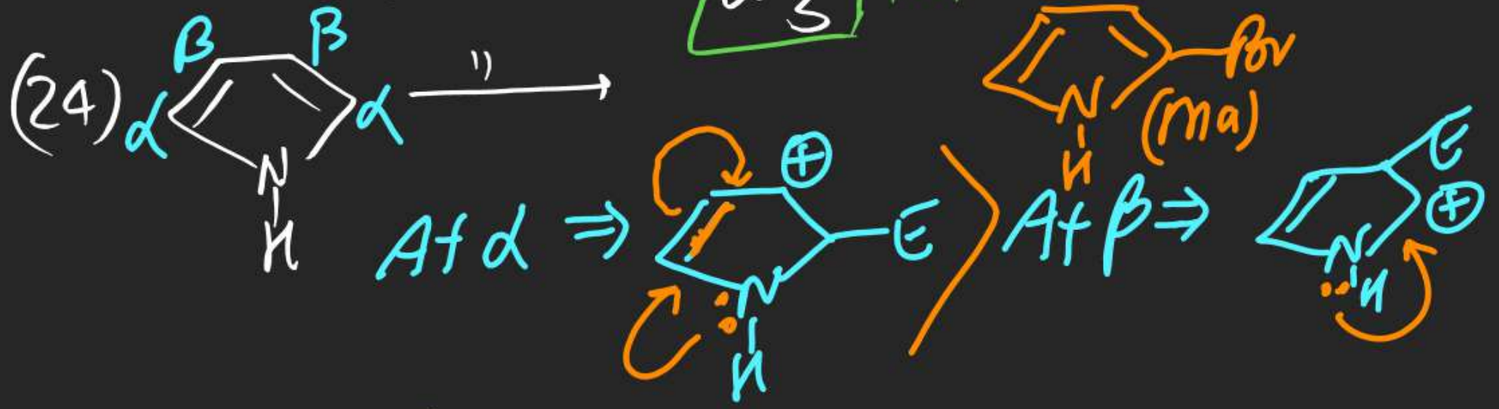
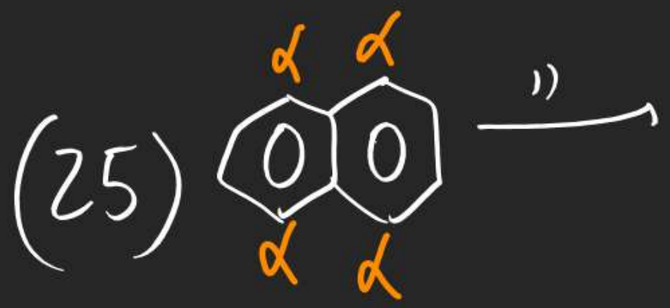
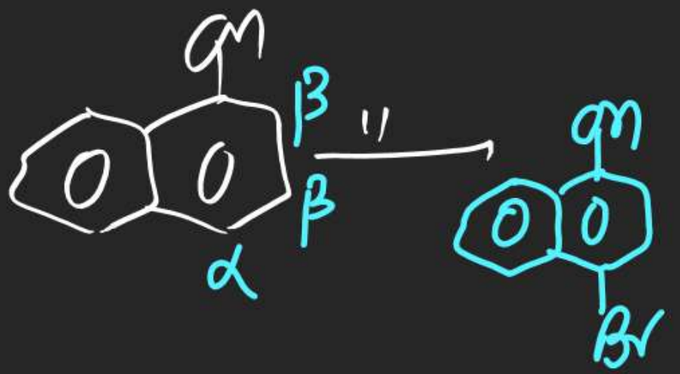
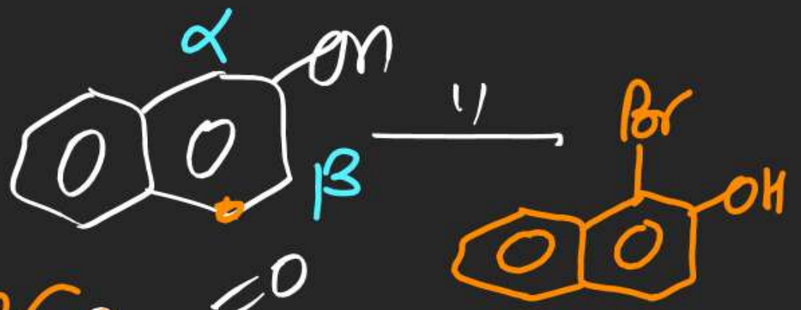
(22) 

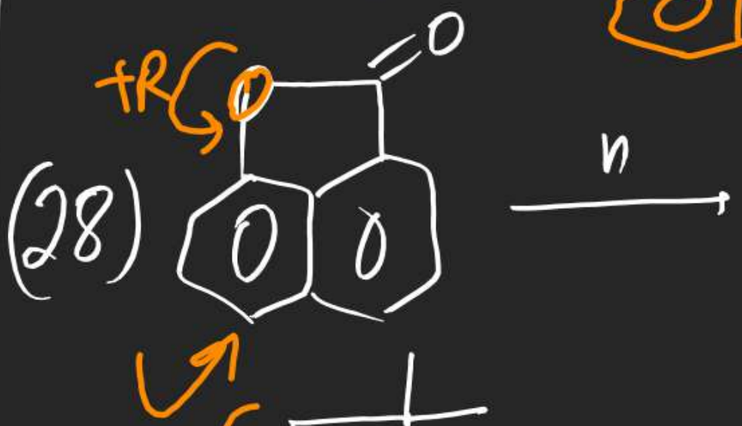
(23) 

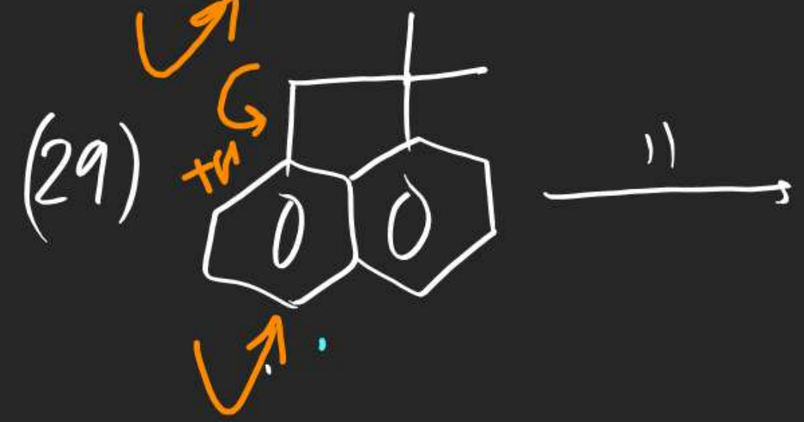
(24) 

(25) 

(26) 

(27) 

(28) 

(29) 

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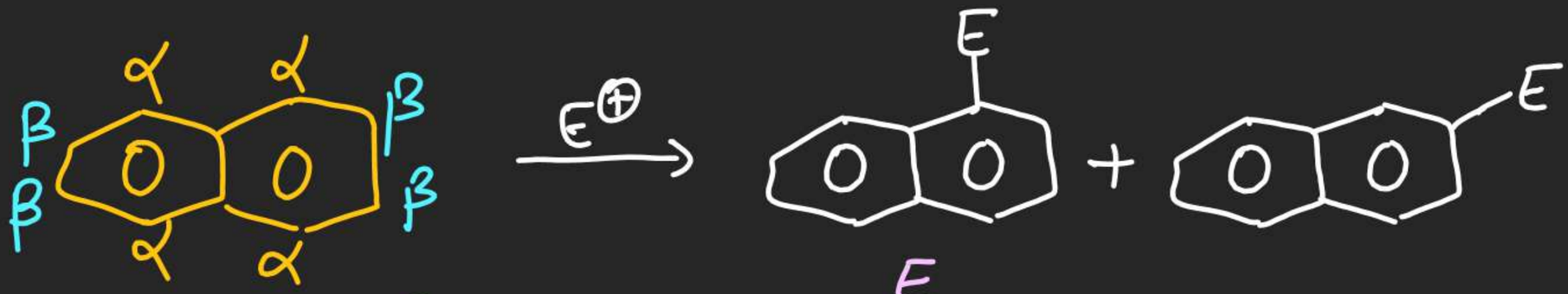
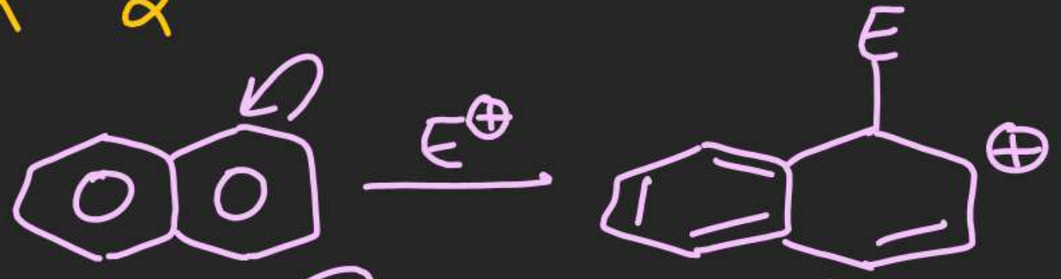
Soln:

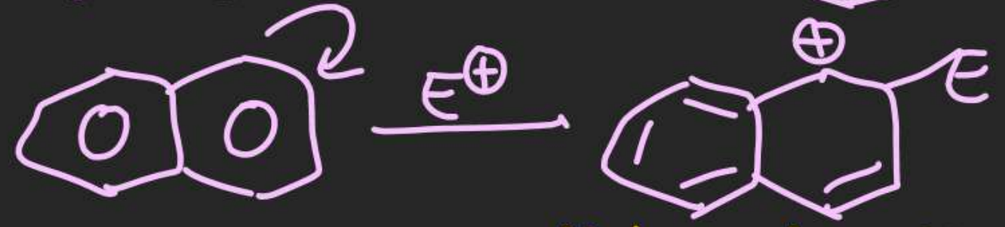


At α :



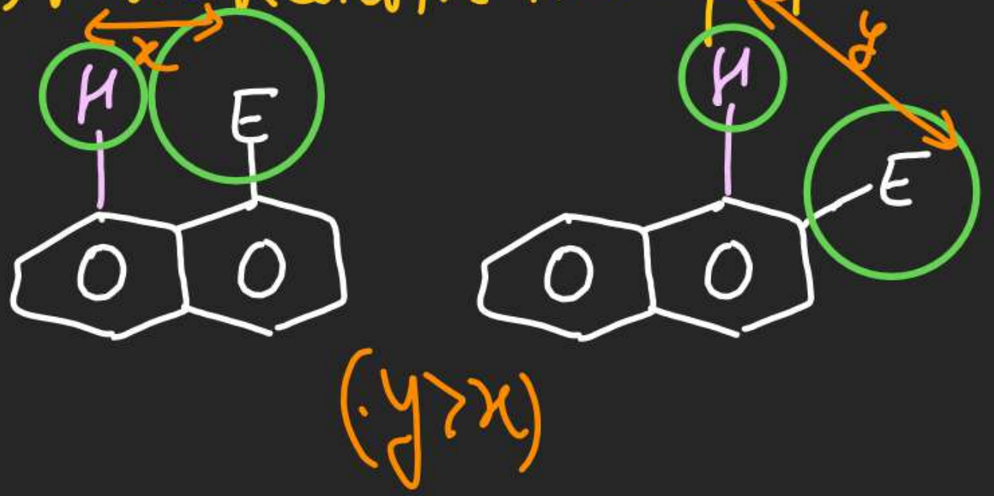
(7 RS) (more stable)

At β :



(6 RS) (less stable)

Note (i) α position of napthlene is more Reactive than β position of napthlene.



(ii) β-Substituted Napthlene is more stable than α-Substituted Napthlene.

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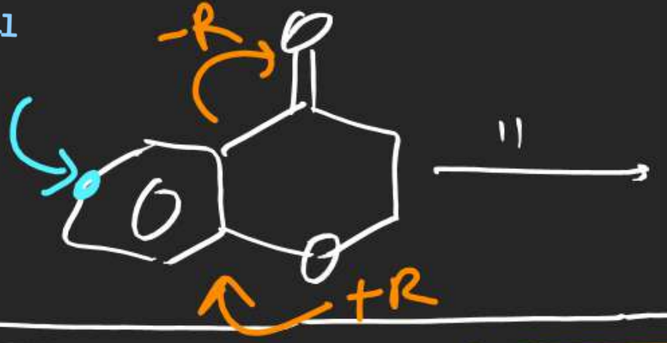
(30) 

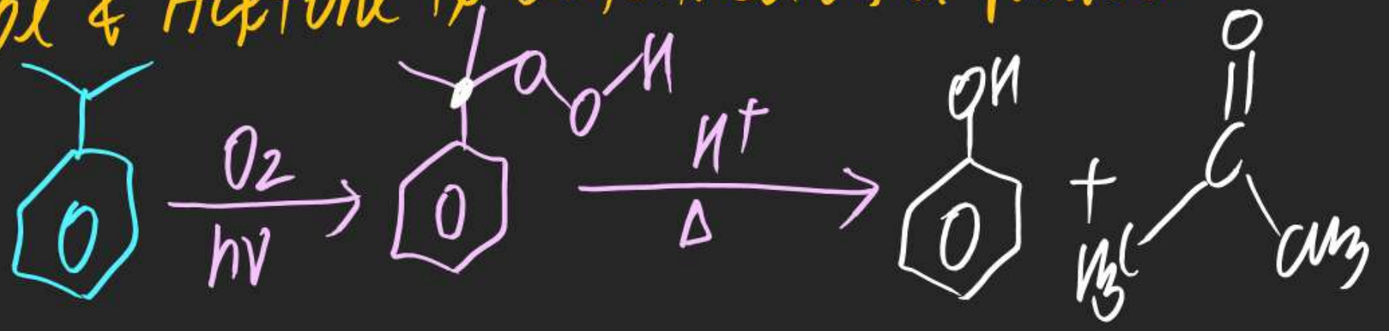
Reactions of phenol

(#) Preparation of phenol :

MJUP

(1) Cumene Hydroperoxide Rearrangement :

⇒ In this Rearrangement Cumene Hydroperoxide is treated with H_2SO_4/Δ so that phenol & Acetone is obtained as a product.



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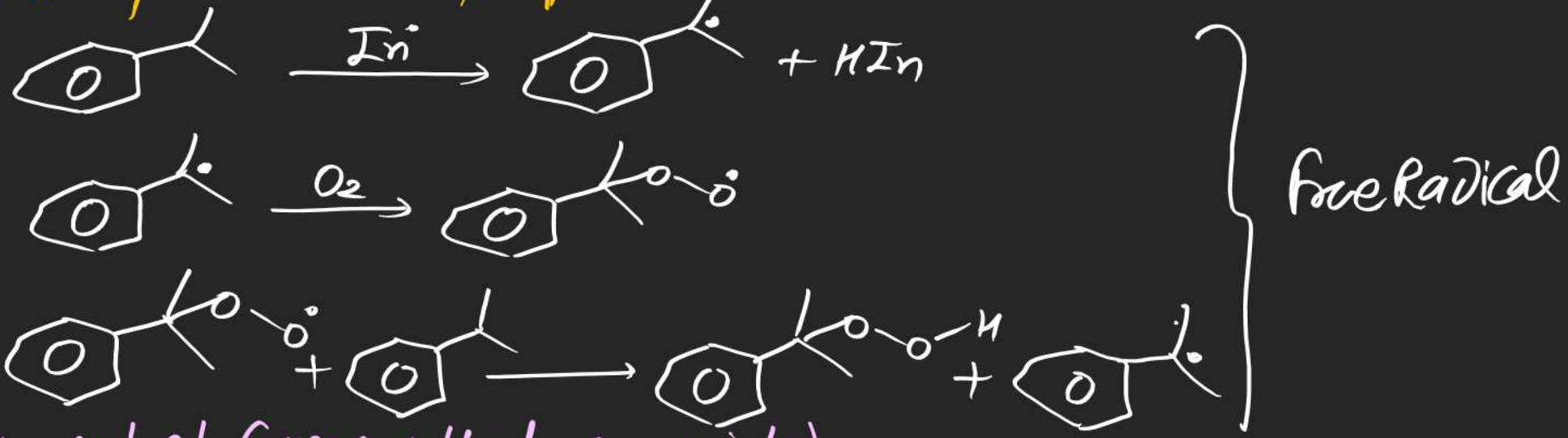
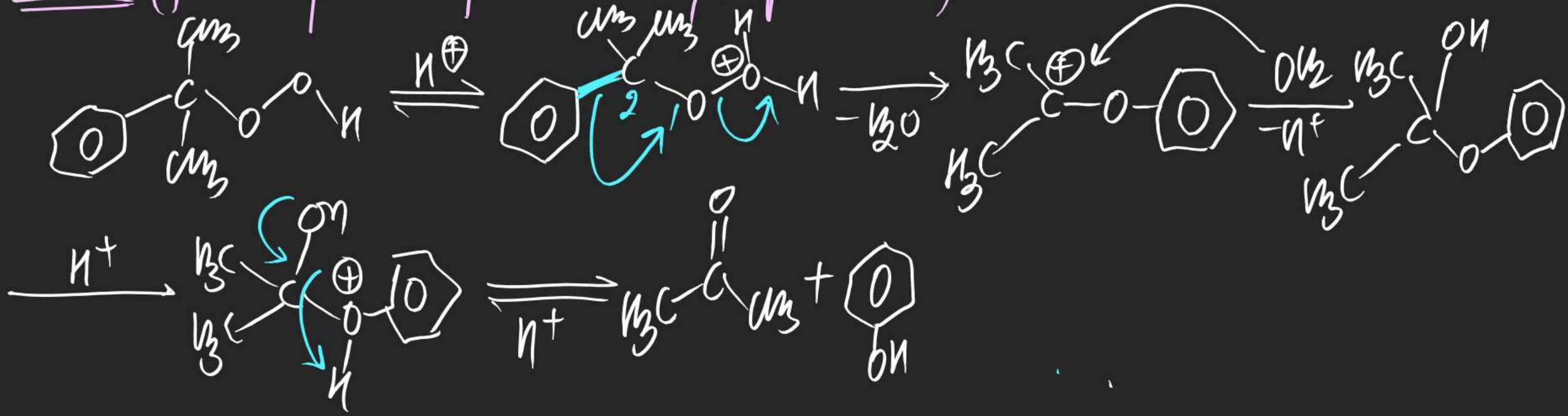
Mechⁿ (Formation of Cumene Hydroperoxide)



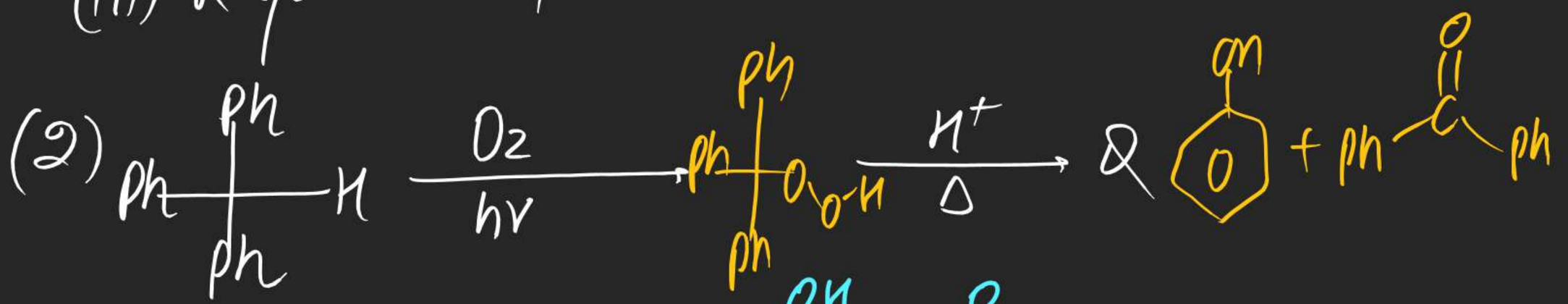
Mechⁿ (for Rearrangement of Cumene Hydroperoxide)

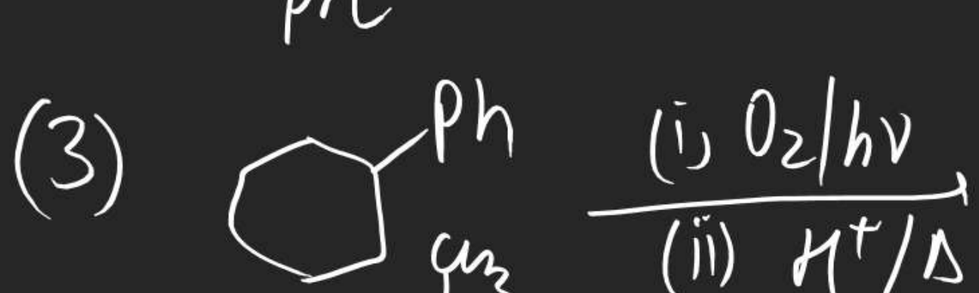


Note (i) Free Radical is formed duiy formation of Cumene Hydroperoxide

(ii) Duiy Reagent of Cumene Hydroperoxide Carbocation intermidiate

(iii) Reagent step is r.d.s

(2) 

(3) 

(4) 

Nishant Jindal

Note (i) For KOH

$T < 60^\circ C$ — para > ortho [To avoid steric factors]

$60^\circ C \leq T < 160^\circ C$ — ortho > para [due to chelate formation]

$T \geq 160^\circ C$ — para > ortho [chelation destroy]

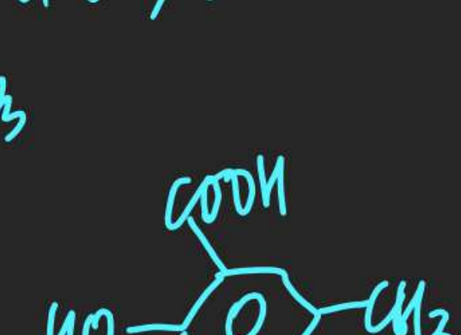
(ii) **At $T = 50^\circ C$**

LiOH
NaOH
KOH

para > ortho (universally large size of $Li^{\oplus}$ hydrated)
ortho > para (chelate formation)
para > ortho

(3) 

$\xrightarrow[KOH]{CO_2}$



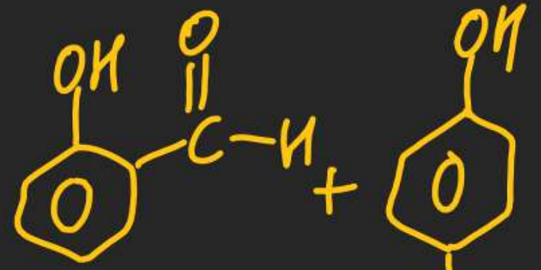
(4) 

$\xrightarrow{\text{II}}$

M.M.I.U.P

(#) Reimer Tiemann's Rxn:

⟹ In this Reaction formylation of phenol is carried out By alkaline chloroform Solution.

(1)  + $CHCl_3$ + 3NaOH ⟶ 

o-Salicyldehyde

p-Salicyldehyde

Mechⁿ: $H-CCl_3 + NaOH \longrightarrow Na^{\oplus}\overset{\ominus}{C}Cl_3 + H_2O$

$Na^{\oplus}\overset{\ominus}{C}Cl_3 \rightleftharpoons NaCl + :CCl_2$ (DCC)

(Dichlorocarbene)

∴

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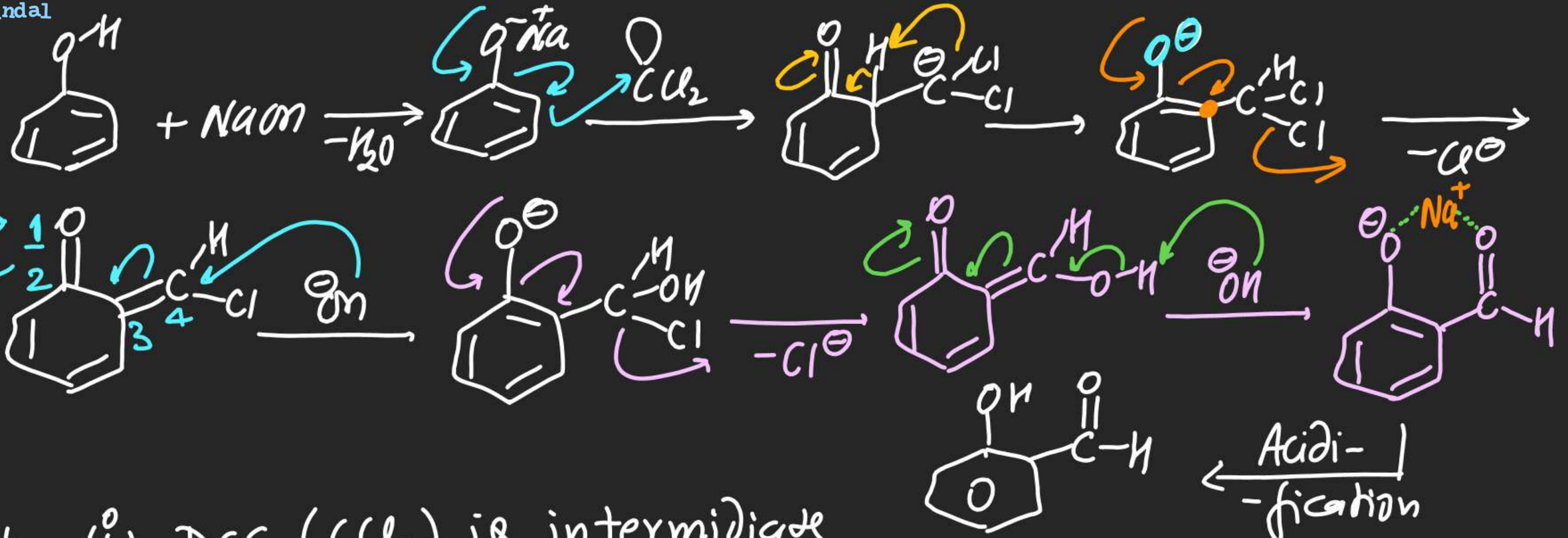


Note (i) DCC (CCl_2) is intermidiate

(ii) ortho product dominates over para product due to

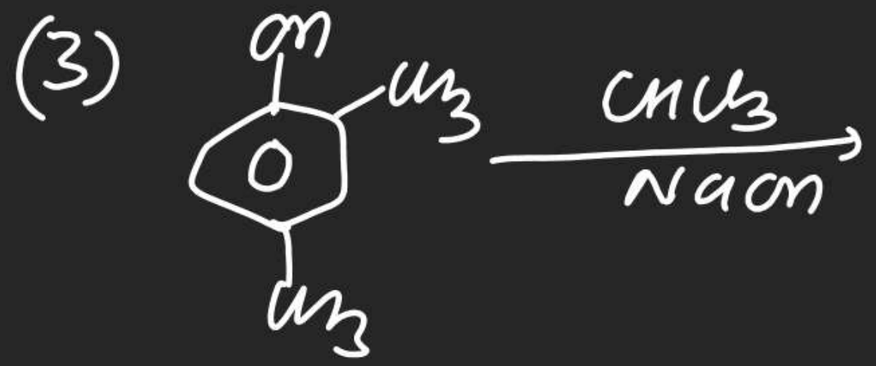
(a) Two ortho position over One para

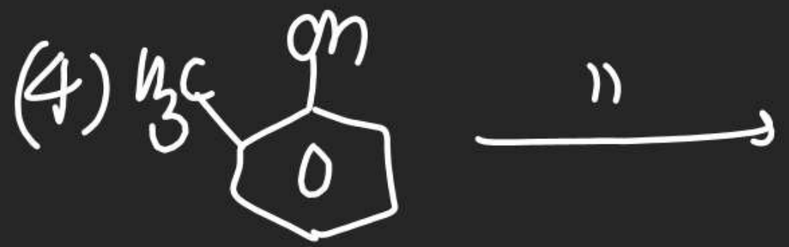
(b) Chelation at ortho position.

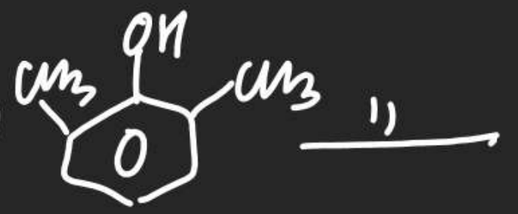
$$\left(\frac{O}{P}\right)_{NaOH} > \left(\frac{O}{P}\right)_{KOH} > 1$$

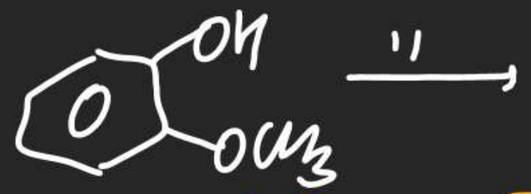
(iii) Para Product dominates when One or Both ortho is subst.

(2)  $+ CHCl_3 + NaOH \longrightarrow$

(3)  $\xrightarrow[NaOH]{CHCl_3}$

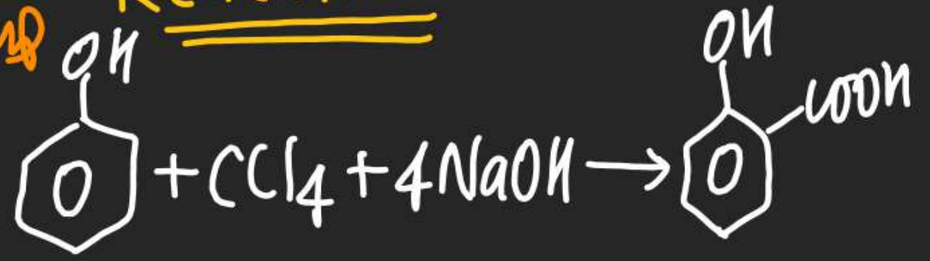
(4)  $\longrightarrow$

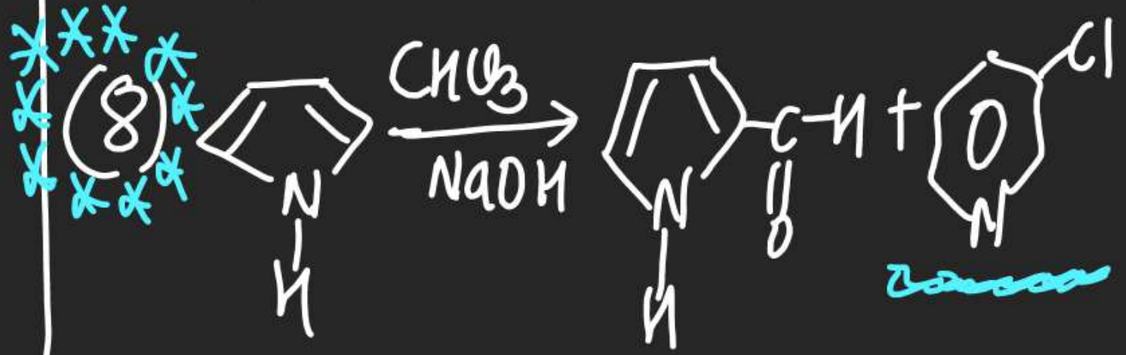
(5)  $\longrightarrow$

(6)  $\longrightarrow$

(#) Abnormal Reimer Tiemann Reaction

M.M.D.P

(7) 

(8) 

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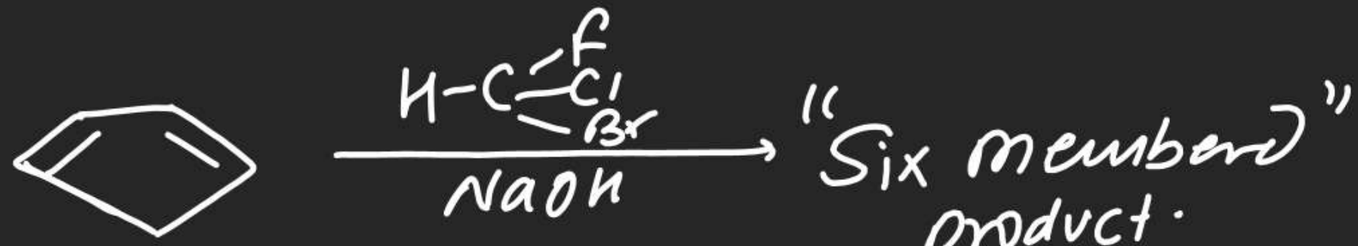
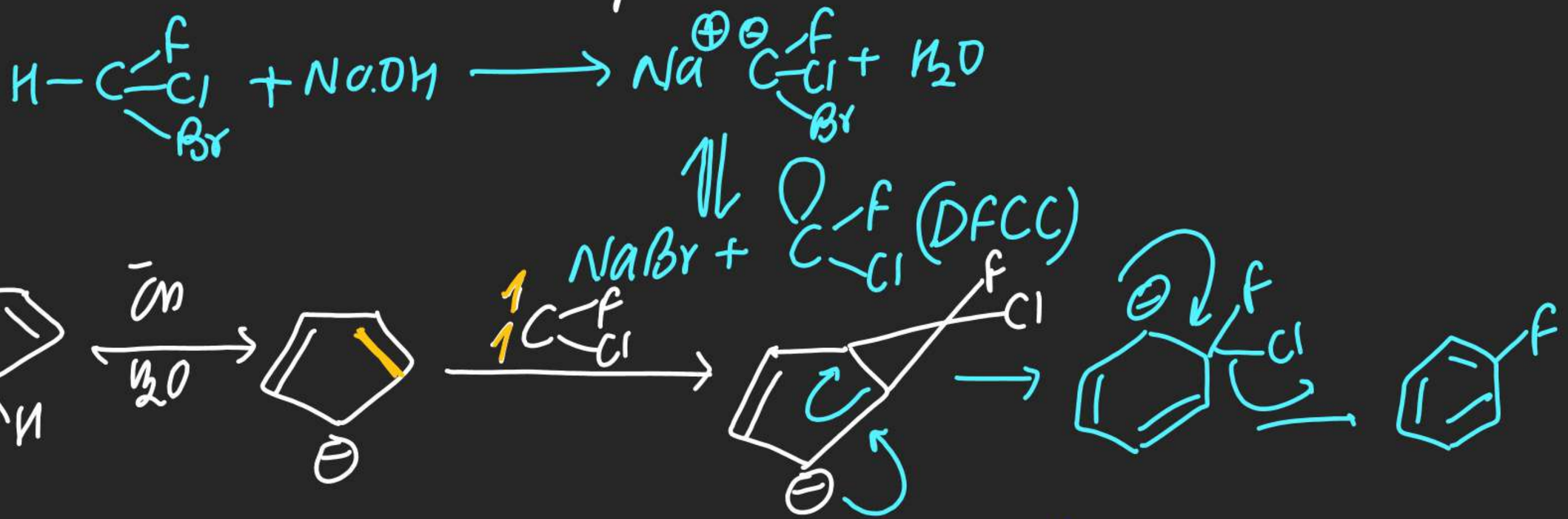
(9) 

(10) 

Soln:



∴

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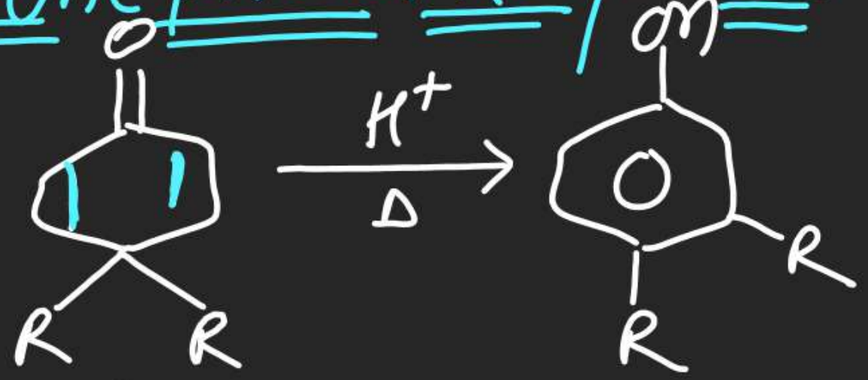
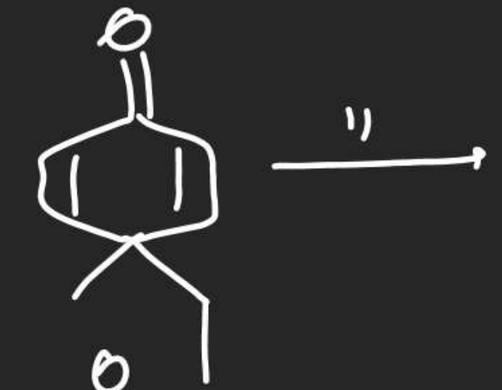
(#) Aromatic Reagents :-

Dienone Phenol Reagent :-

(1)



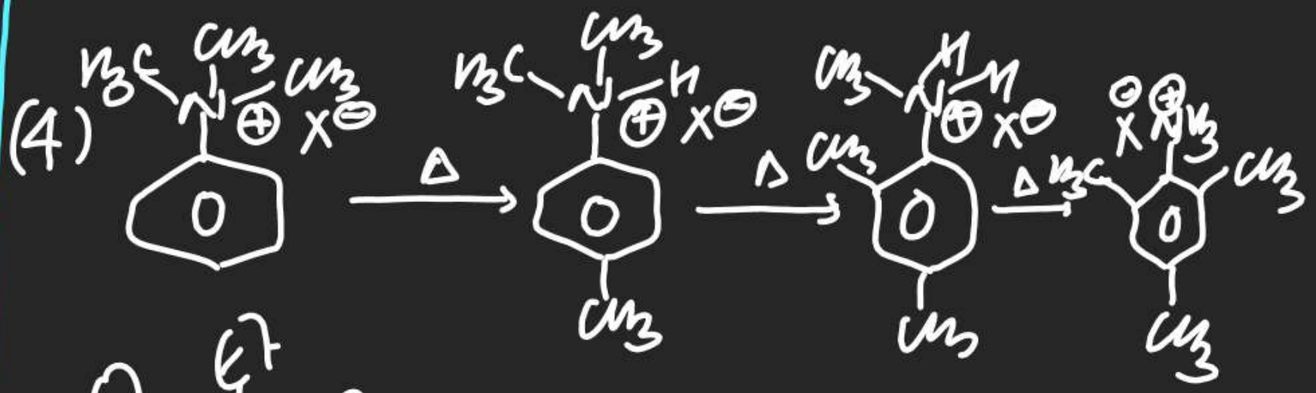
(2)



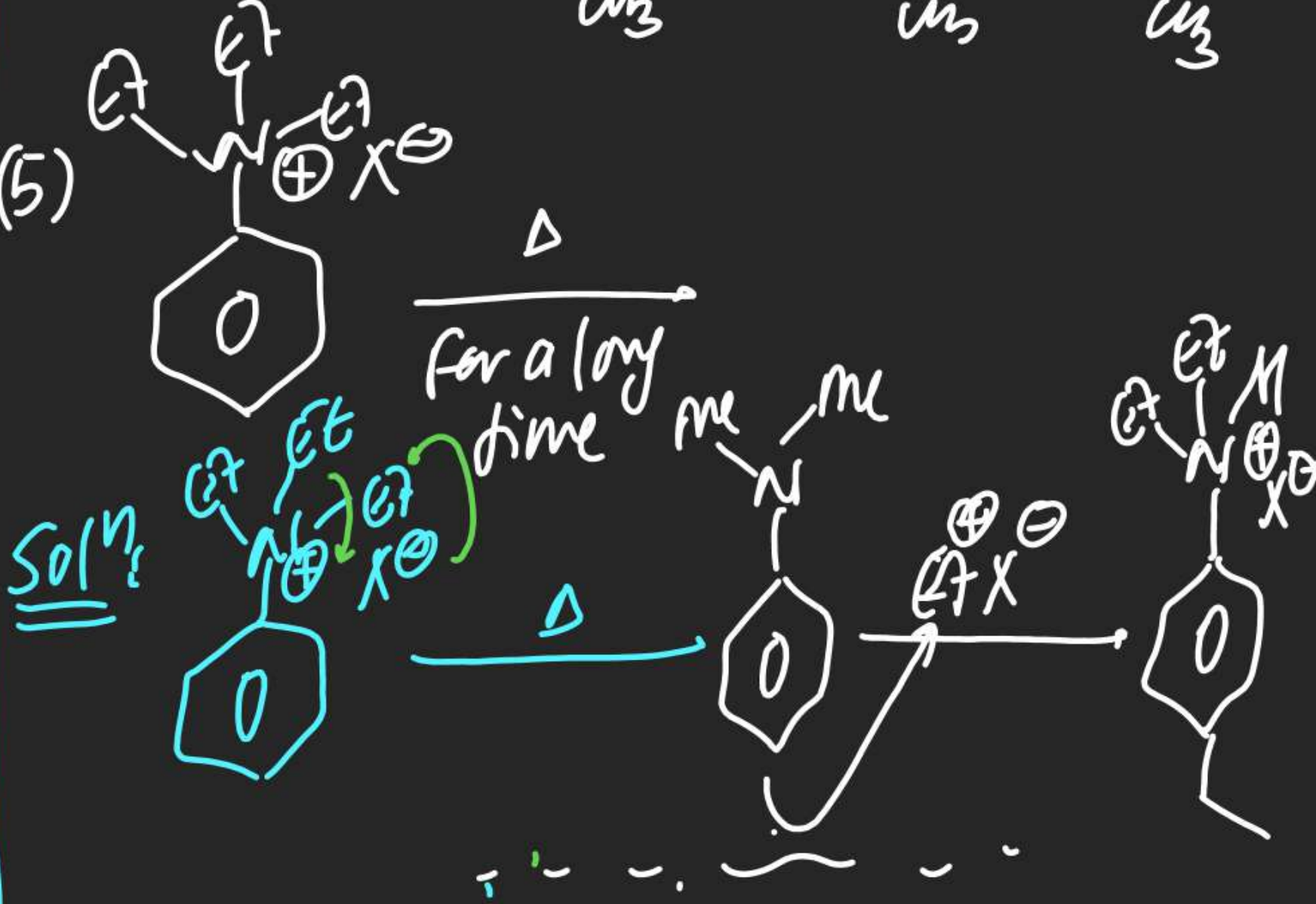
(3)

(#) Hofmann Mayrbug Reagent

(4)

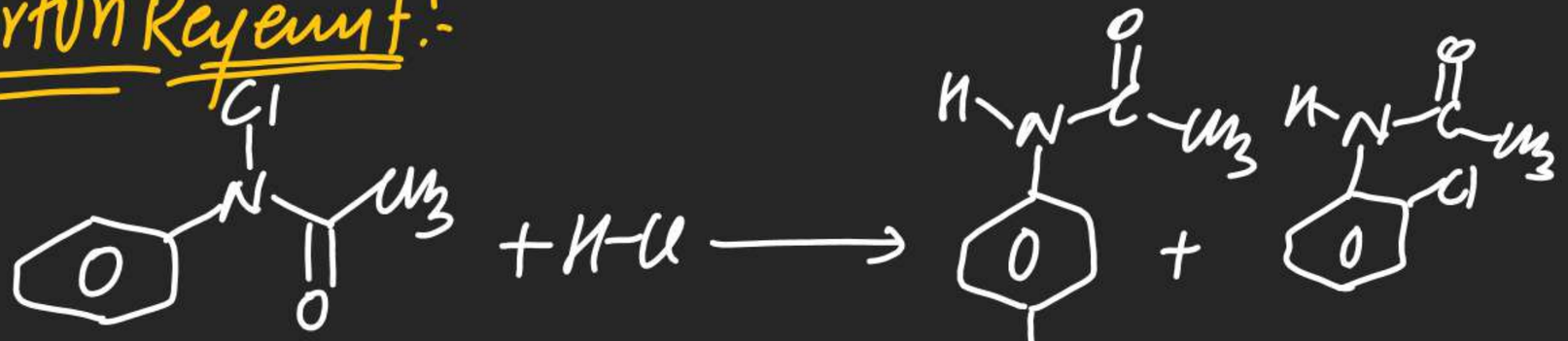


(5)

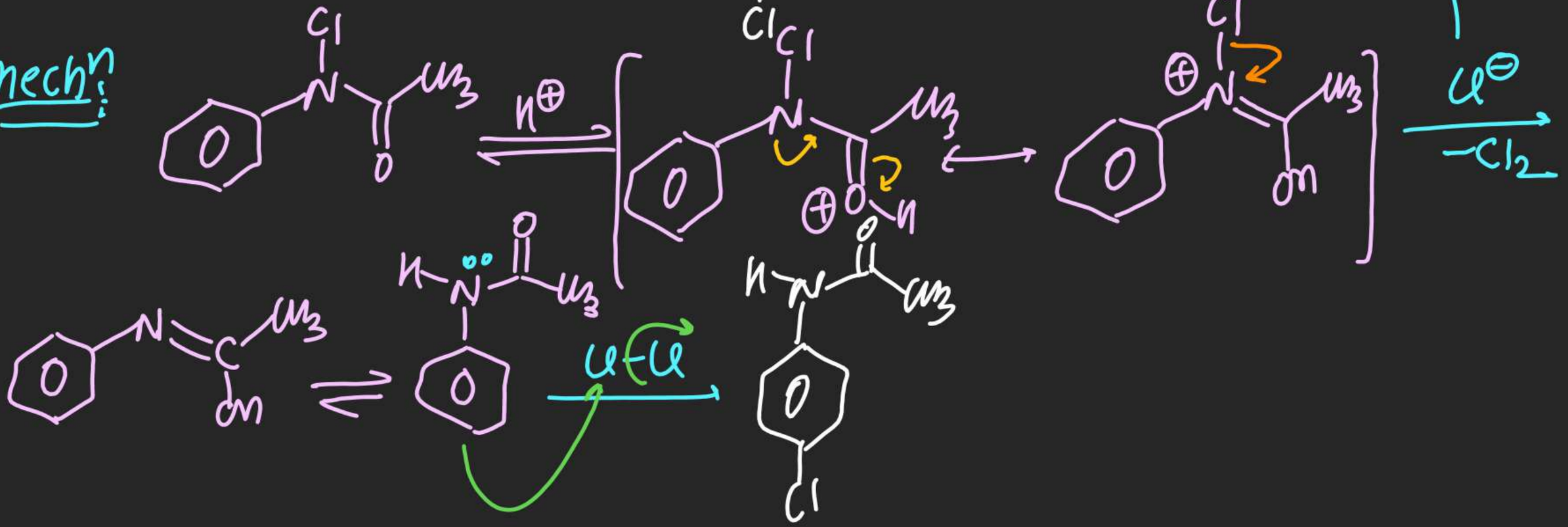


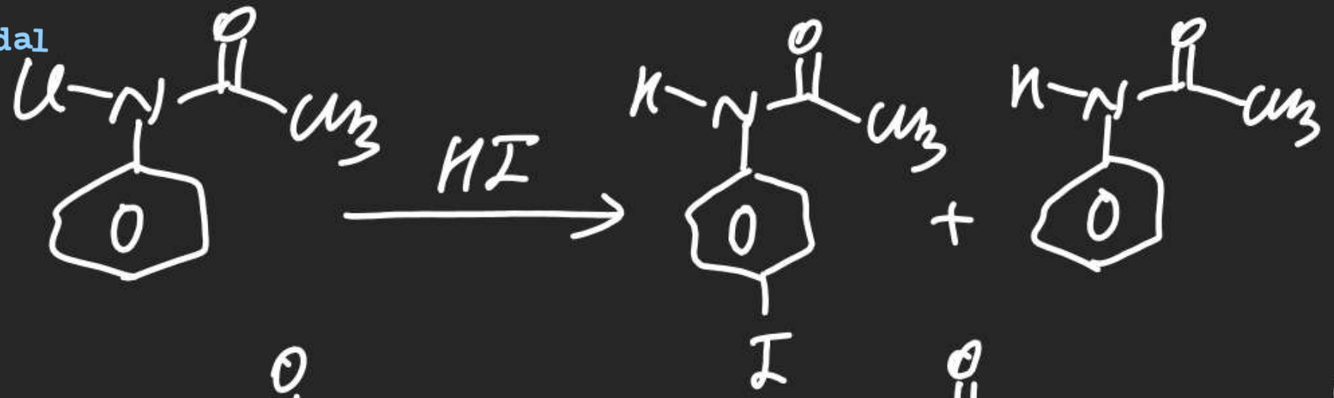
(#) orton Reaction :-

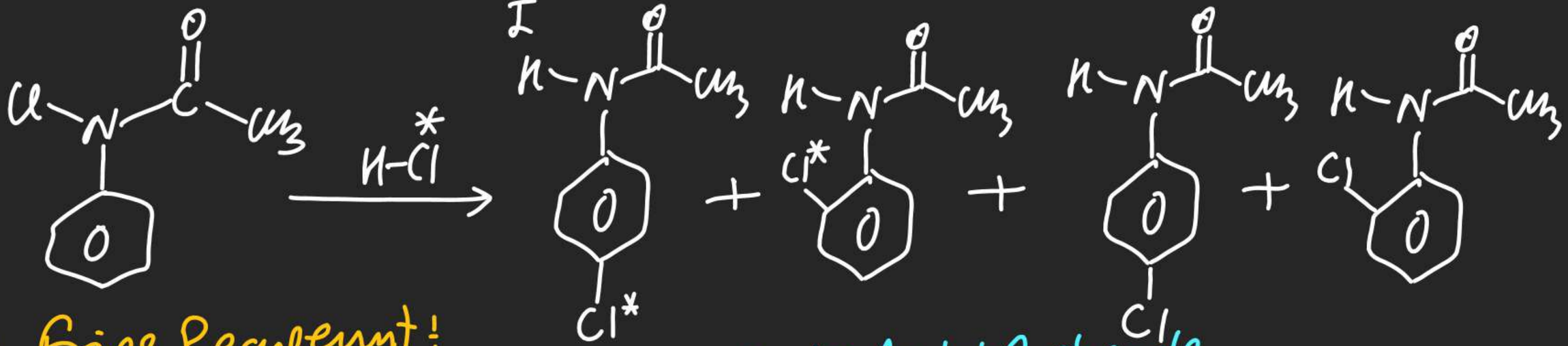
(6)



mechn :

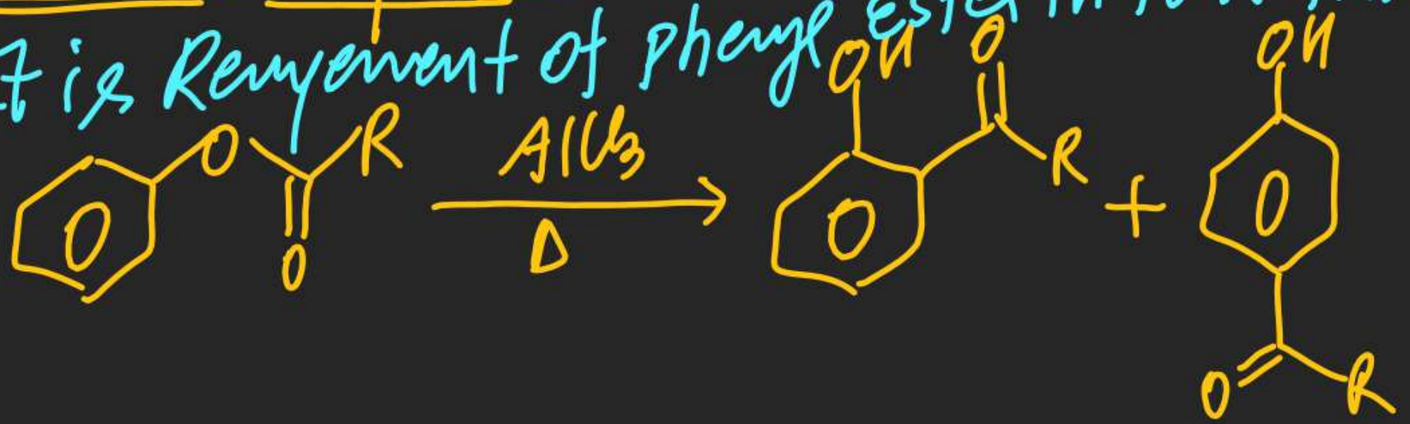


(7) 

(8) 

(#) **Fries Rearrangement:**

⇒ It is Rearrangement of phenyl Esters in to Acylated phenols.

(9) 

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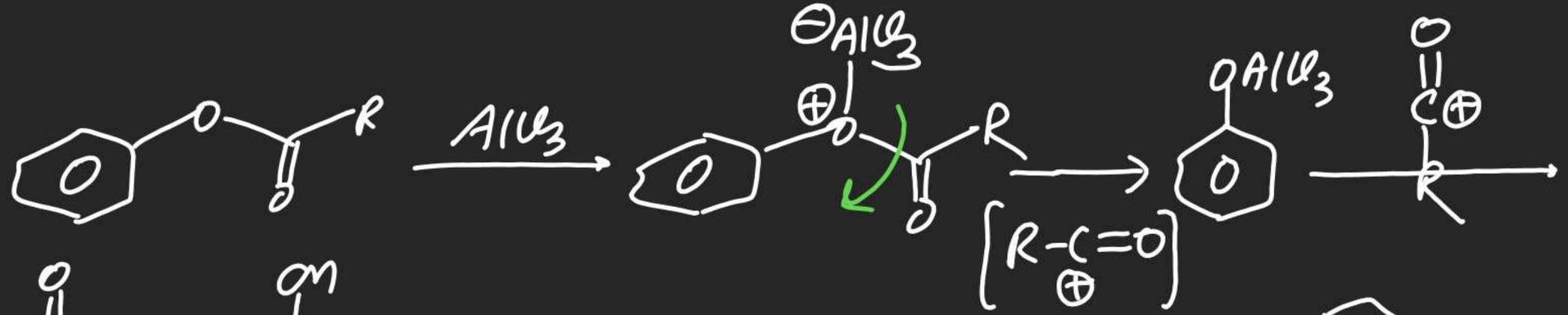
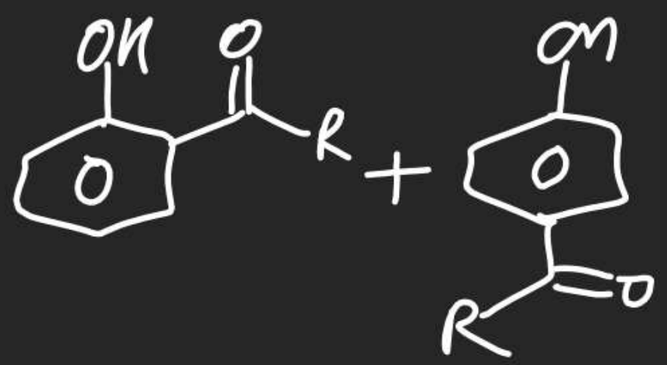
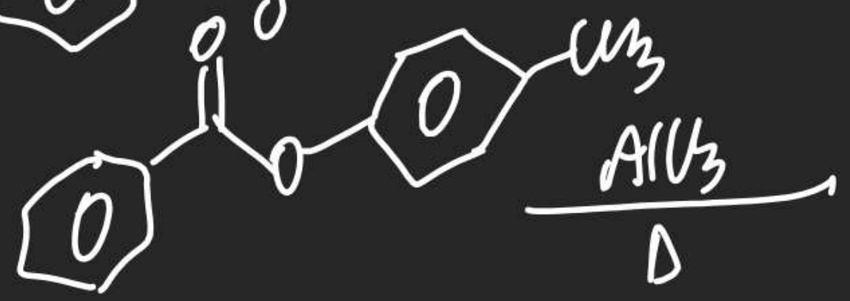
Mechⁿ:





(10)

(11)



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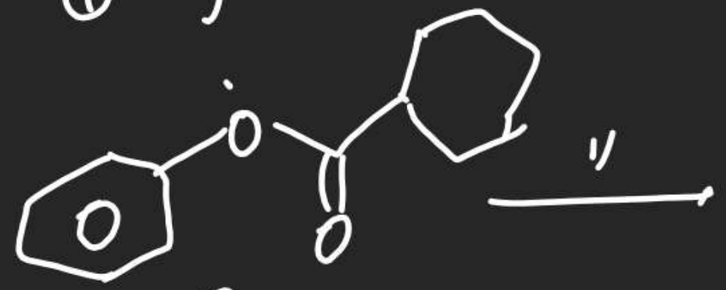

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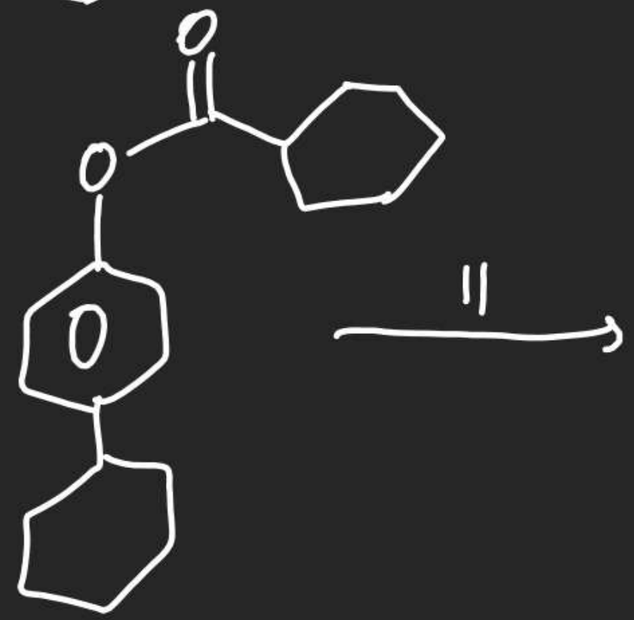
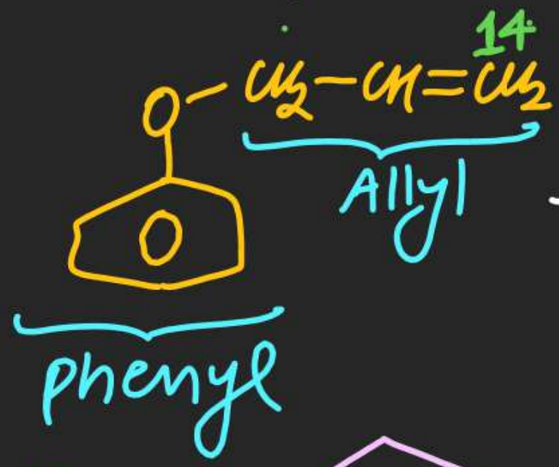
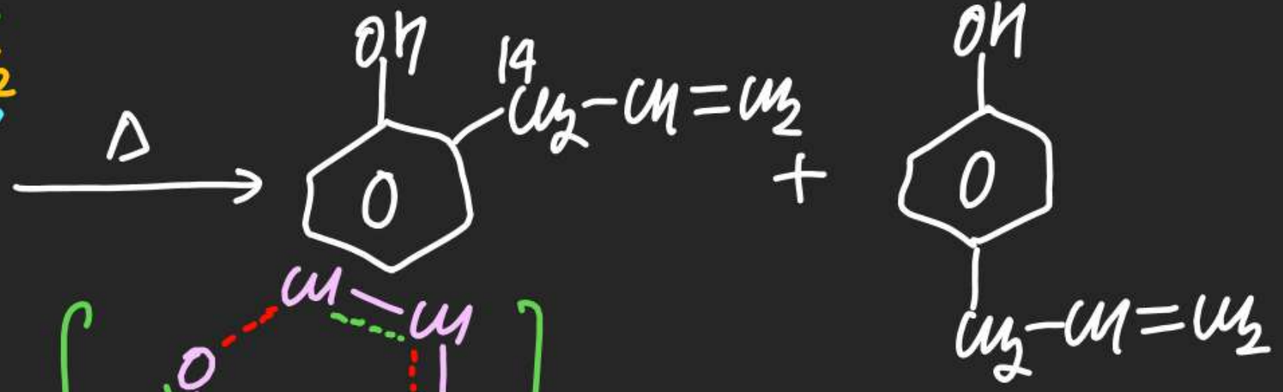


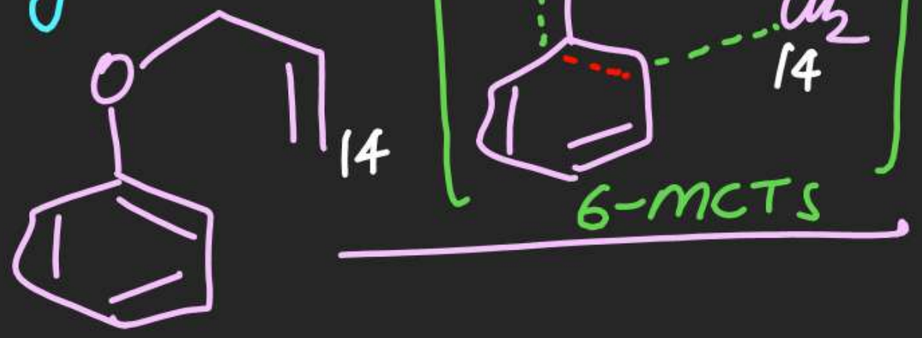
(H) Claisen Rearrangement :-

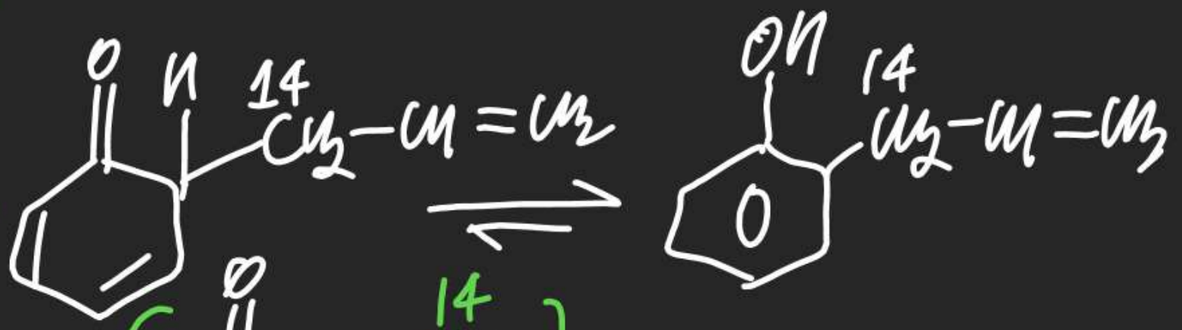
(14)

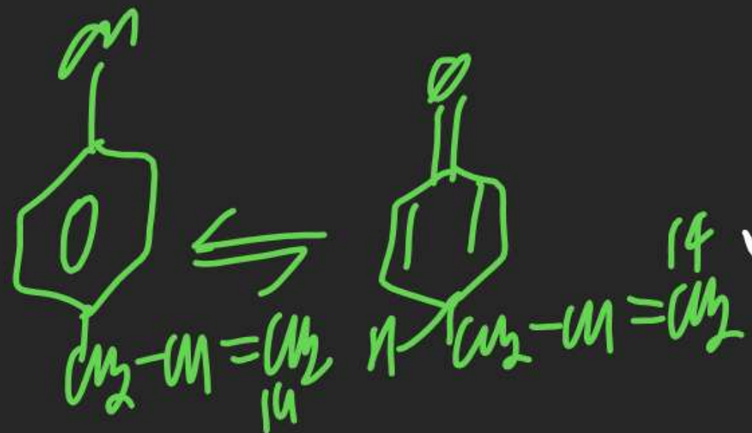


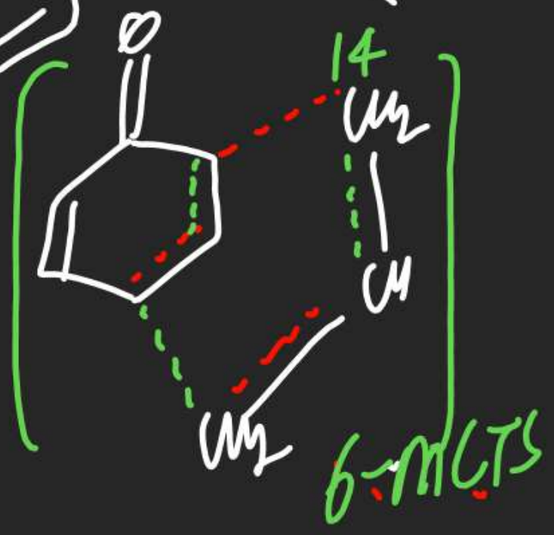


Mech?







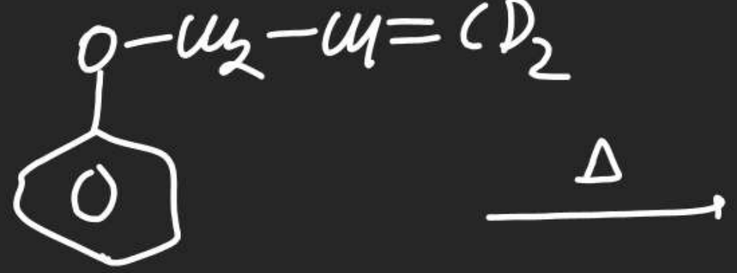


Note (i) 6-MCTS involved

(ii) ortho product dominates over para

(iii) para product obtained only when Both ortho is Substituted.

(15)



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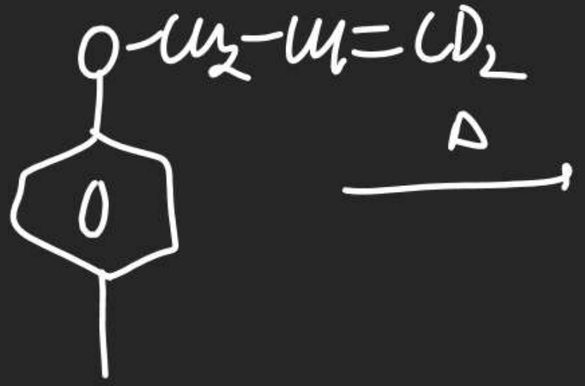

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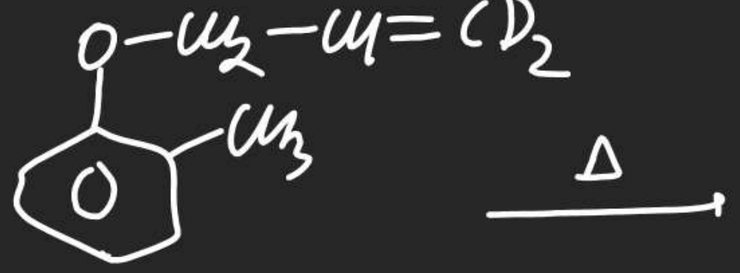
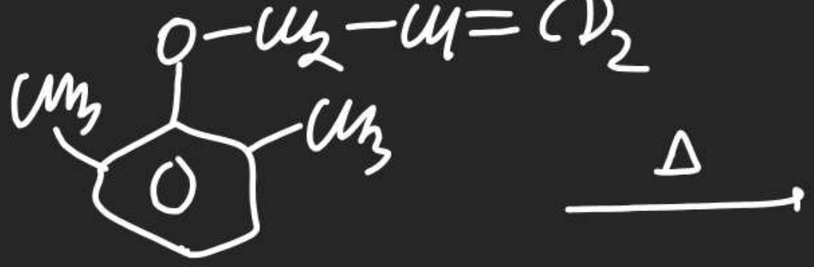


(18)



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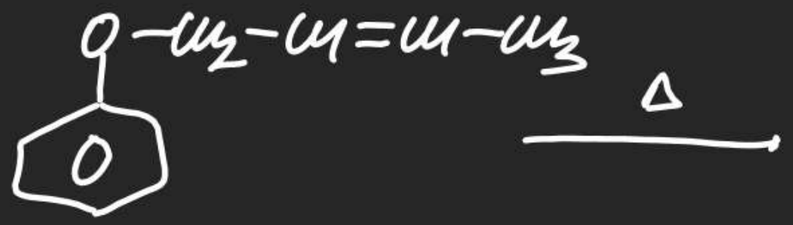
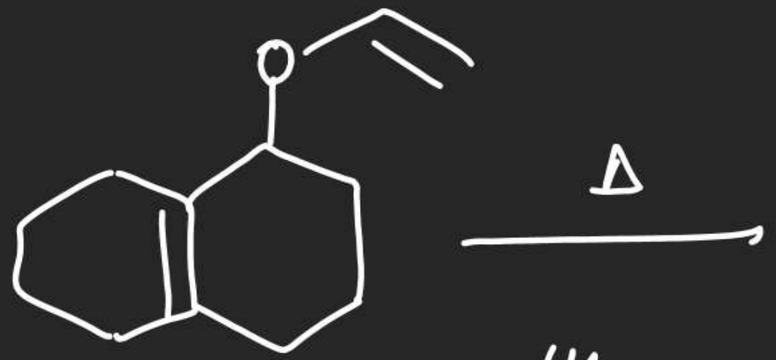
(19)



(20)

(21)



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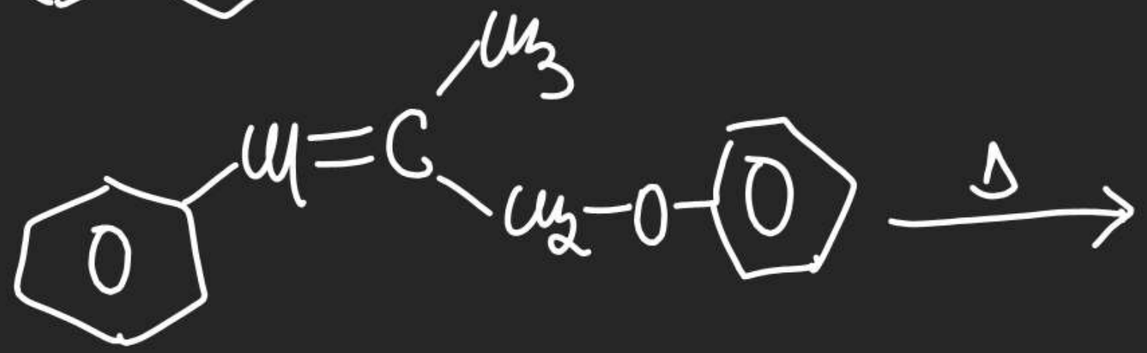

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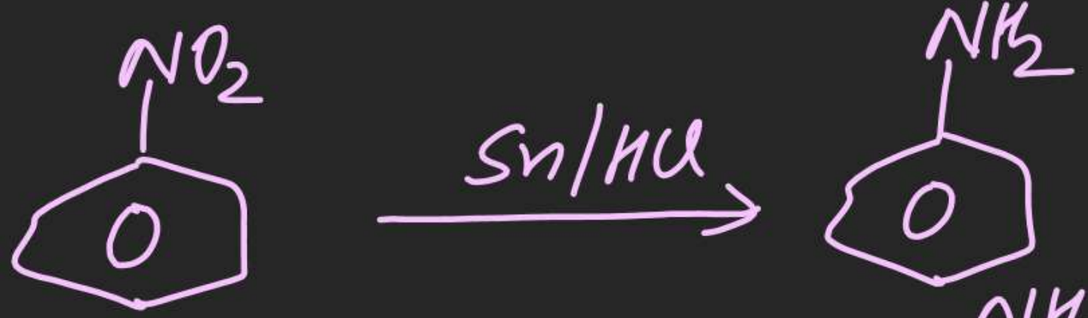
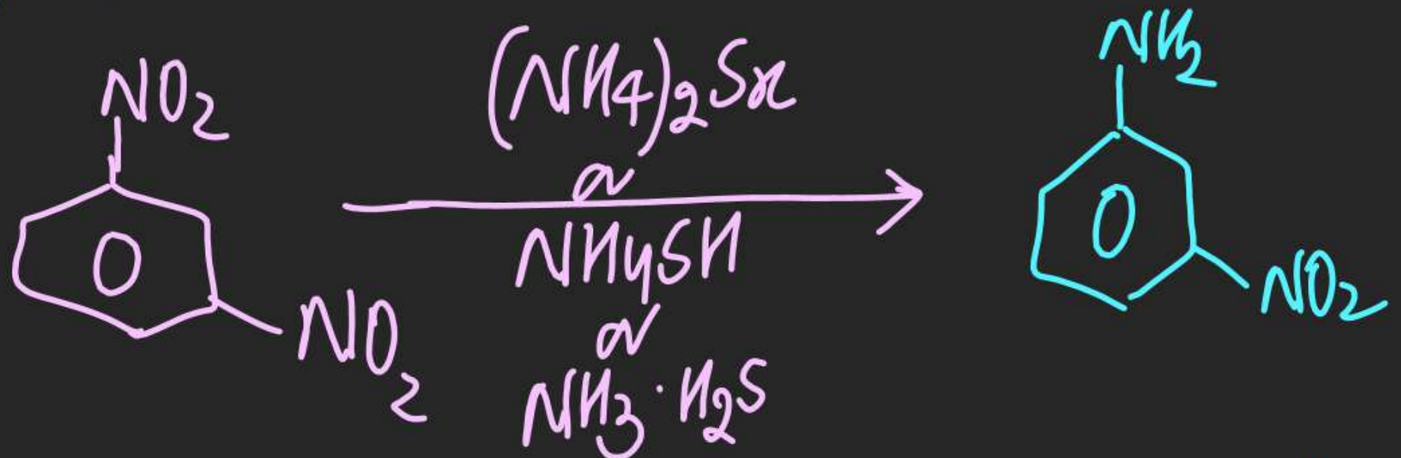
(#) Reduction of Nitro Benzene :-

IUP (1)



IUP (2)

MMIUP (3)



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Bio Molecule