

LIVE

AROMATIC COMPOUNDS

for JEE-MAIN

One Shot

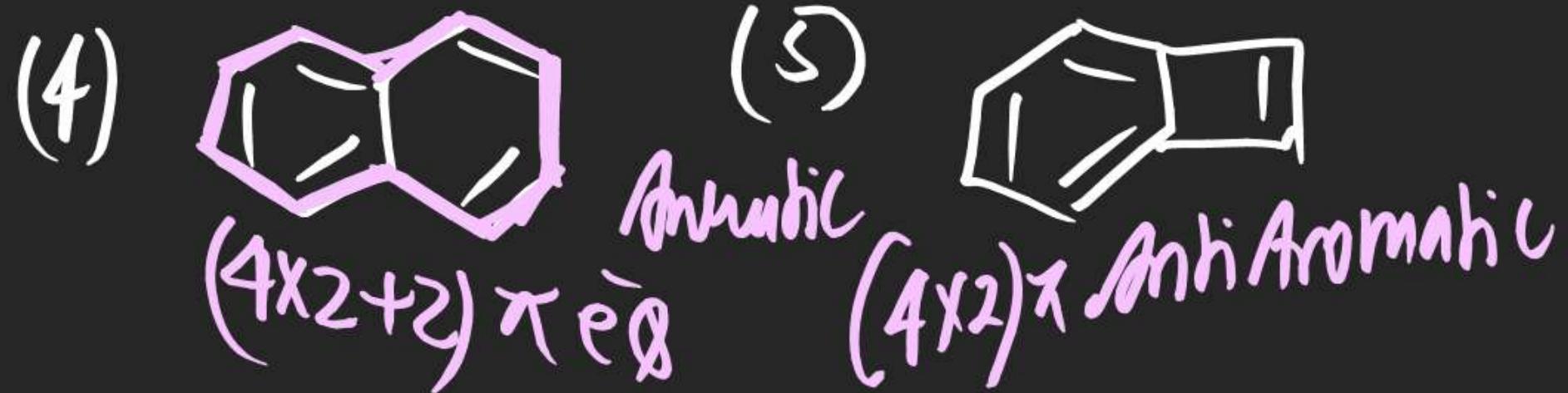
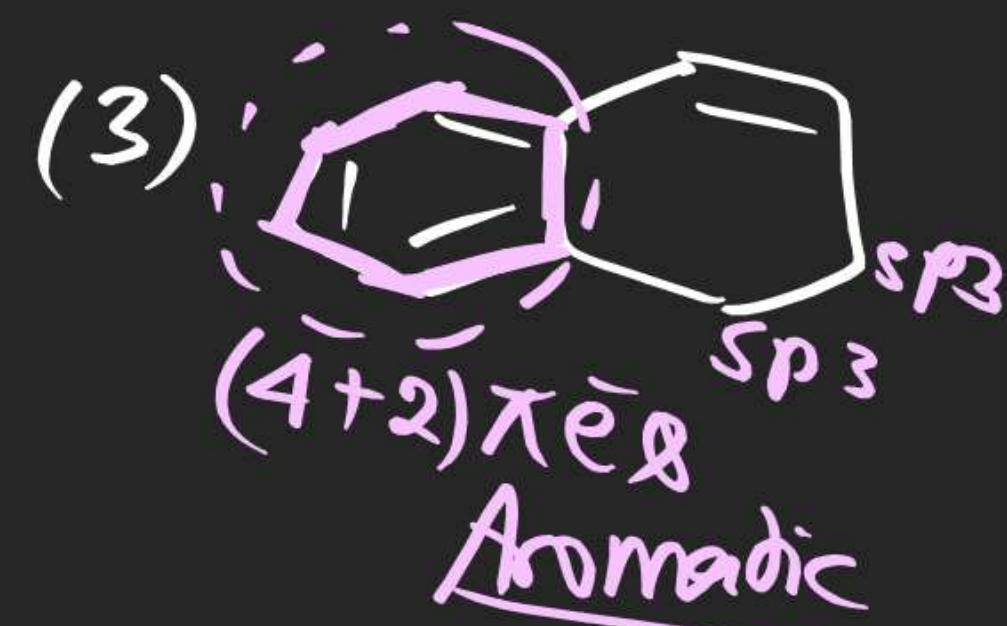
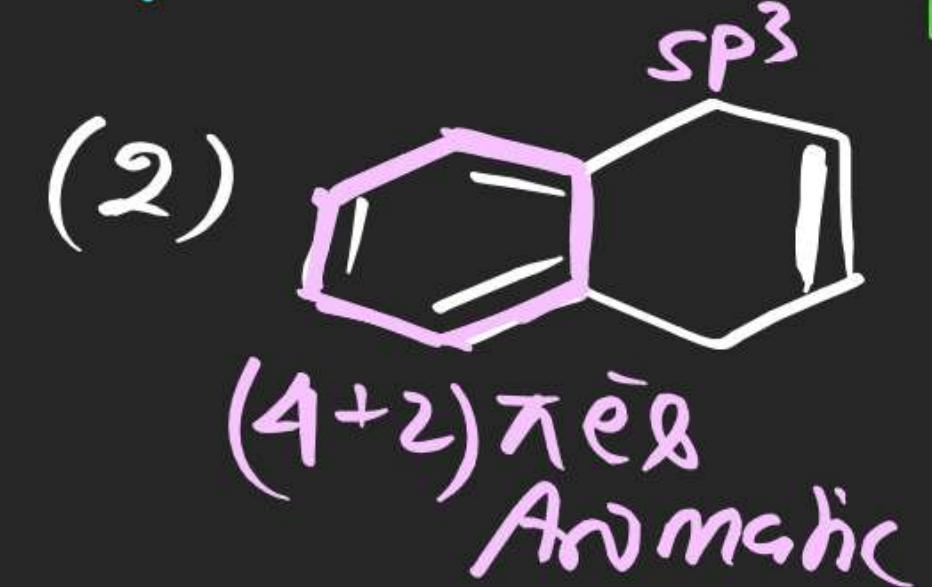
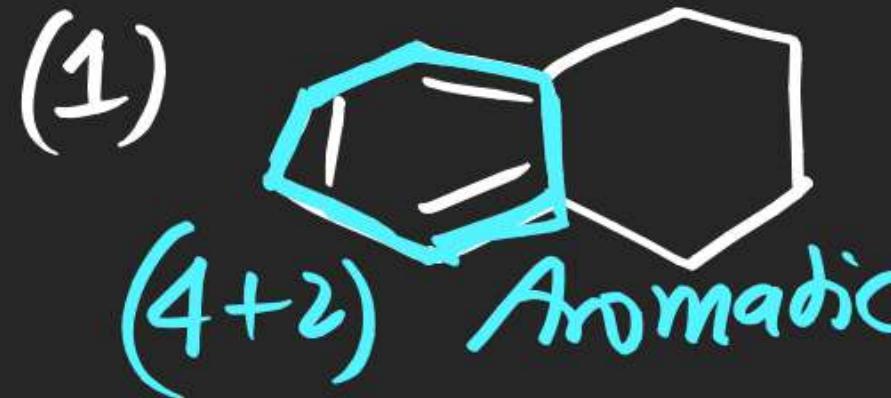
By SKM Sir

4:00 PM Thursday 🔥



Aromatic Compounds

(*) Cyclic, conjugation, planar, $(4n+2)\pi\text{e}\beta$
may have cyclic conjugated lowest conjugated
alkyl groups conjugation plane peripheral \pi es



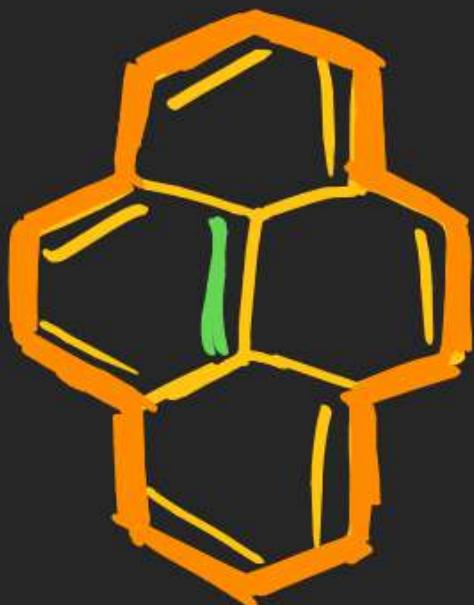
(6)



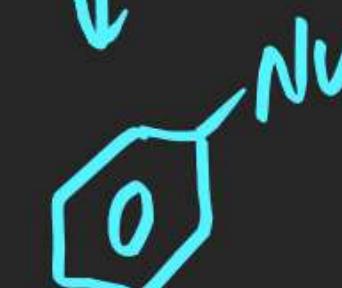
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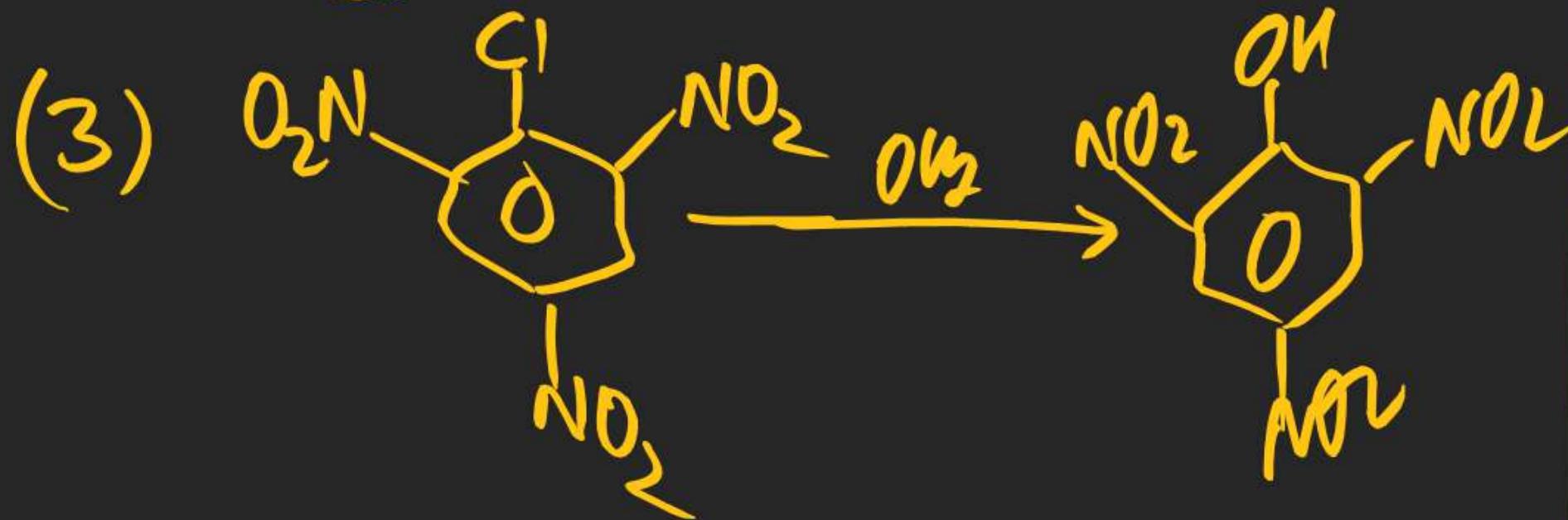
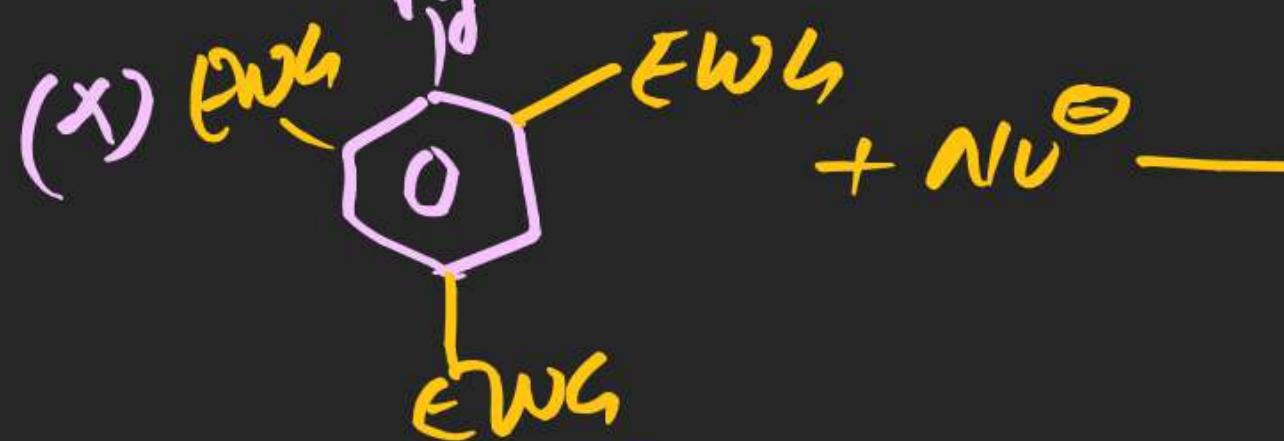
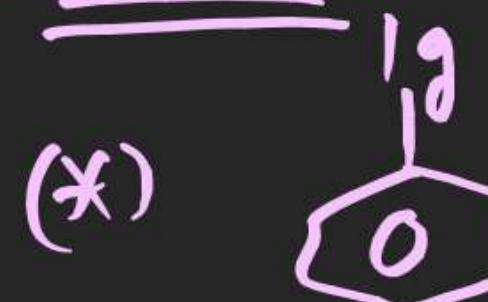
Non Aromatic

(7)

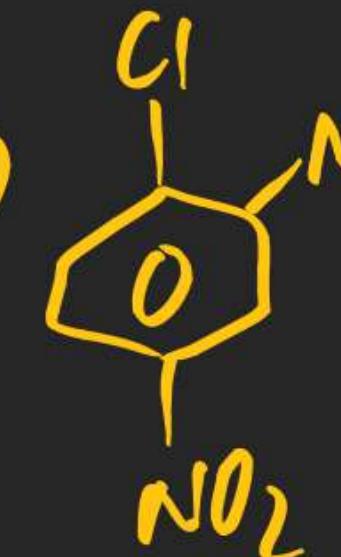
Aromatic
independent
of green π bond

Rx^n shown By
Aromatic Corp

 $SN-Ar$ $\downarrow \gamma$  $\downarrow N\acute{U}$  EAS 

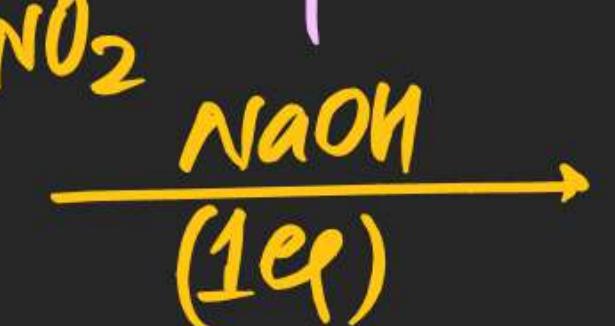
$S_N\text{-Ar}^+$:

(4)



Bradbury
Reagent

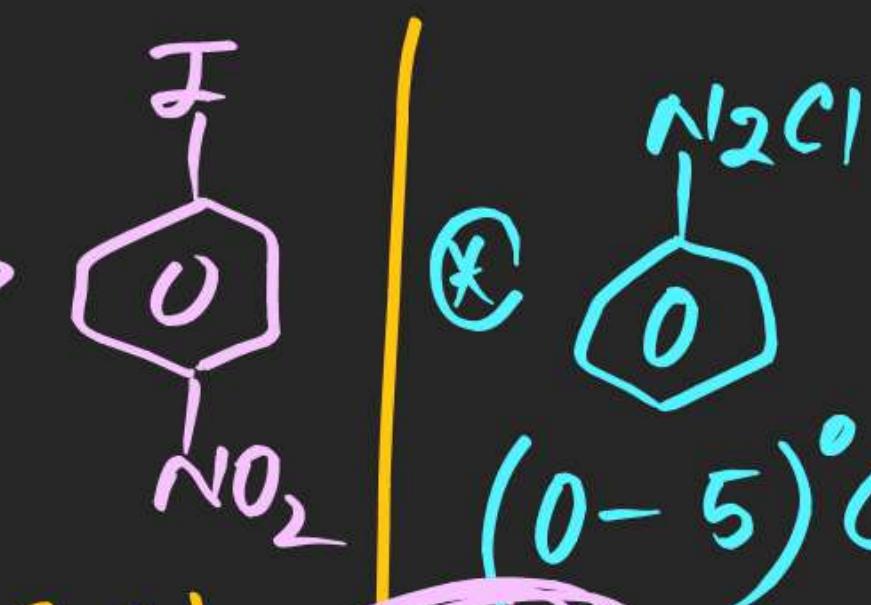
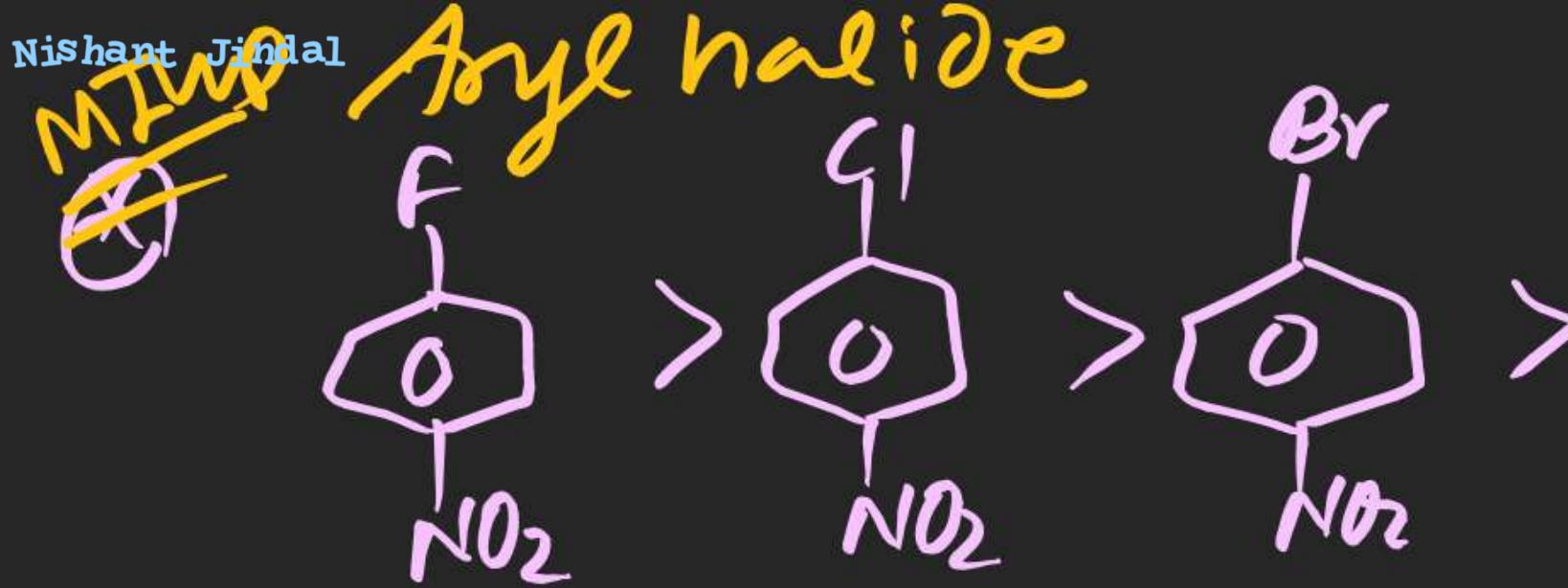
(5)



Saytzeff Reagent

(6)

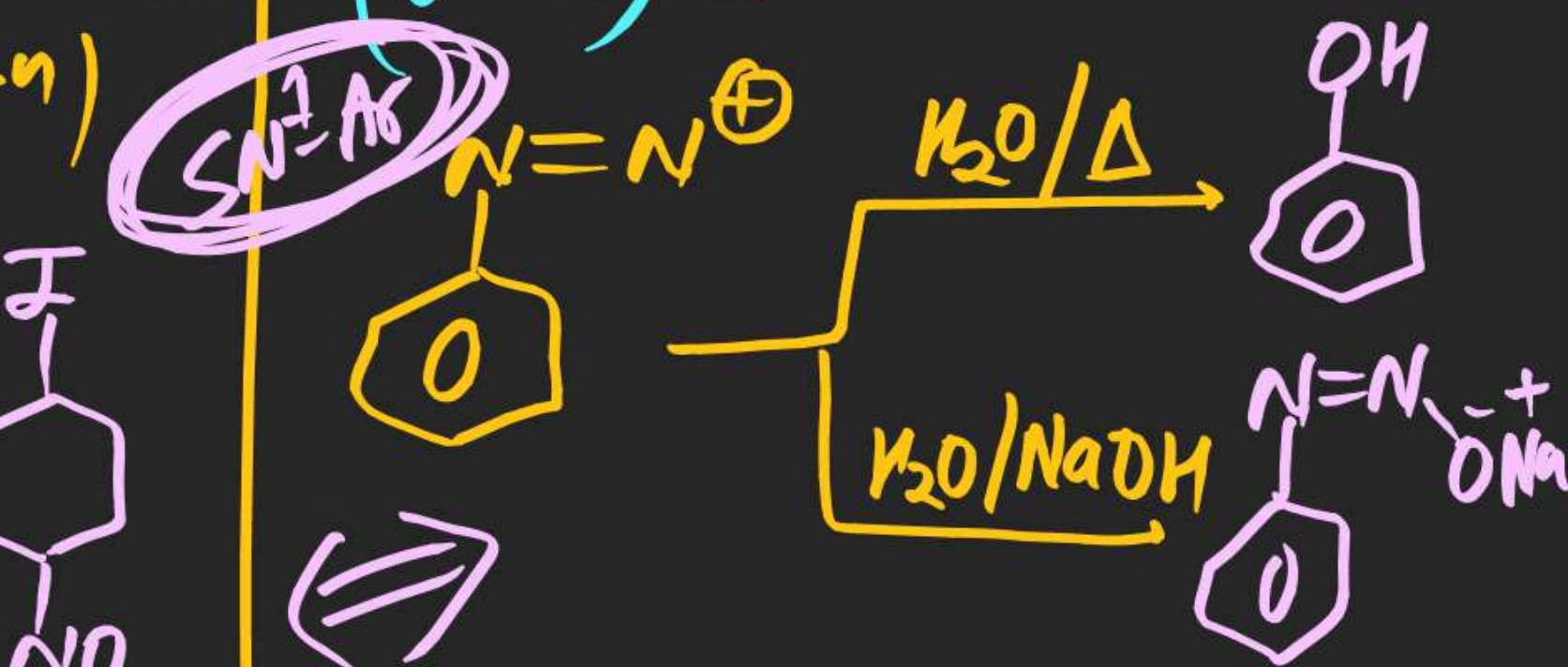
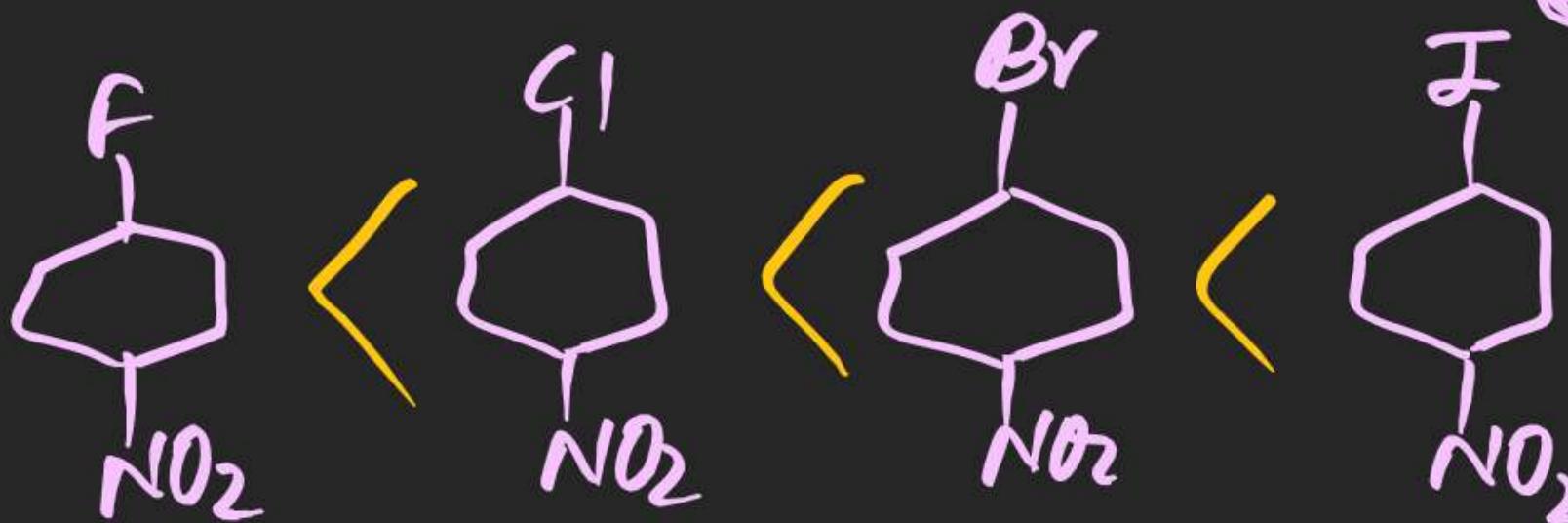
Aryl halide

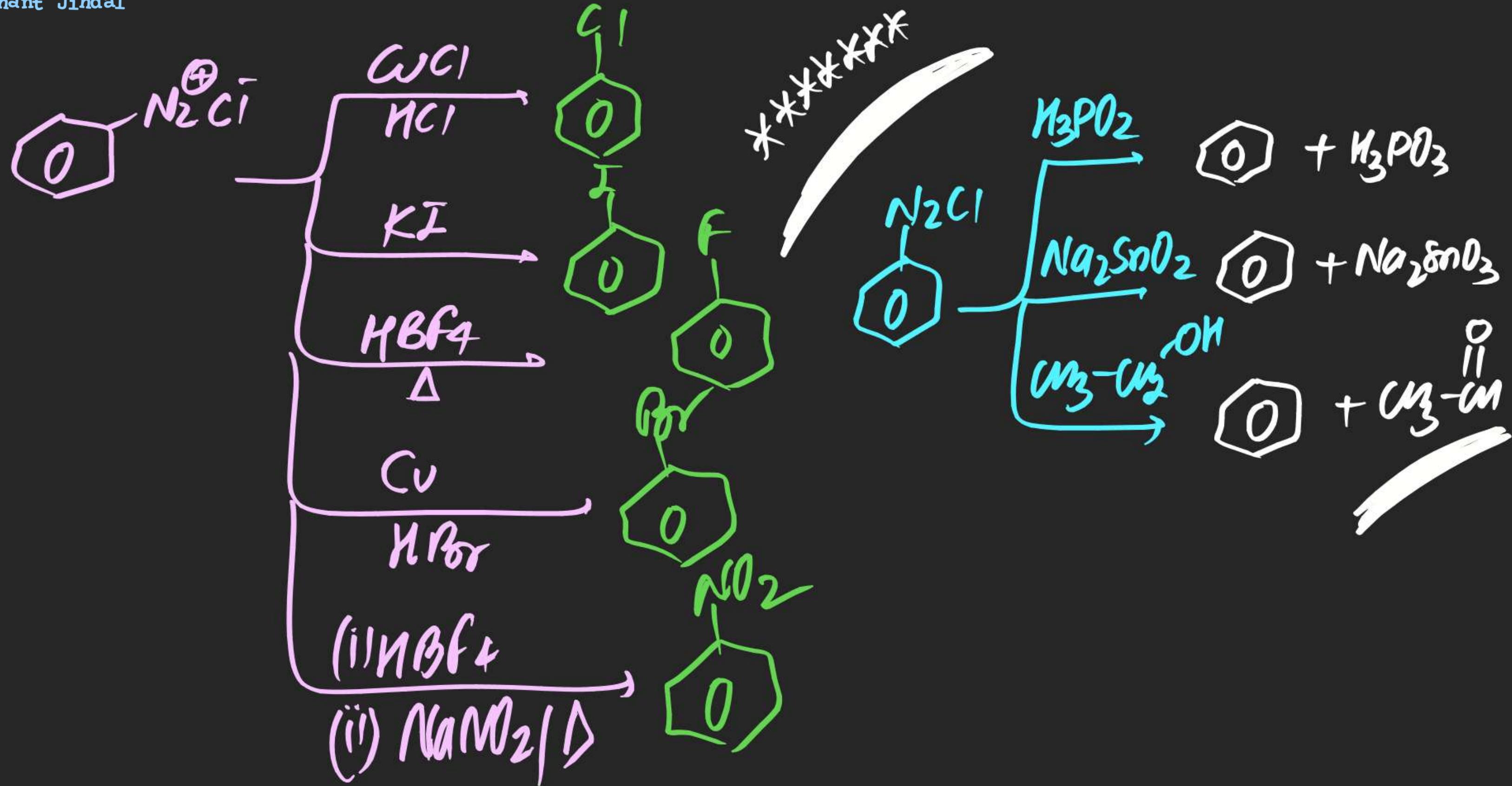


Stable at

$(0-5)^\circ\text{C}$

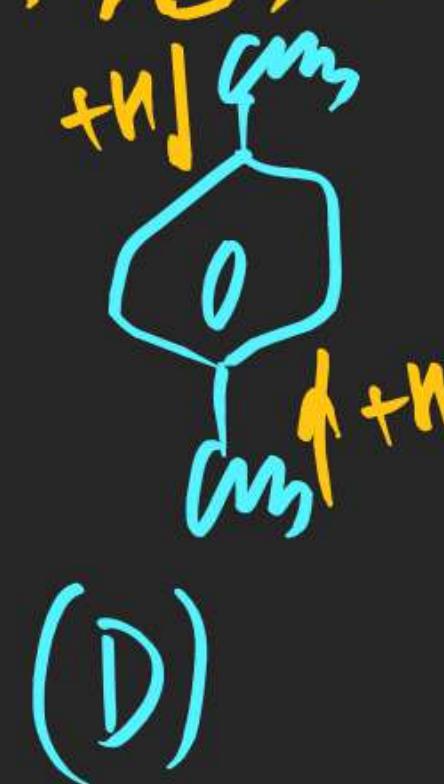
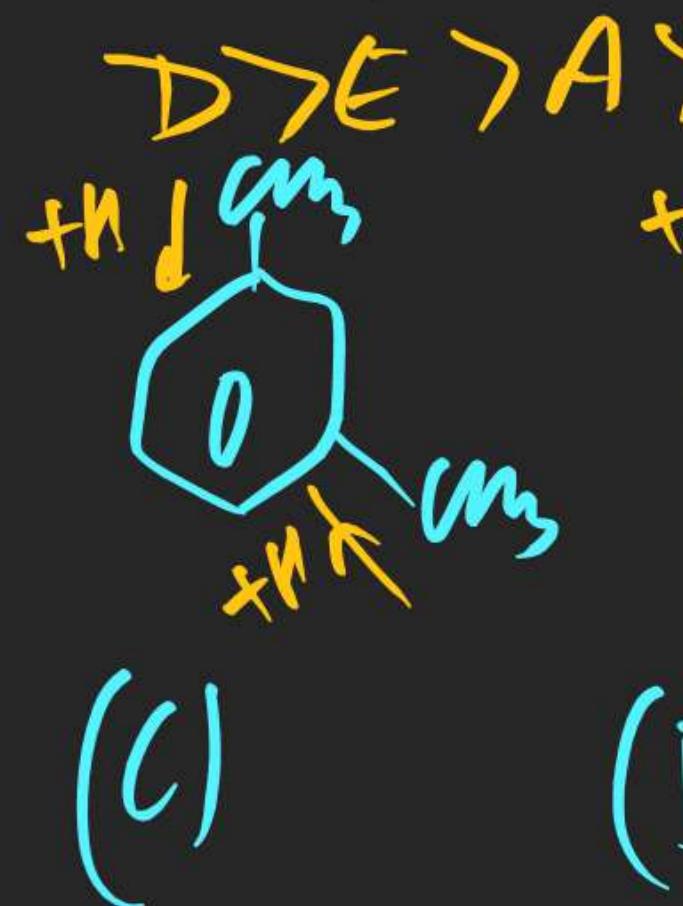
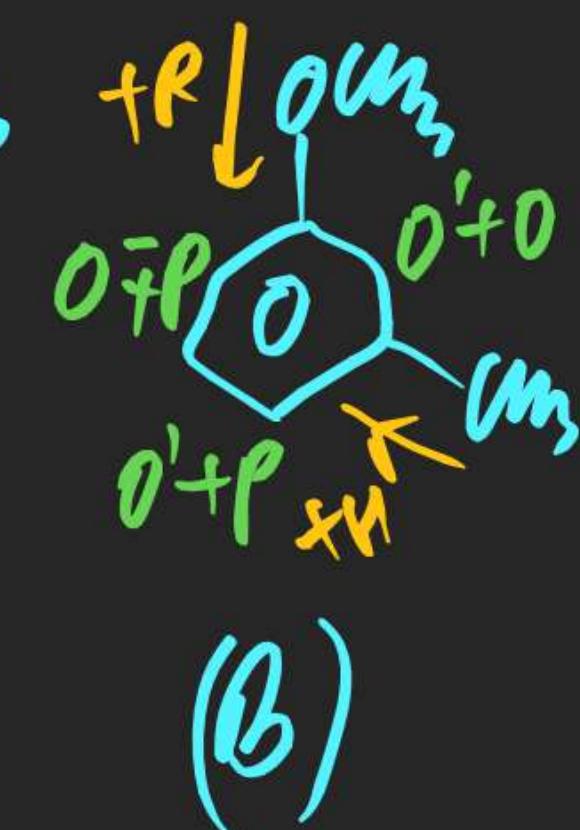
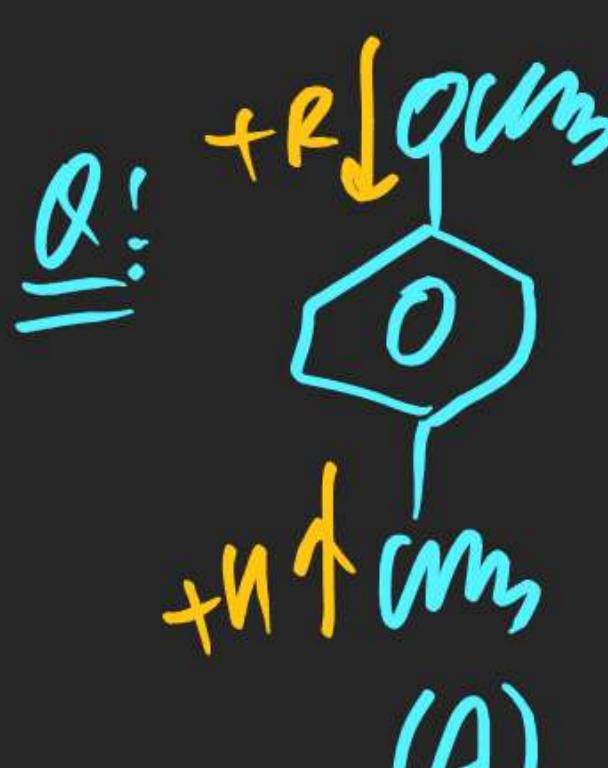
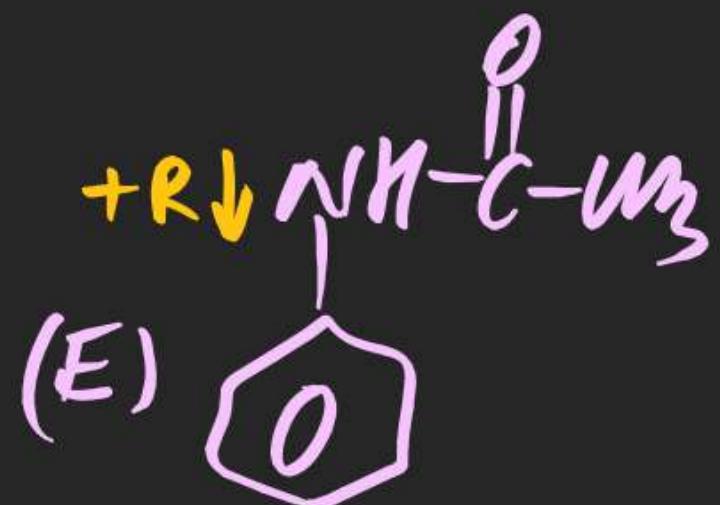
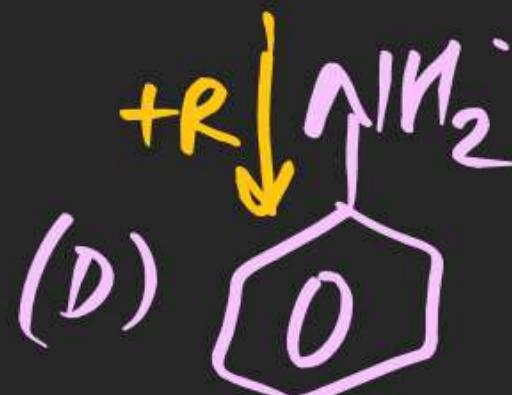
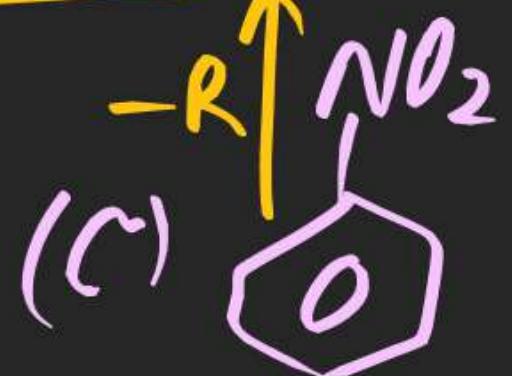
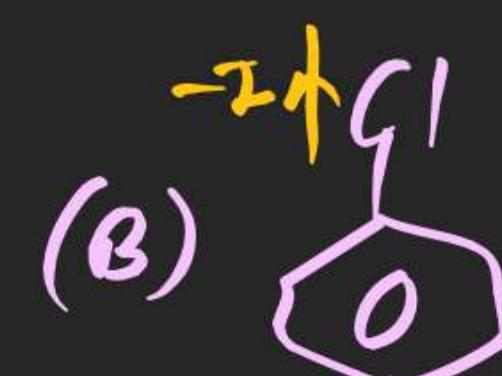
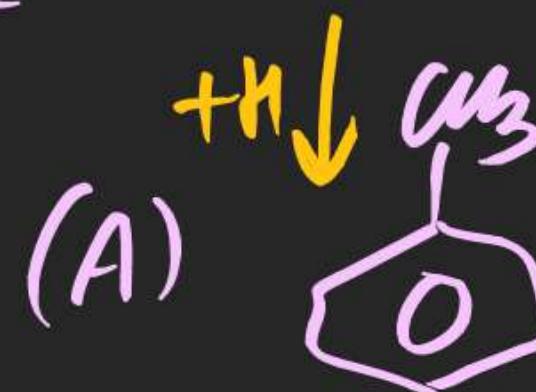
For aryl halide (SNArx^n)

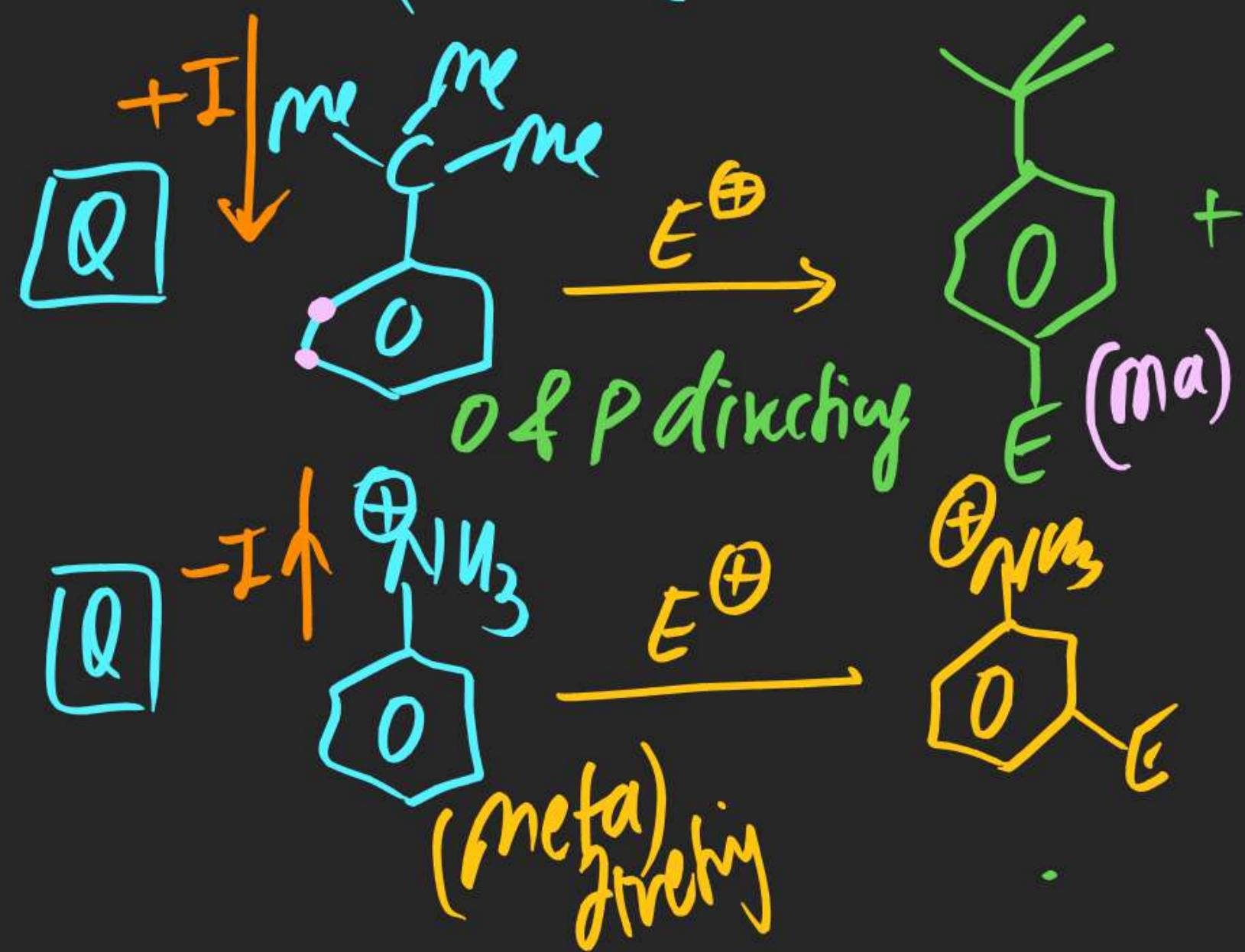
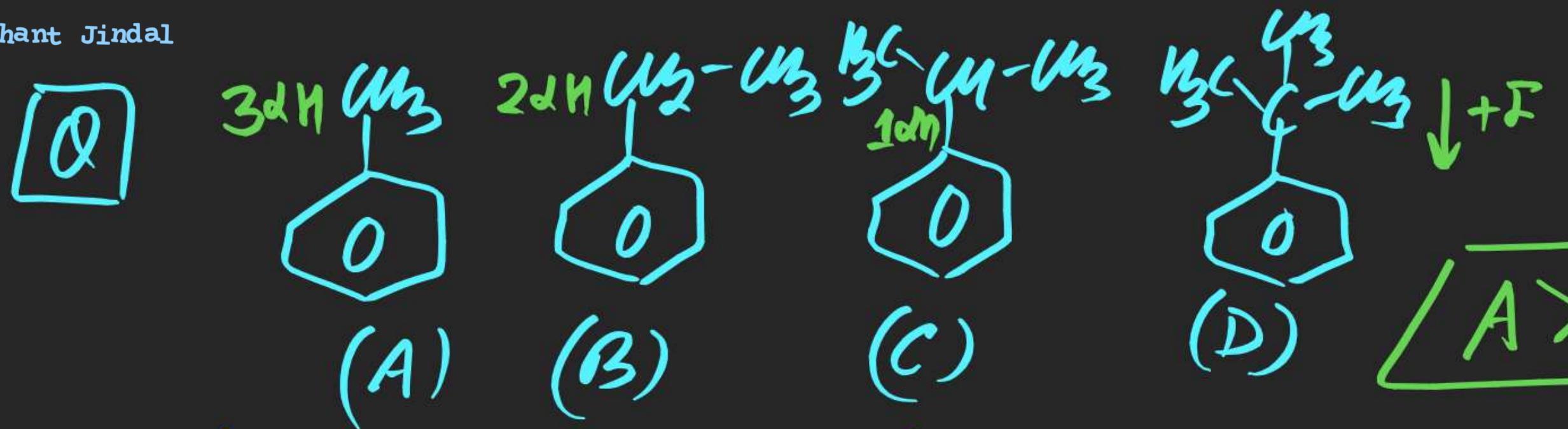




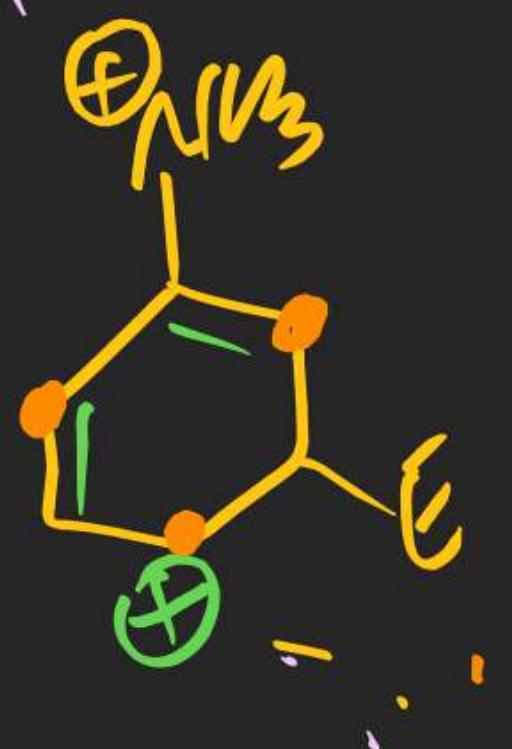
EAS

Q: fastest Rate towards EAS is





ortho
(mi) (due to crowding)



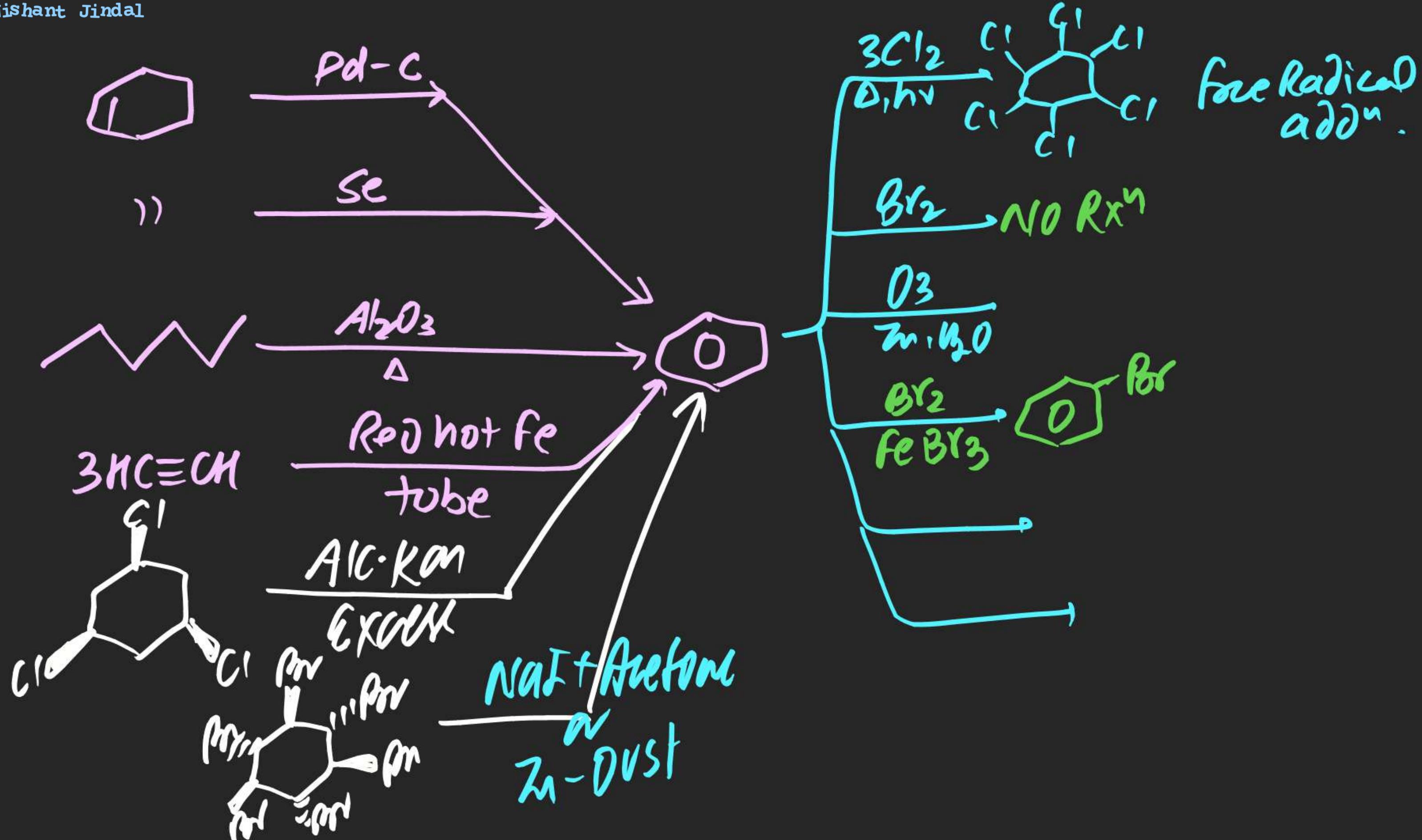
EAS

Don't touch

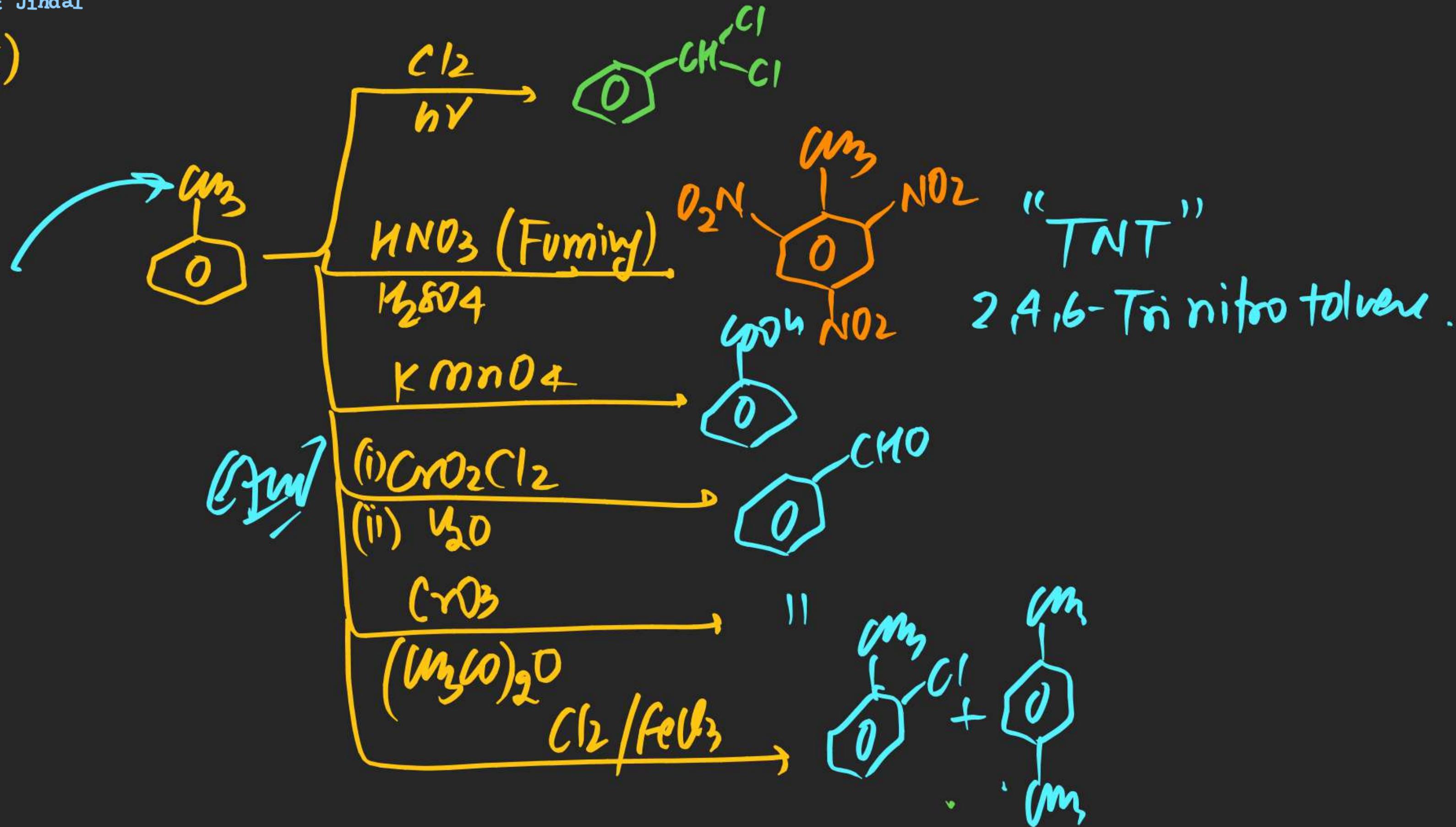
A

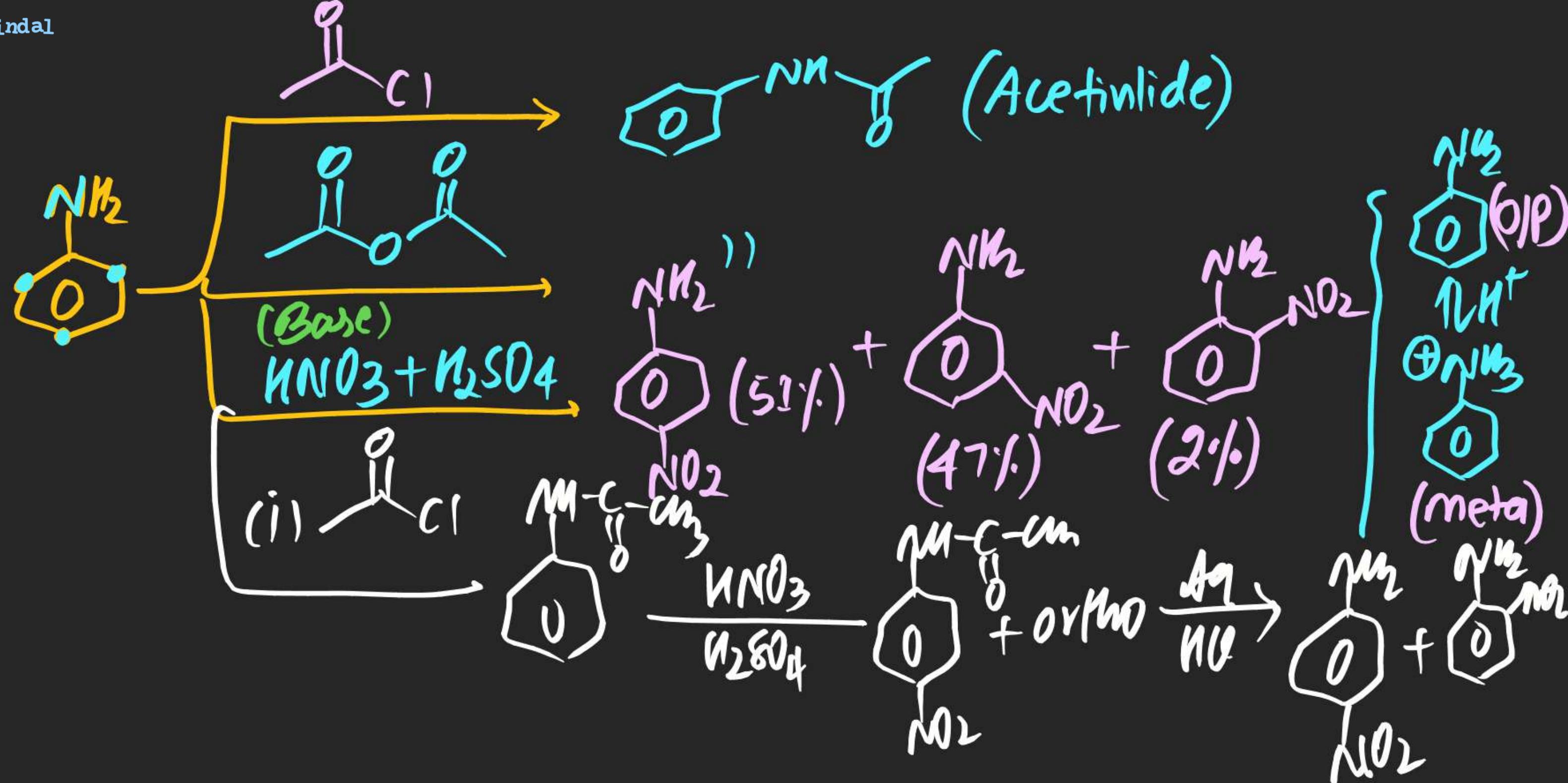
Aniline

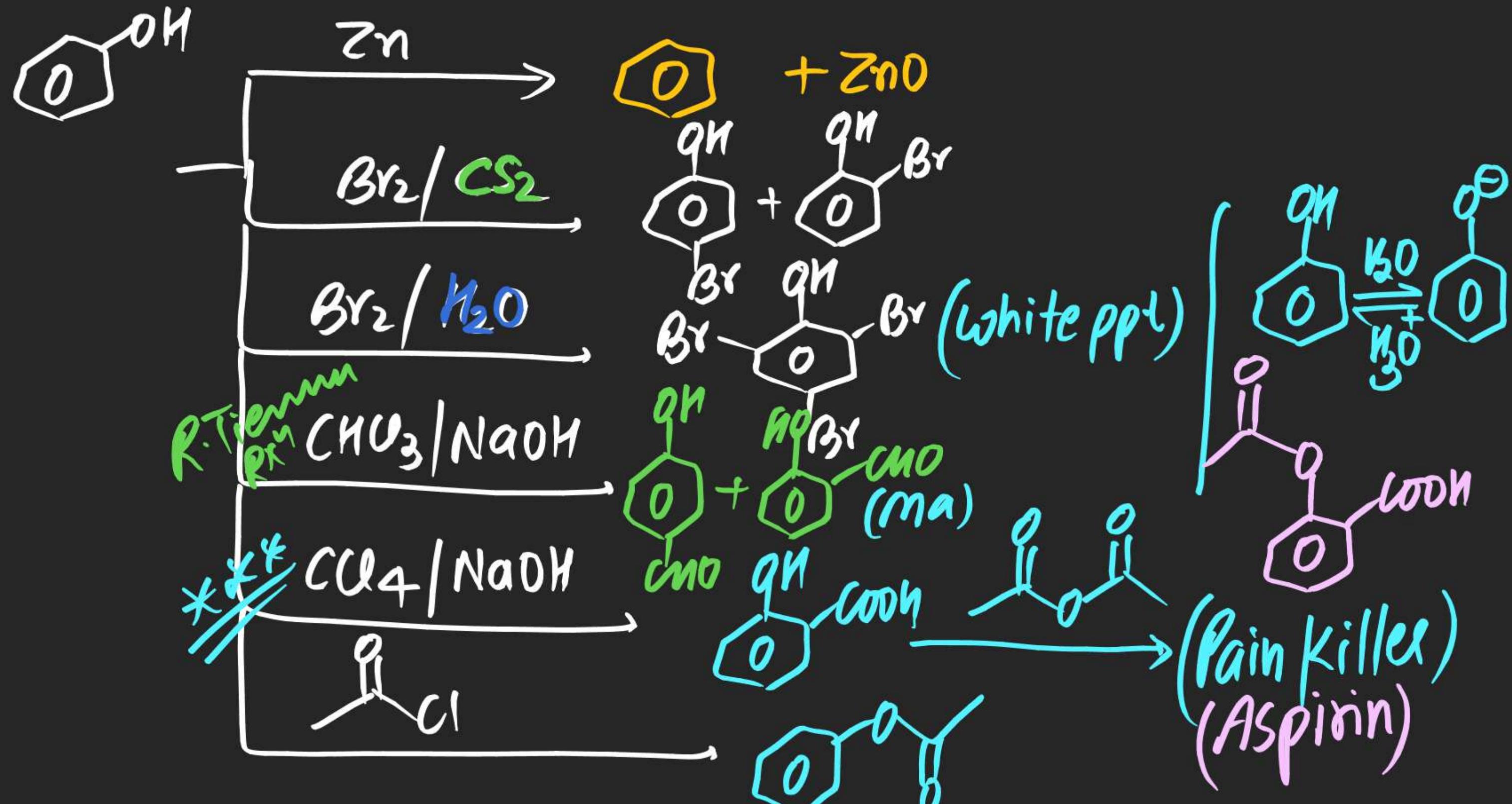
Identify Aromatic Compound, let's consider it "A"

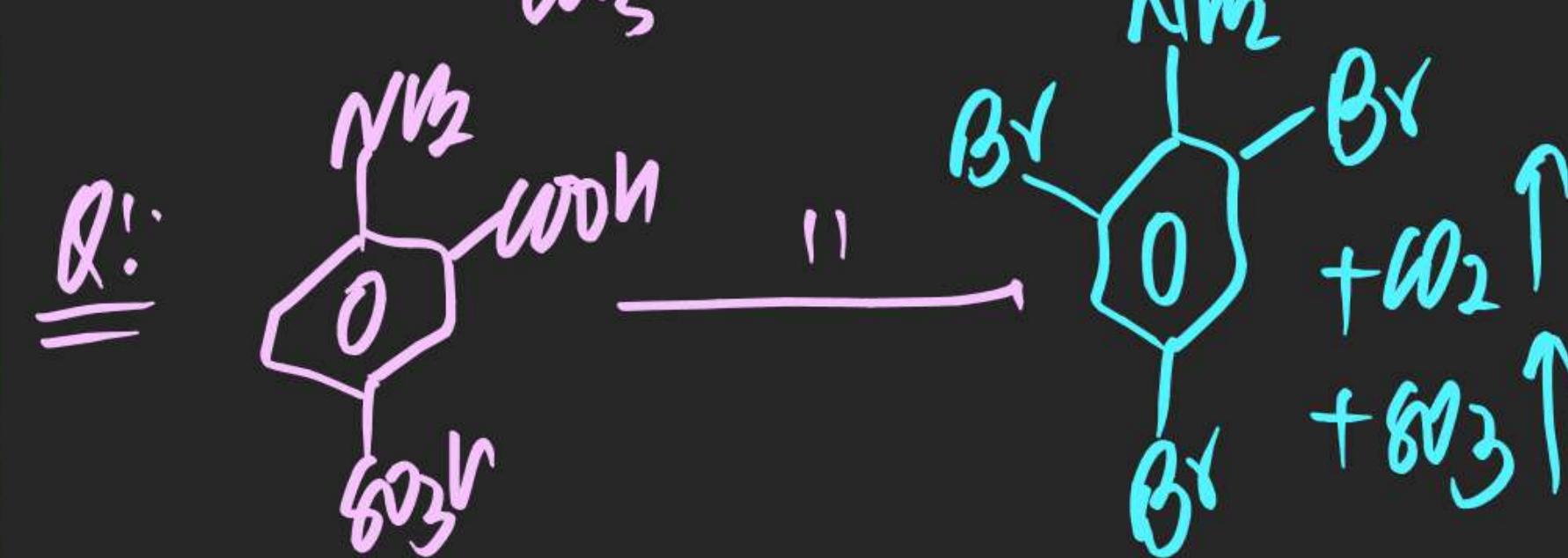
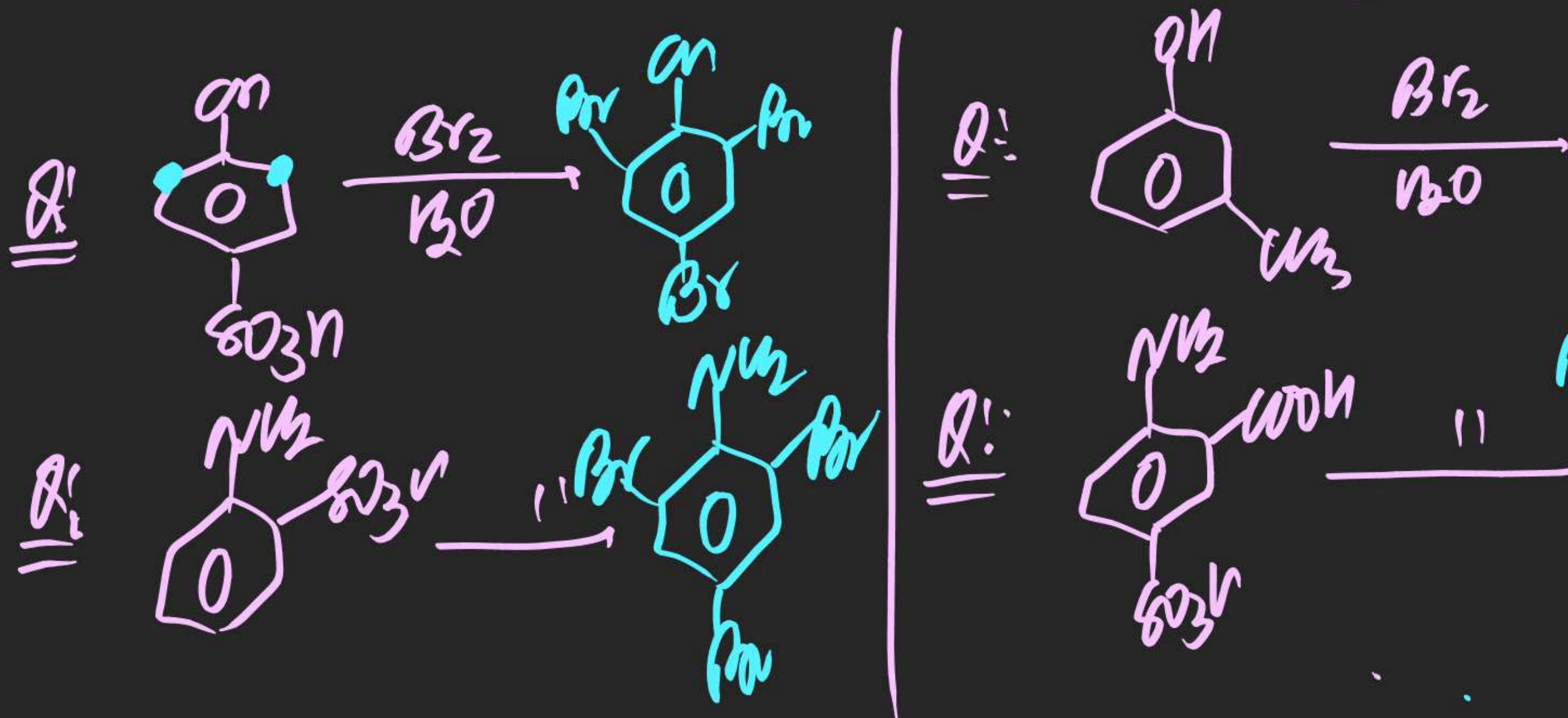
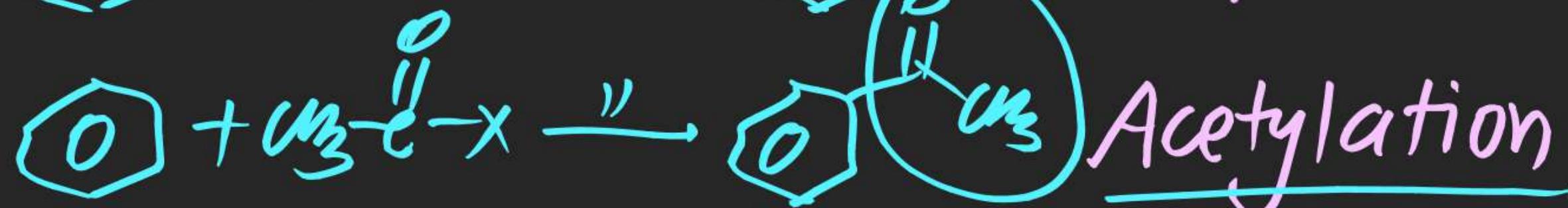
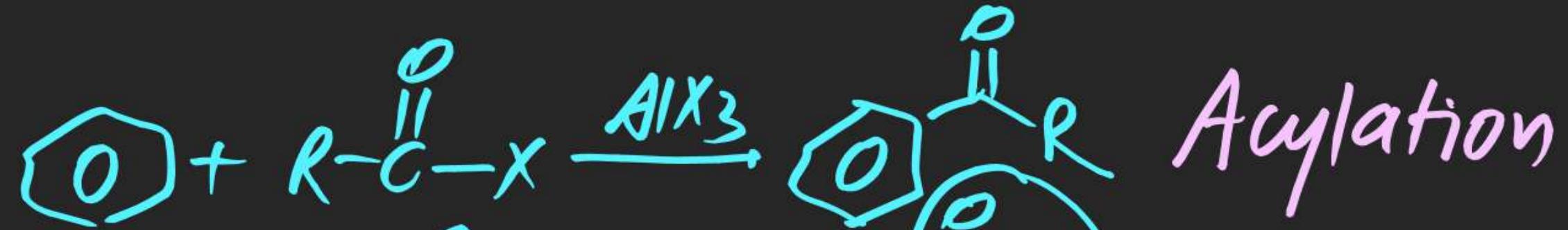


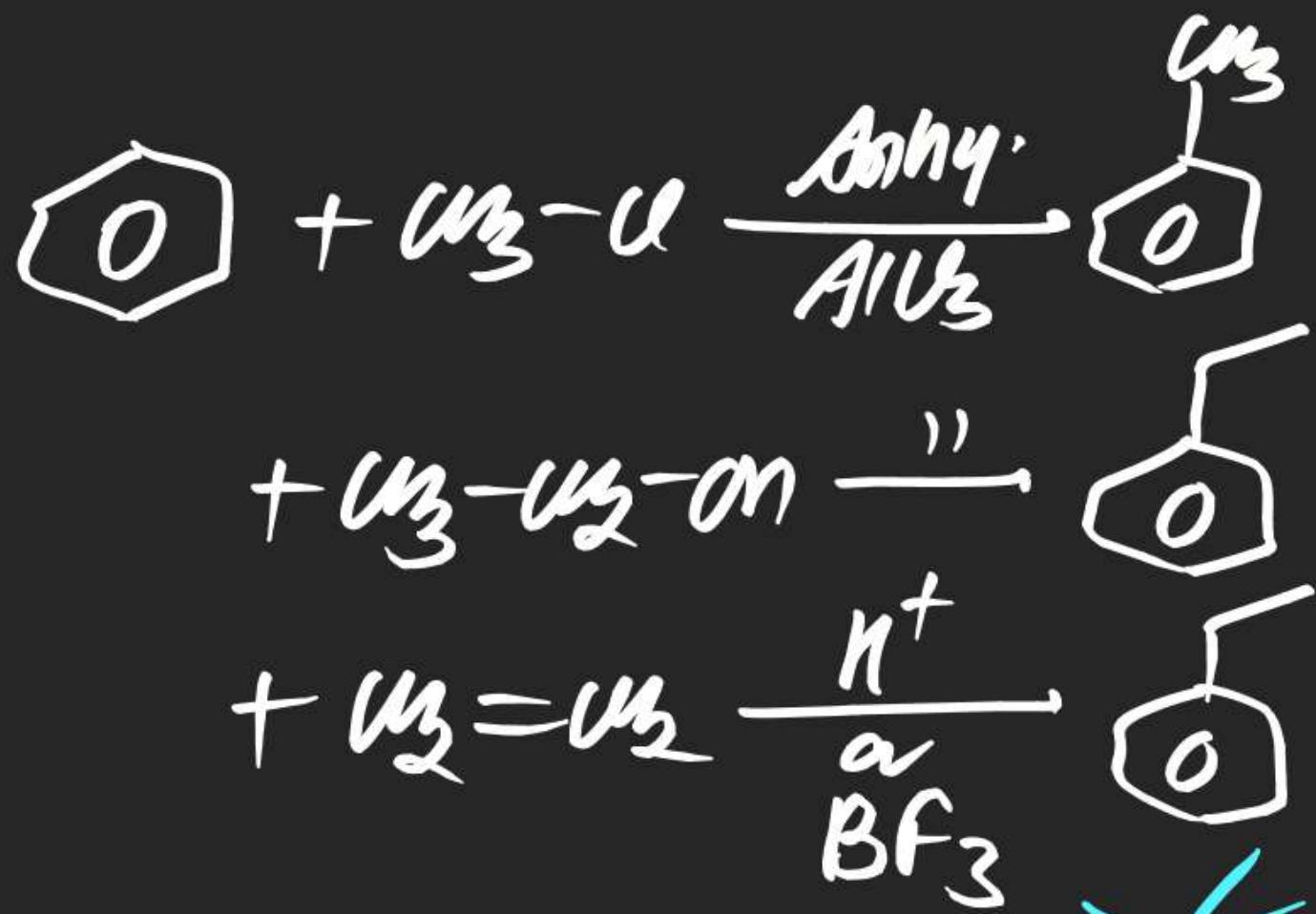
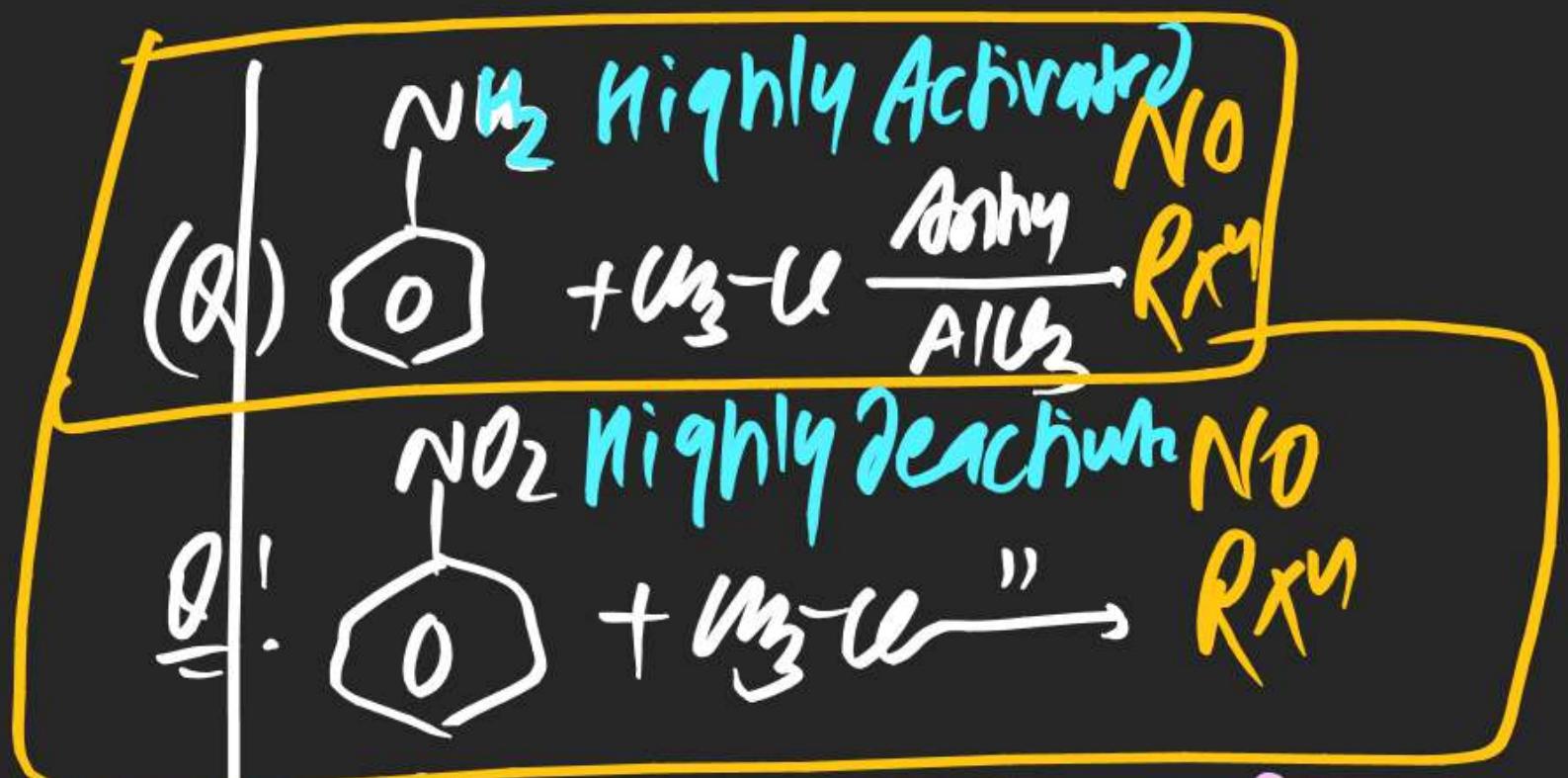
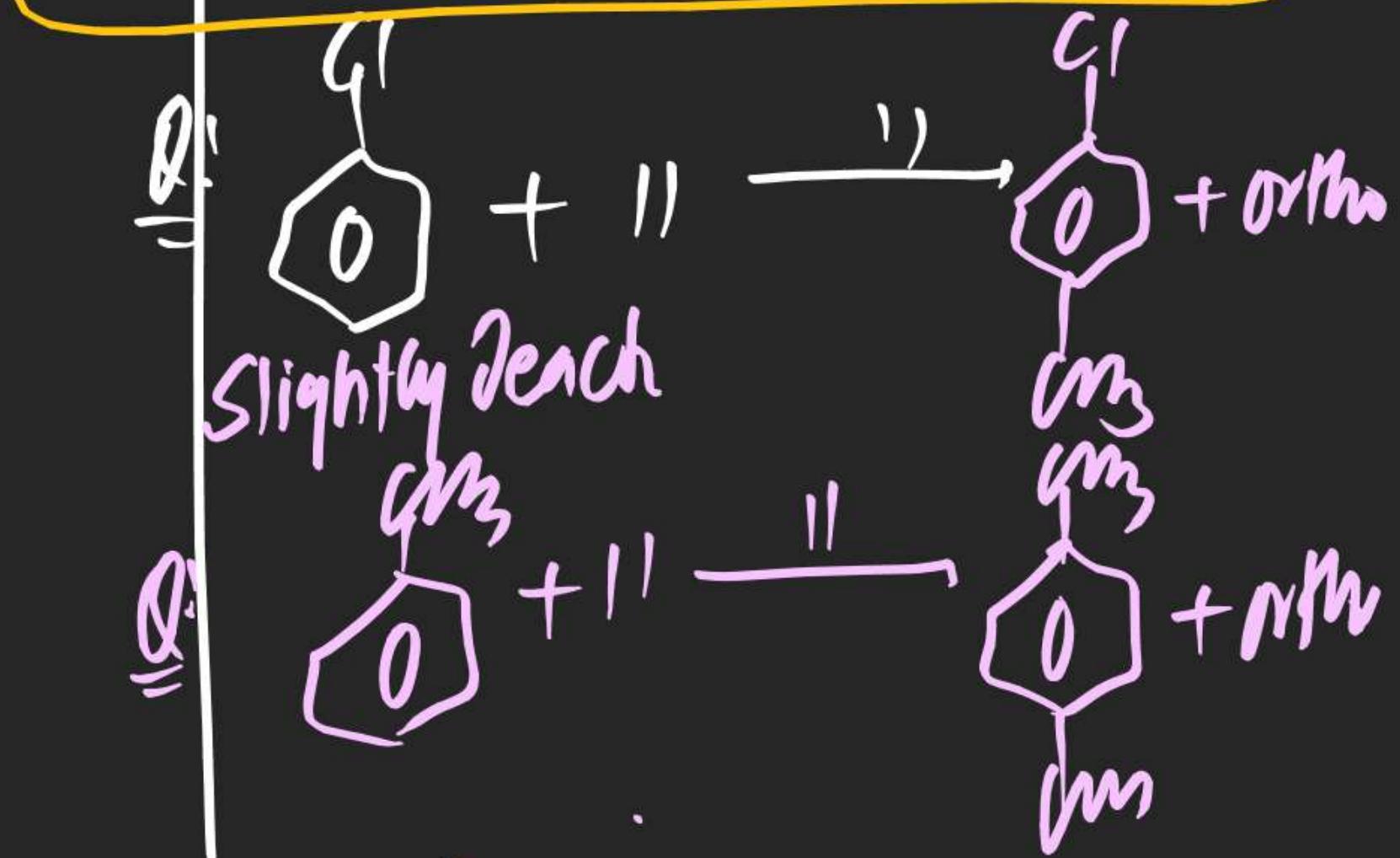
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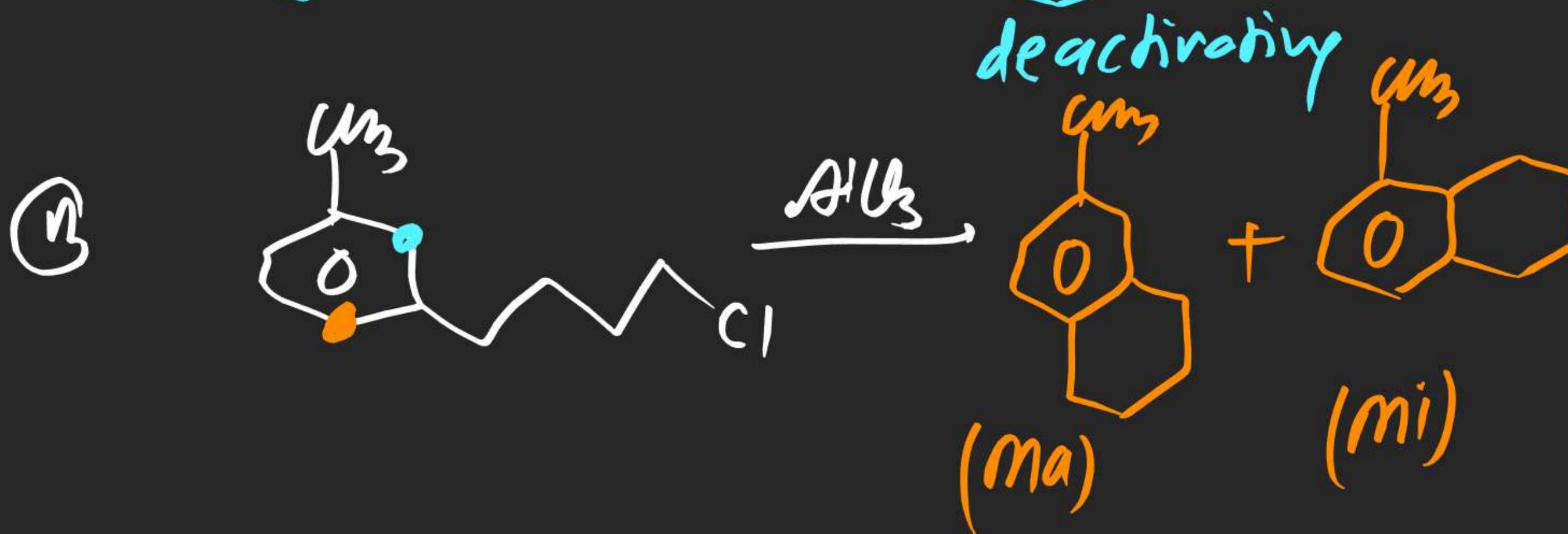








Q:Q:Q:



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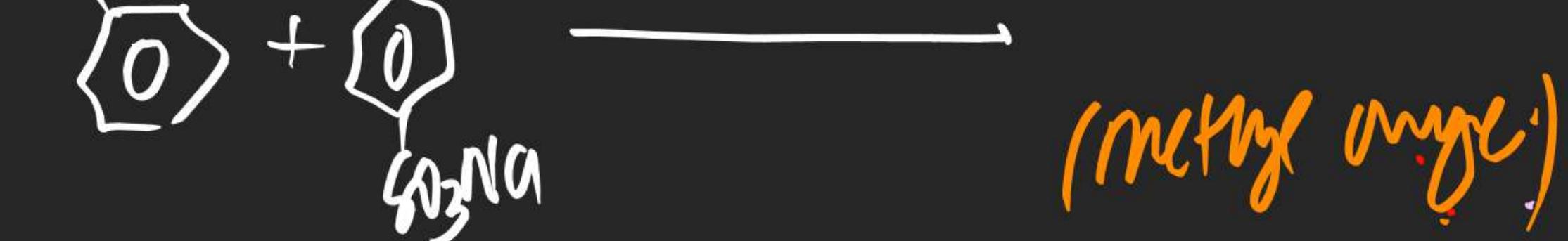
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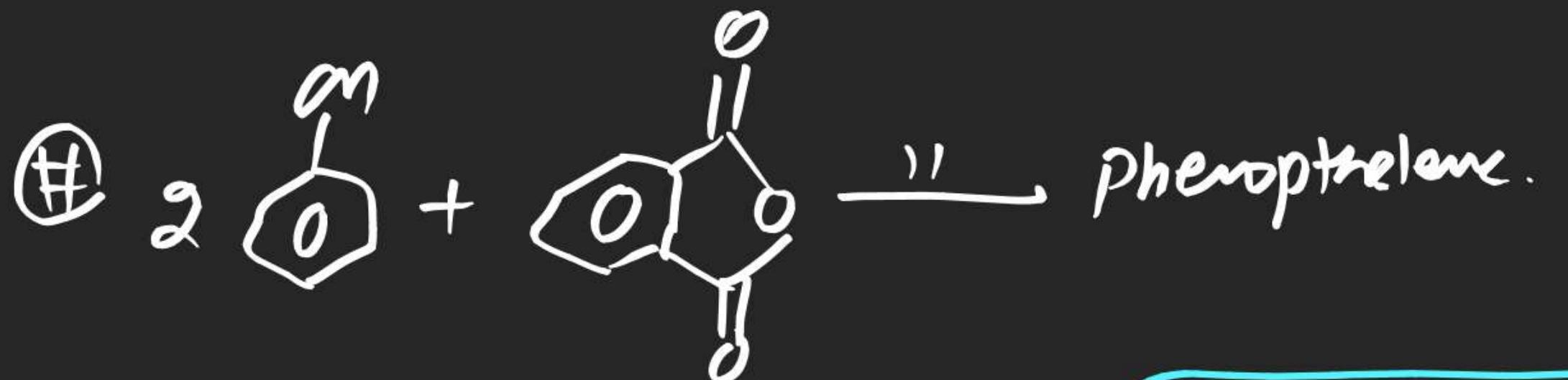
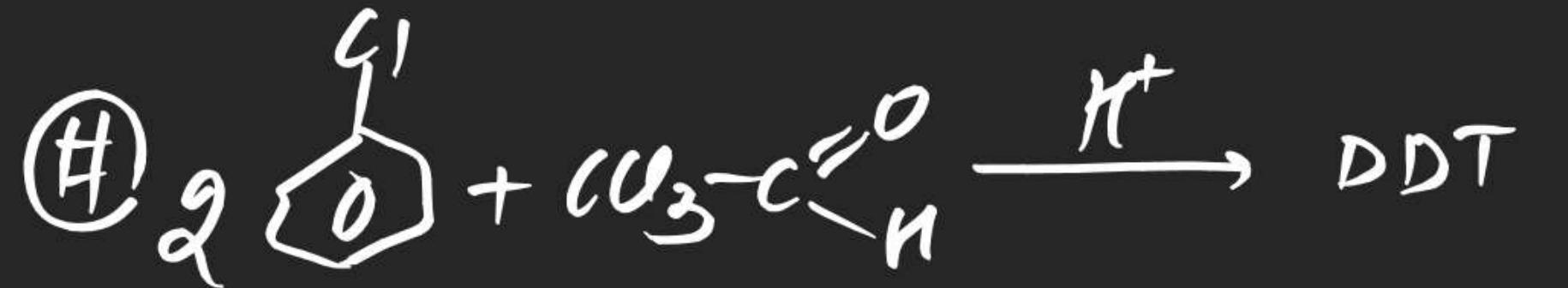


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Carboxylic Acid & Amines

AROMATIC COMPOUNDS

2.

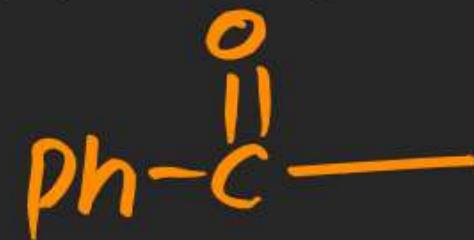
Which of the following group is **divalent**:

(A) Benzoyl

(B) Benzyl

(C) Benzal

(D) p-Tolyl



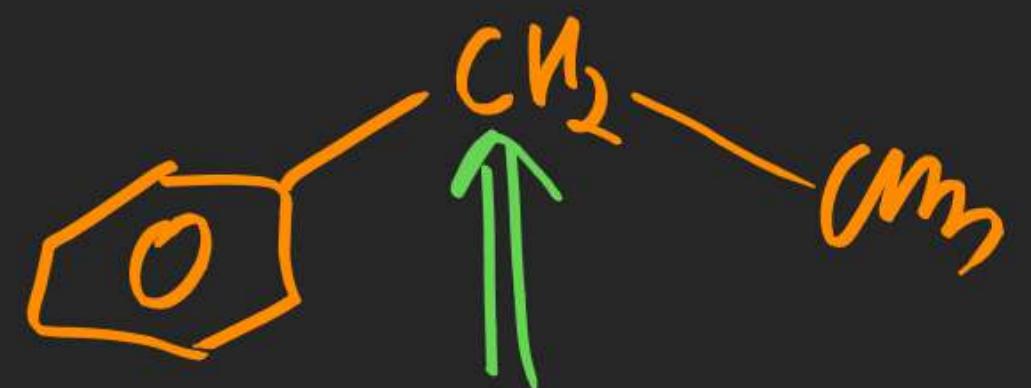
AROMATIC COMPOUNDS

3. Benzene is a resonance hybrid mainly of two Kekulé structures. Hence:
- (A) Half of the molecules correspond to one structure, and half of the second structure
 - (B) At low temperatures benzene can be separated into two structures
 - (C) Two structures make equal contribution to resonance hybrid
 - (D) An individual benzene molecule changes back and forth between two structures

AROMATIC COMPOUNDS

5. The number of benzylic hydrogen atoms in ethylbenzene is:

- (A) 3 (B) 5 (C) 2 (D) 7



AROMATIC COMPOUNDS

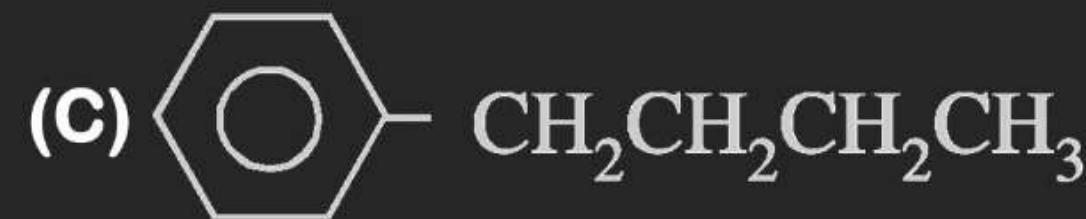
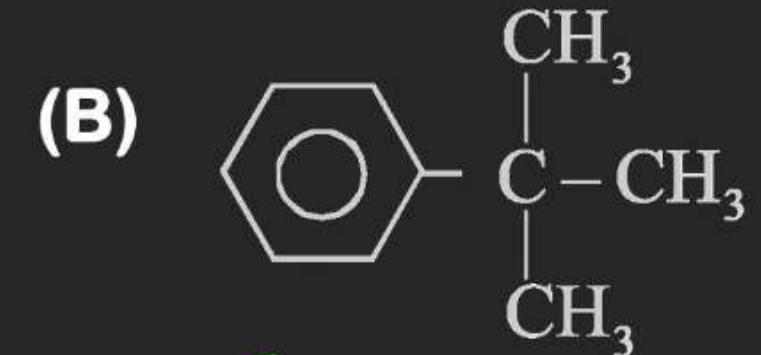
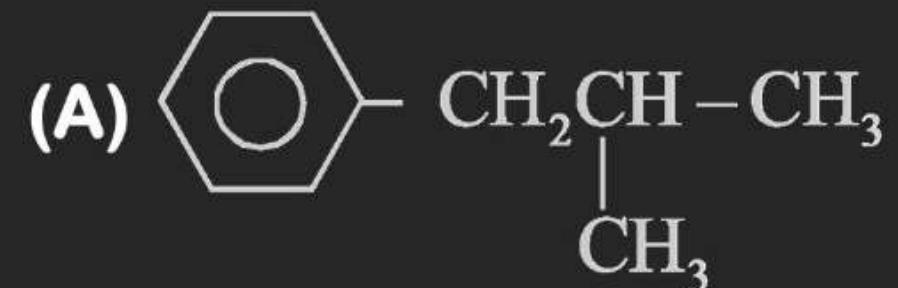
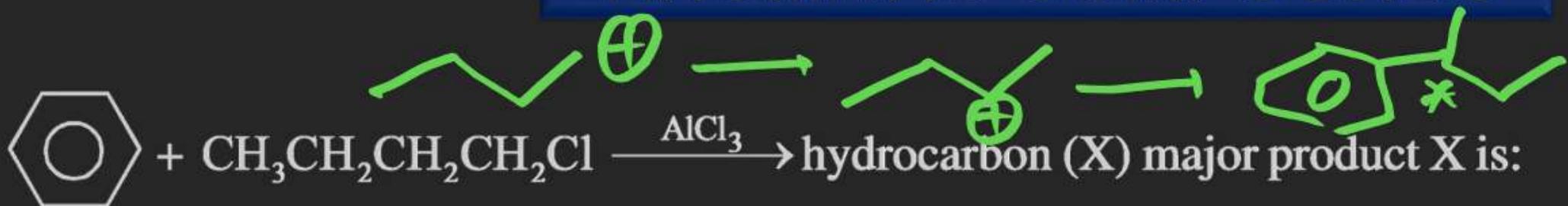
6. Which one of the following is the most basic compound in water :

- (A) $C_6H_5 - NH_2$ (B) $C_6H_5 - NHCH_3$ (C) $C_6H_5 - N(CH_3)_2$ (D) $C_6H_5 N(C_2H_5)_2$



AROMATIC COMPOUNDS

7.

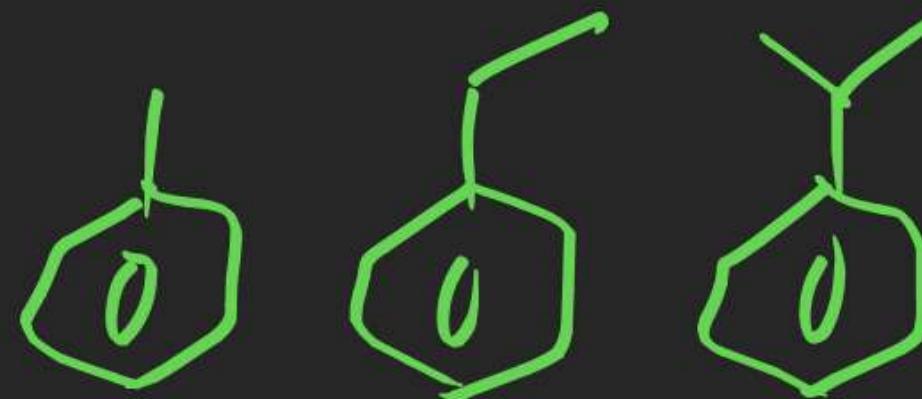


(D) None is correct

AROMATIC COMPOUNDS

9. o/p ratio in highest for nitration of which of the following compound?

highly ortho



ortholens

AROMATIC COMPOUNDS

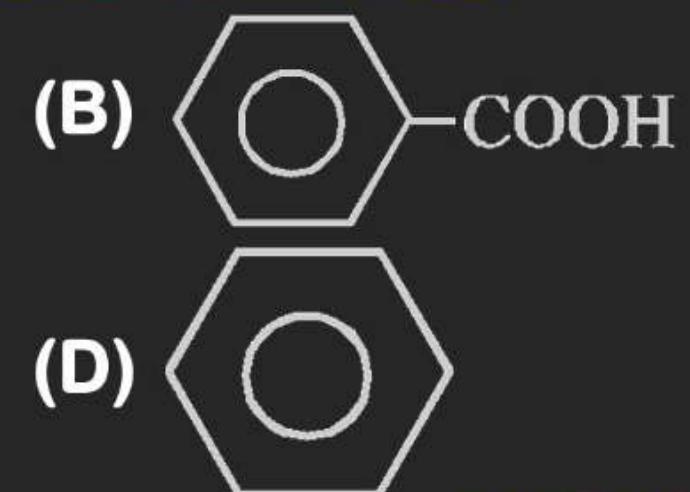
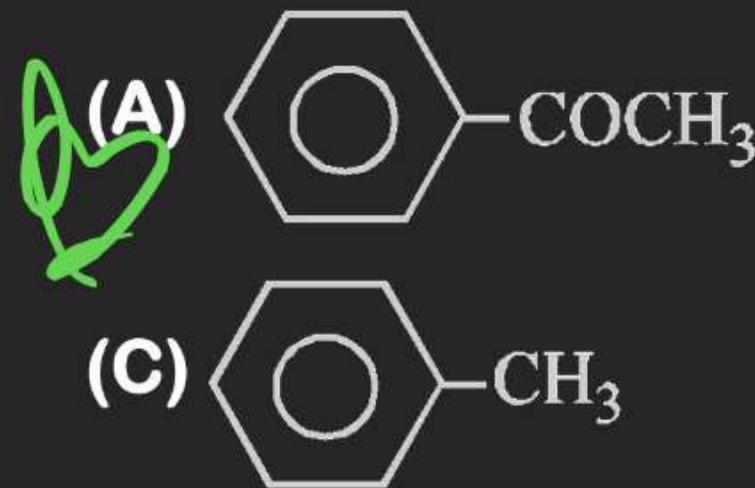
10. Which can be used to generate NO_2^+ in nitration of benzene ring



(D) All

AROMATIC COMPOUNDS

11. Product obtained when benzoyl acetic acid is heated with soda-lime is:



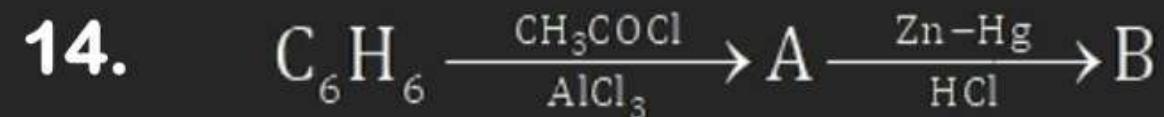
AROMATIC COMPOUNDS

12. For the electrophilic substitution reaction involving **nitration**, which of the following sequence regarding the rate of reaction is true?

- (A) $k_{C_6H_6} > k_{C_6D_6} > k_{C_6T_6}$
- (B) $k_{C_6H_6} < k_{C_6D_6} < k_{C_6T_6}$
- (C) $k_{C_6H_6} = k_{C_6D_6} = k_{C_6T_6}$
- (D) $k_{C_6H_6} > k_{C_6D_6} < k_{C_6T_6}$

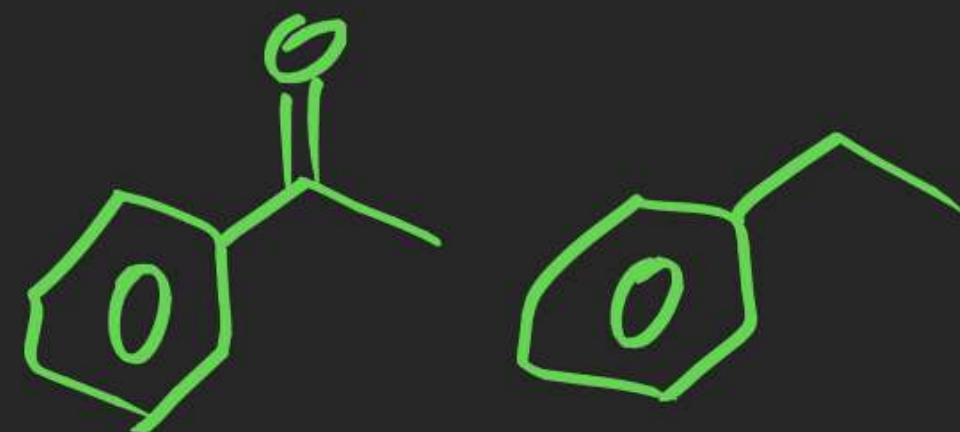


AROMATIC COMPOUNDS



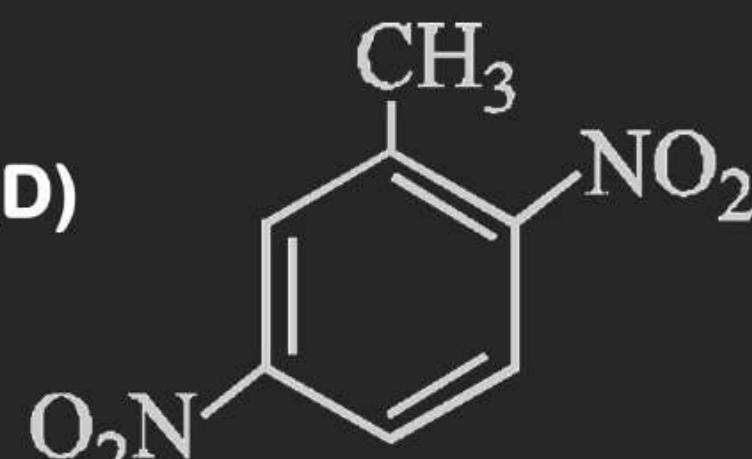
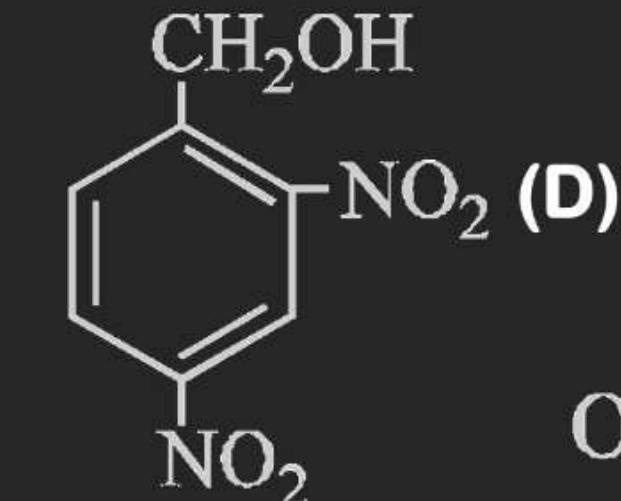
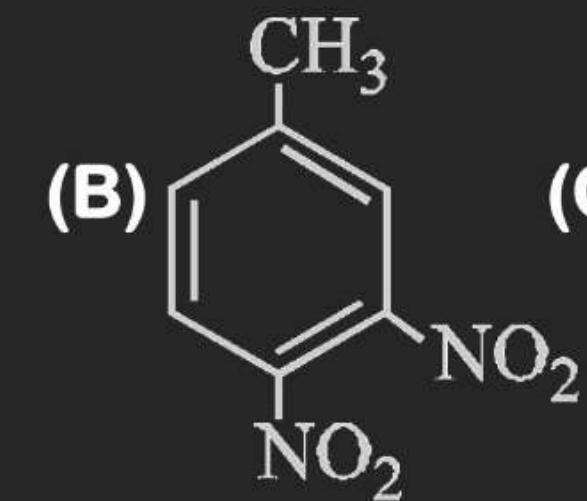
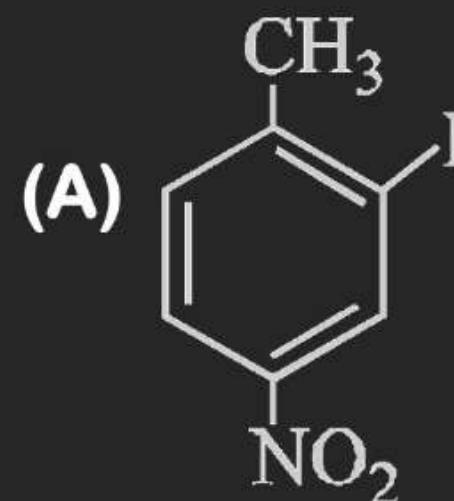
The end product in the above sequence is:

- (A) Toluene (B) Ethyl benzene (C) Both the above (D) None



AROMATIC COMPOUNDS

15. p-Nitrotoluene on further nitration gives:



AROMATIC COMPOUNDS

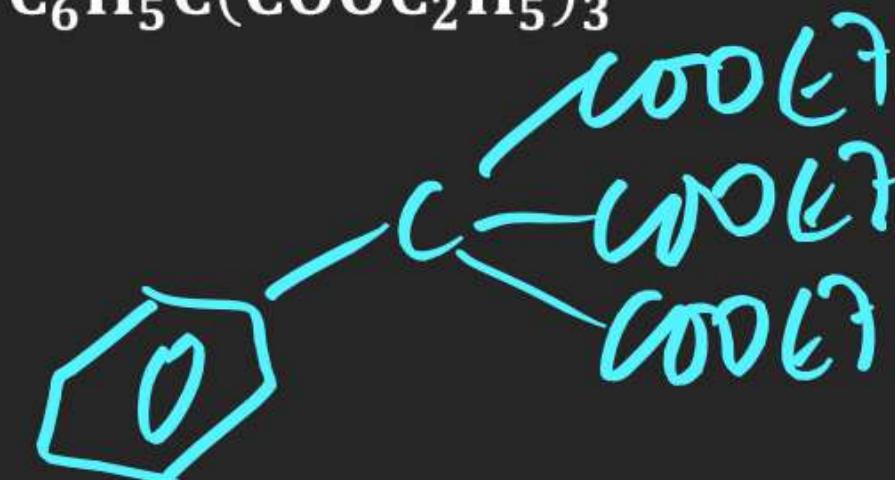
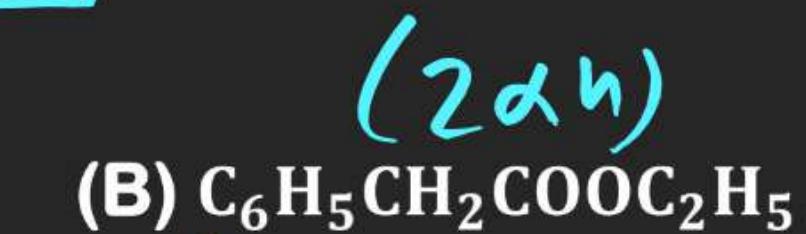
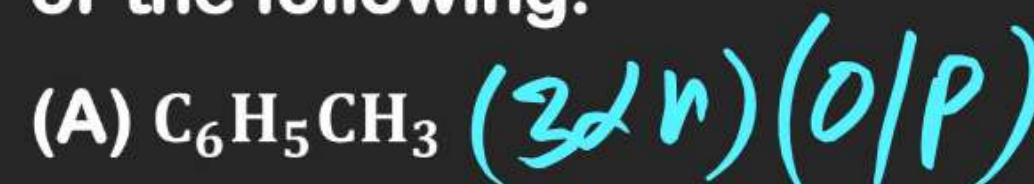
17. Which order is correct for the decreasing reactivity to ring monobromination of the following compounds:



- (A) I > II > III > IV (B) I > III > II > IV (C) II > III > IV > I (D) III > I > II > IV

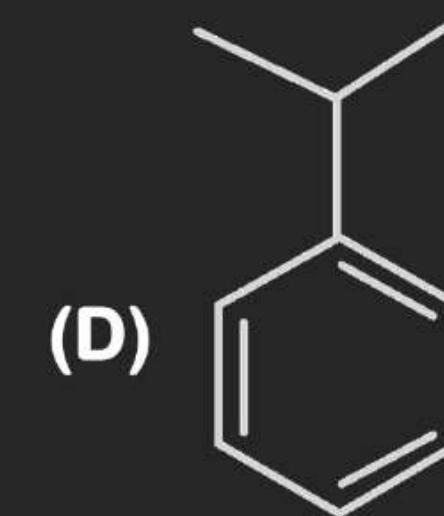
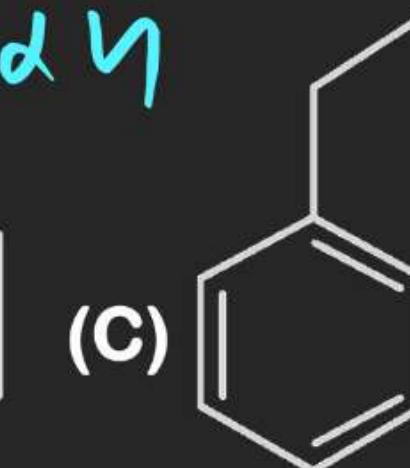
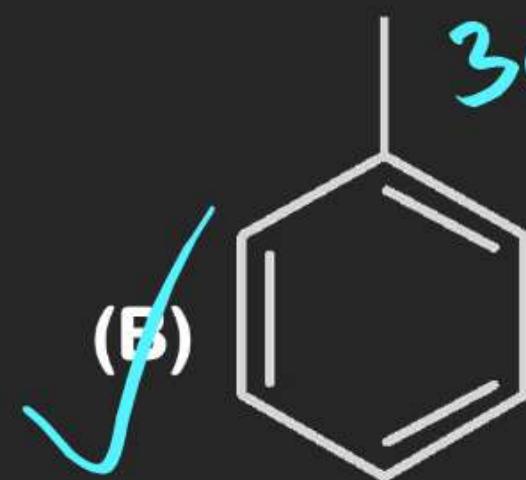
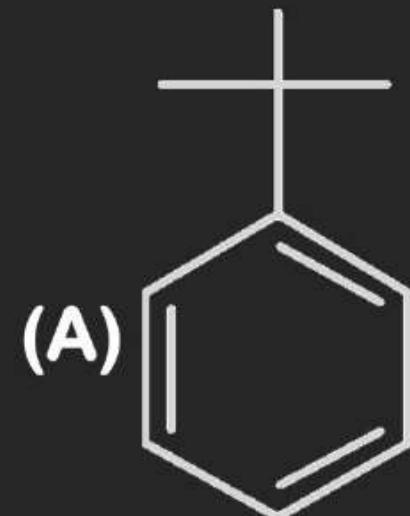
AROMATIC COMPOUNDS

18. The highest yield of m-product is possible by the electrophilic substitution of the following:



AROMATIC COMPOUNDS

19. Which of the following will undergo sulphonation at fastest rate?

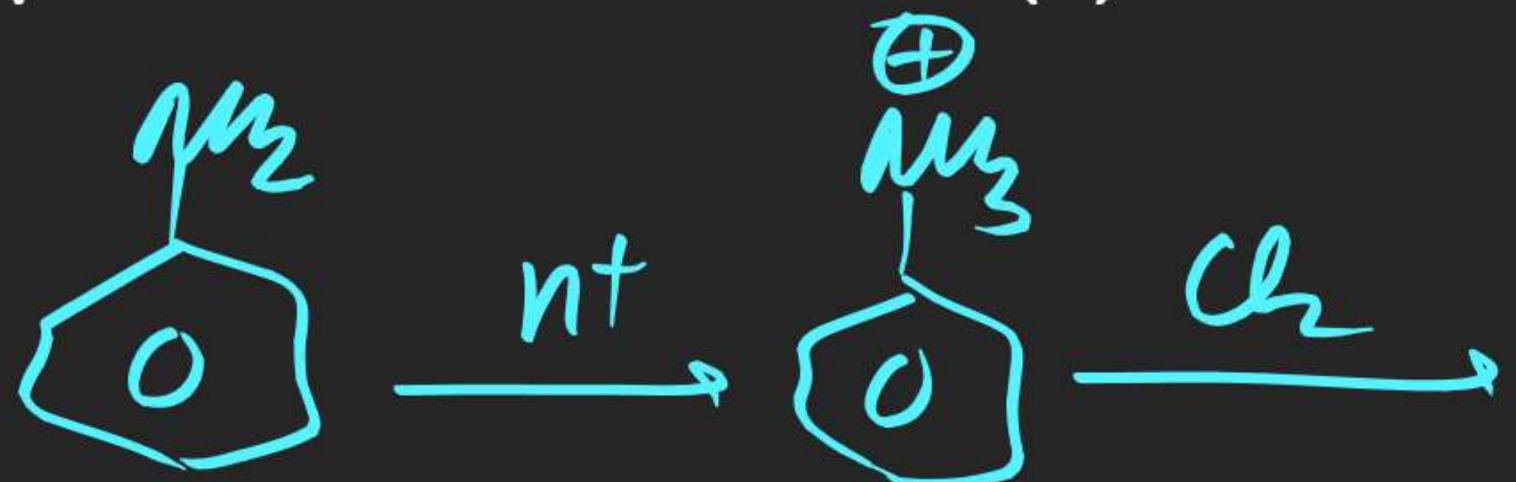


AROMATIC COMPOUNDS

20.

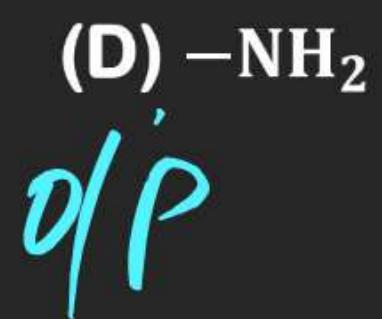
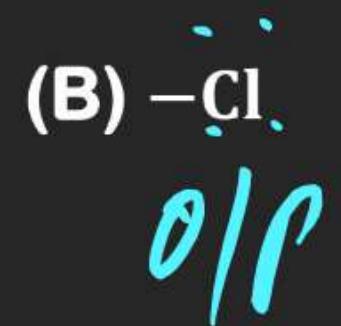
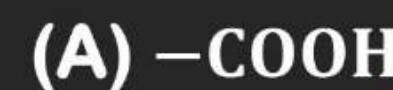
Aniline under acidic medium, when chlorinated, produces:

- (A) o-Chloro aniline
- (B) m-Chloro aniline
- (C) p-Chloro aniline
- (D) Mixture of ortho and para-chloro aniline



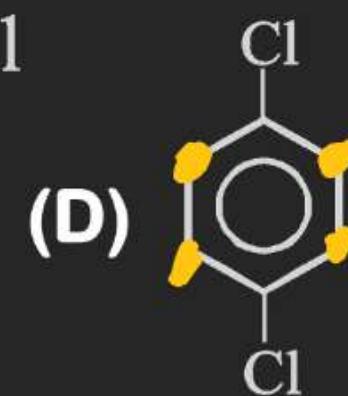
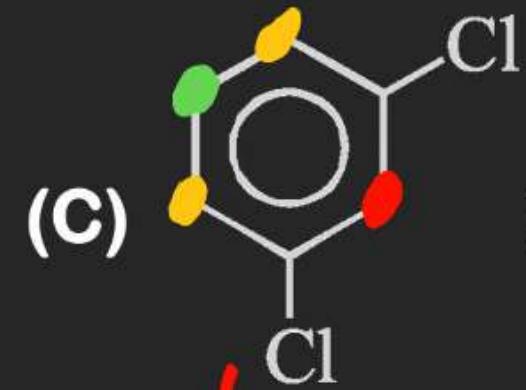
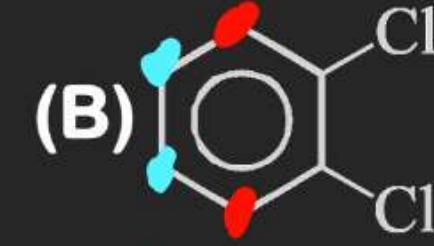
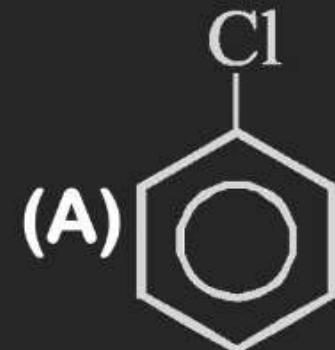
AROMATIC COMPOUNDS

22. In a reaction of C_6H_5Y , the major product ($> 60\%$) is m-isomer, so the group Y is:



AROMATIC COMPOUNDS

24. Which of the following substituted benzene derivatives would furnish only three isomers in significant amount when one more substituent is introduced:

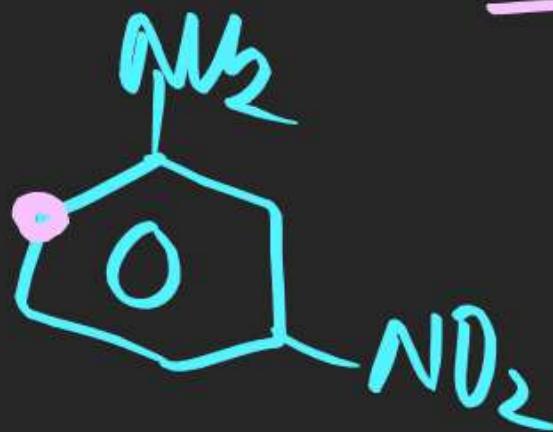
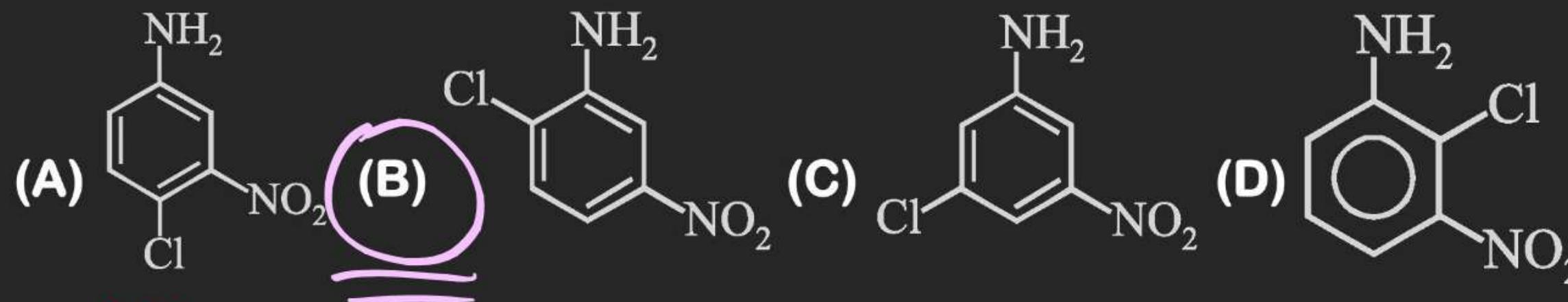


↓
2 isomers

↓
3 isomers 1 isomer

AROMATIC COMPOUNDS

27. If meta-nitroaniline is chlorinated, the major product is:



AROMATIC COMPOUNDS

29.



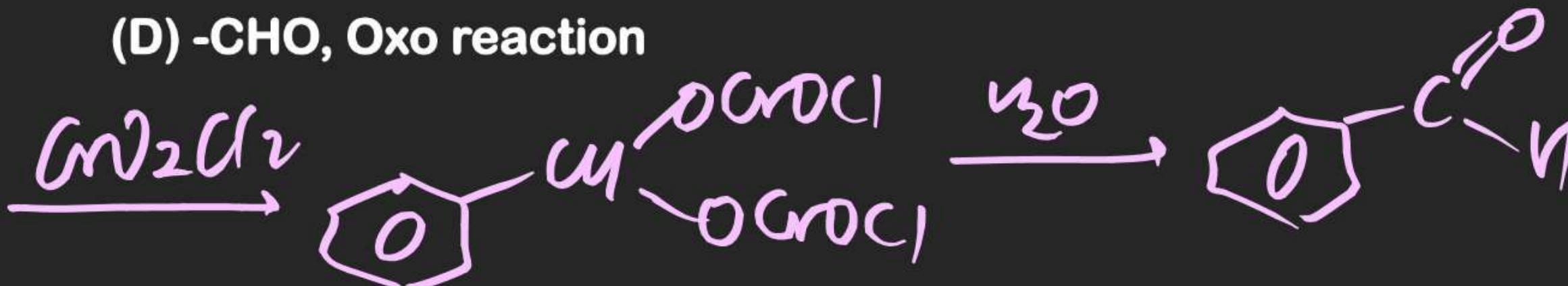
The functional group present in B and name of the reaction would be

(A) - CHO, Gattermann aldehyde synthesis

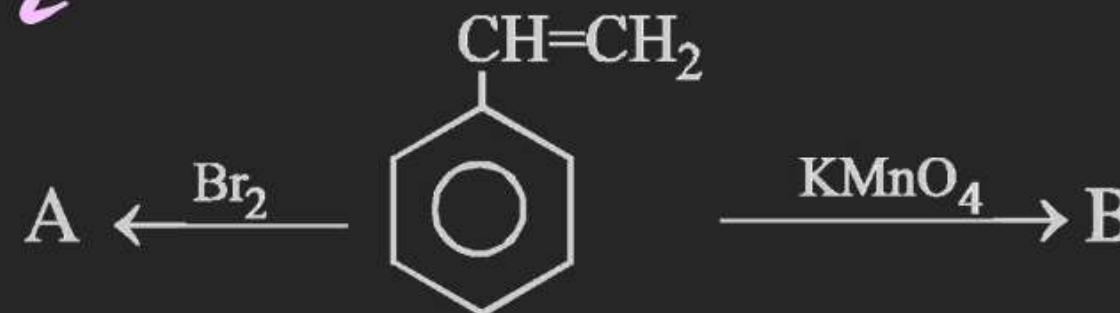
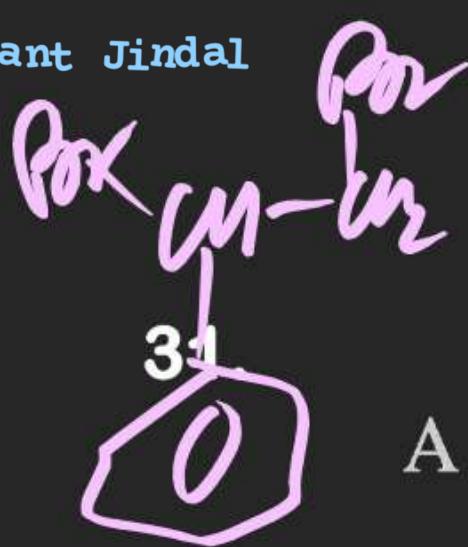
(B) - CHO, Etard reaction

(C) -COCH₃, Friedel Crafts reaction

(D) -CHO, Oxo reaction



AROMATIC COMPOUNDS



Compound A and B respectively are:

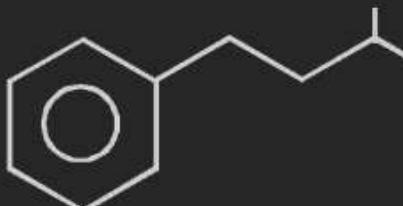
- (A) o-Bromostyrene, benzoic acid
- (B) p-Bromostyrene, benzaldehyde
- (C) m-Bromostyrene, benzaldehyde
- (D) Styrene dibromide, benzoic acid

AROMATIC COMPOUNDS

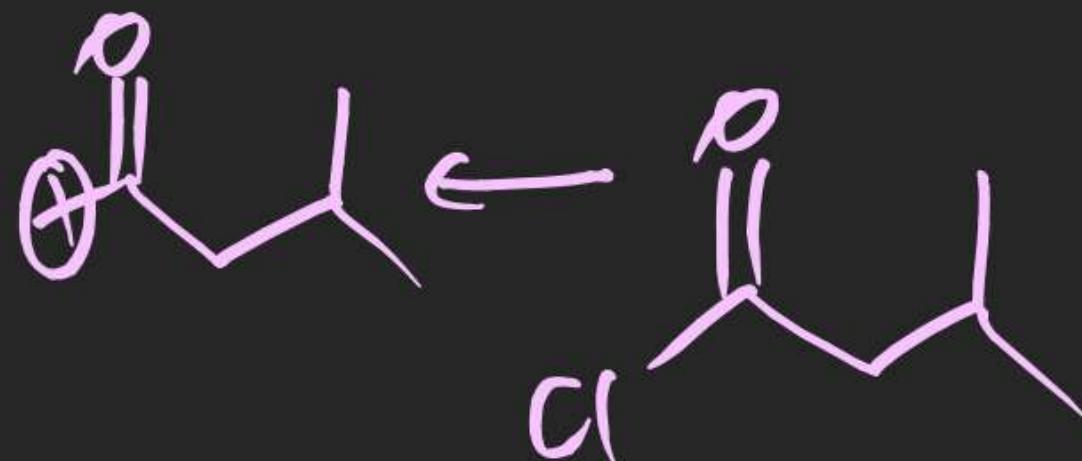
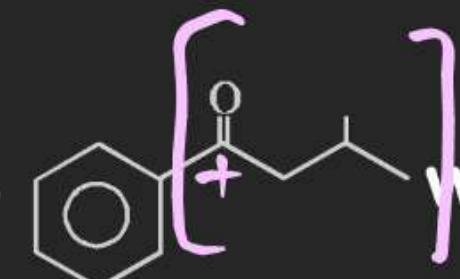
35.

Benzene on reaction with 'A' forms which on reaction with 'B'

forms



'A' and 'B' are:



- (A) $\text{Zn}(\text{Hg}) + \text{conc. HCl}$,

- (B) , LiAlH_4

- (C) , NaBH_4

- (D) , $\text{Zn}(\text{Hg}) + \text{conc. HCl}$

AROMATIC COMPOUNDS

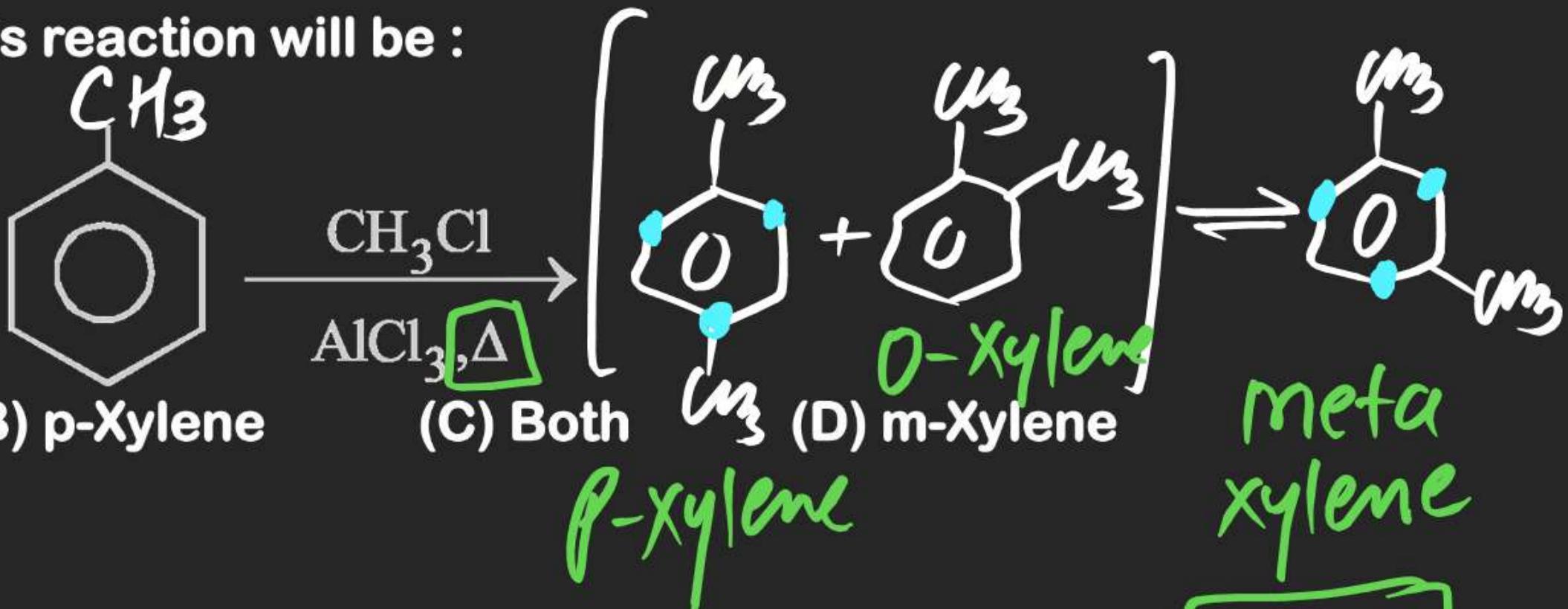
37. Major product of this reaction will be :

(A) o-Xylene

(B) p-Xylene

(C) Both

(D) m-Xylene



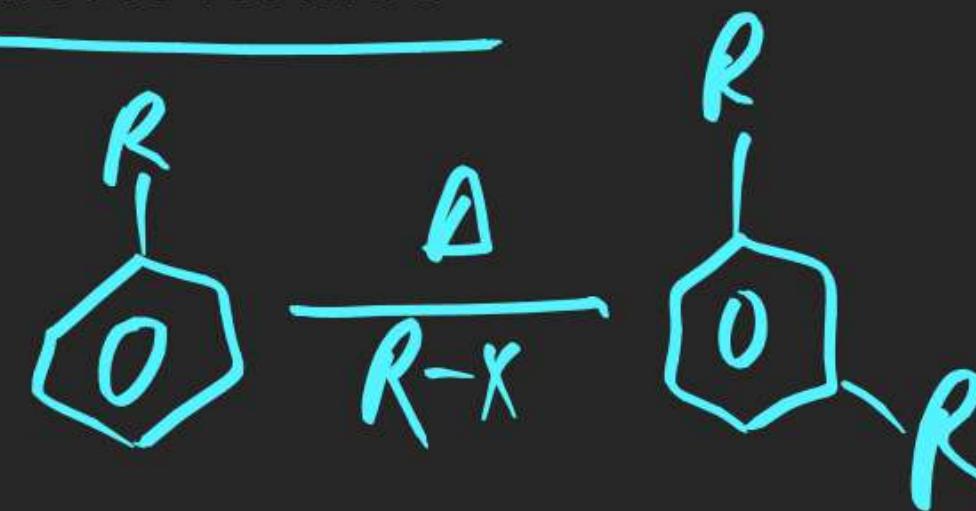
*meta
xylene*

TCP

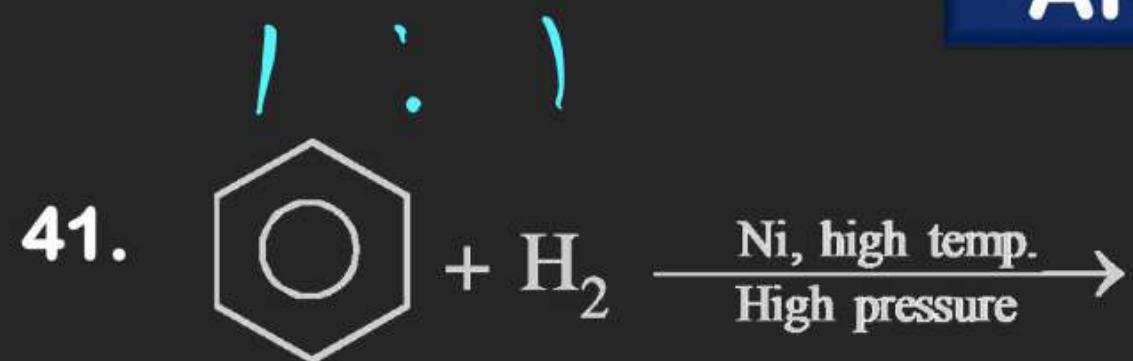
(major)

AROMATIC COMPOUNDS

38. For preparing monoalkyl benzene, acylation process is preferred than direct alkylation because
- (A) In alkylation, a poisonous gas is evolved
 - (B) In alkylation, large amount of heat is evolved
 - (C) In alkylation, polyalkylated product is formed
 - (D) Alkylation is very costly

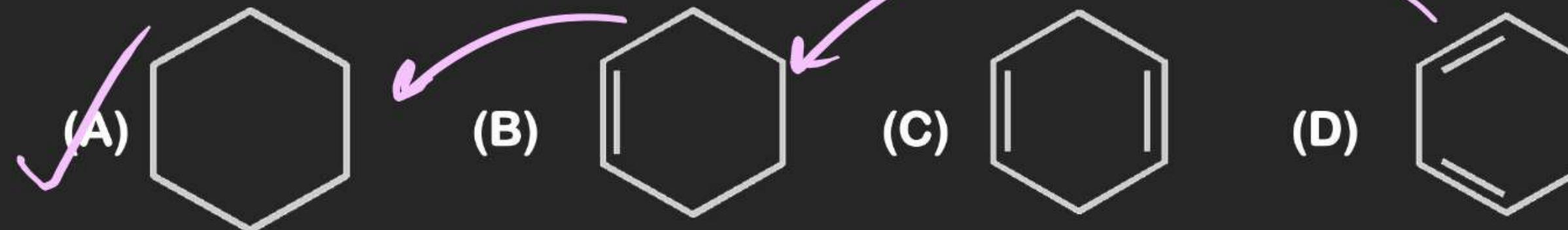


AROMATIC COMPOUNDS



(A). Which of the following can be isolated as

the product of this

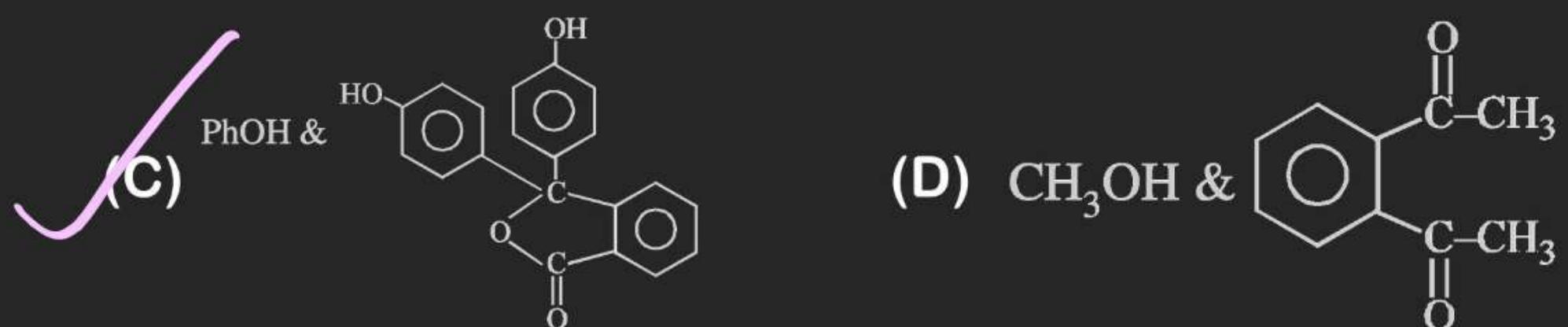
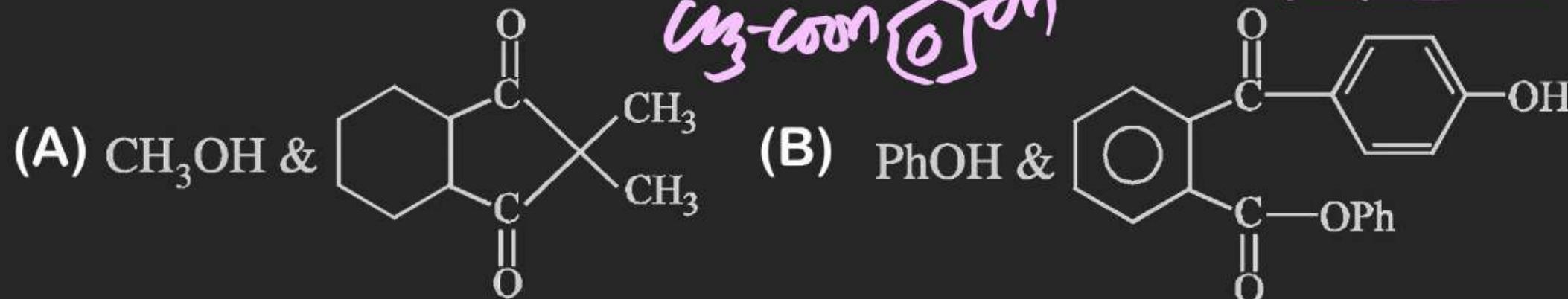
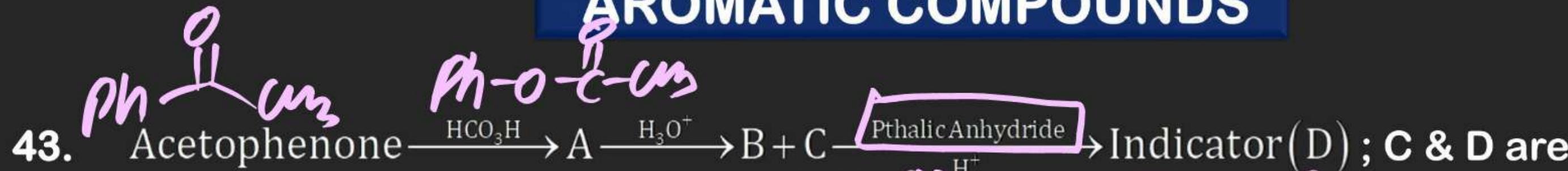


AROMATIC COMPOUNDS

42. Chloral +  $\xrightarrow{\text{Conc. H}_2\text{SO}_4}$ product. The product is:

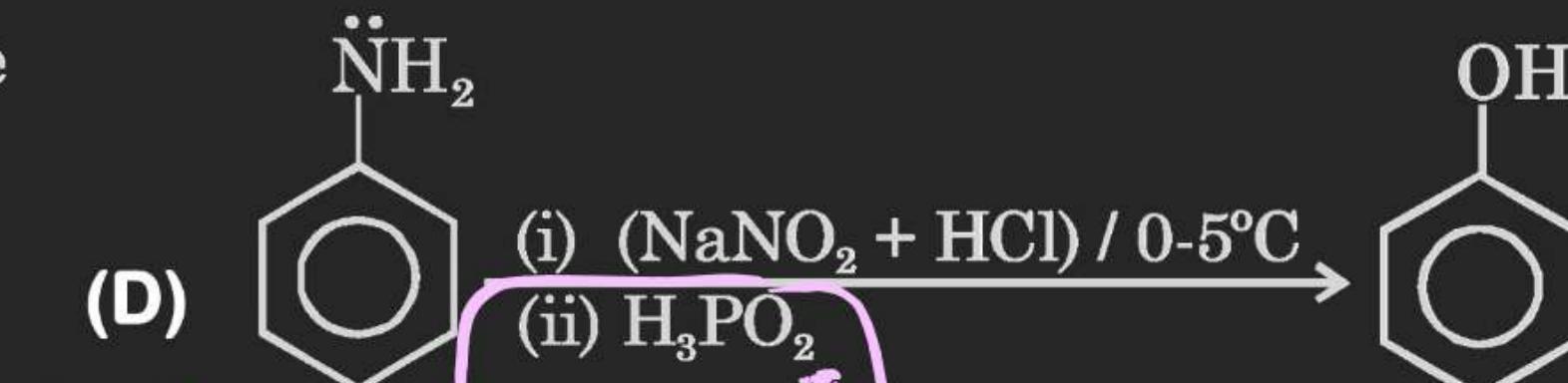
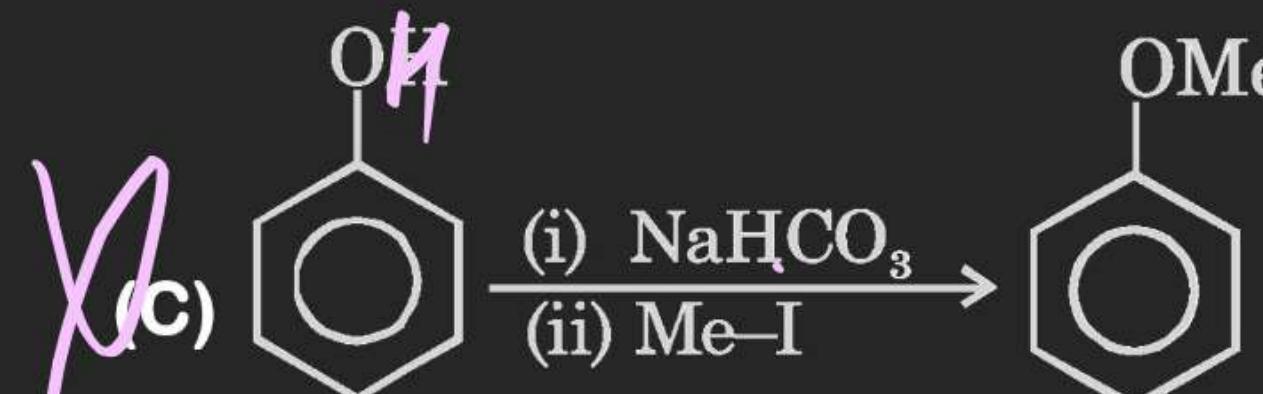
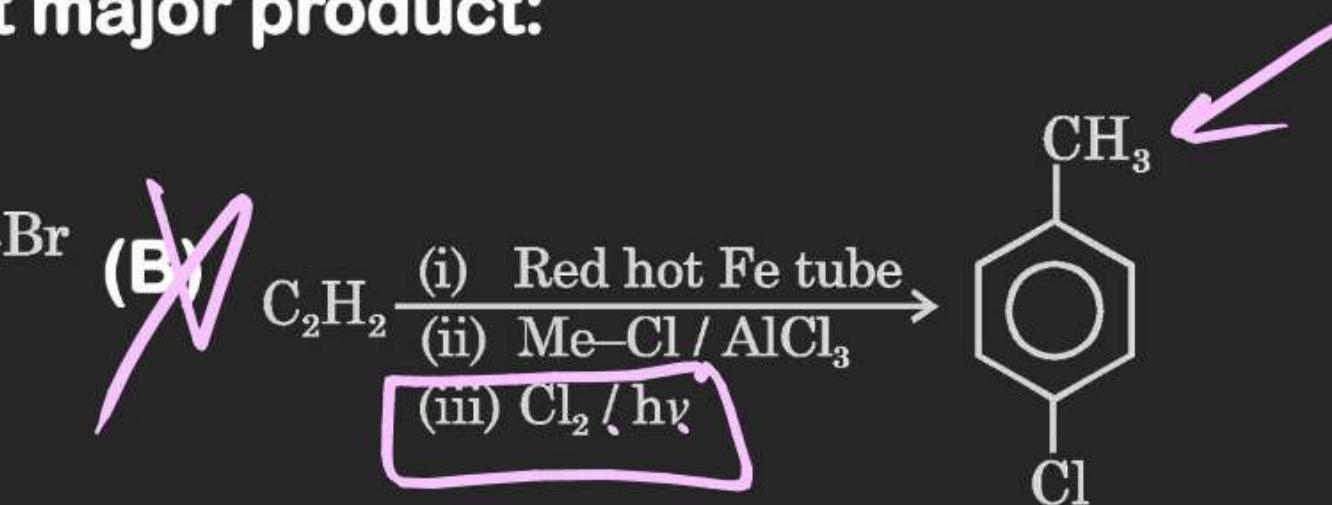
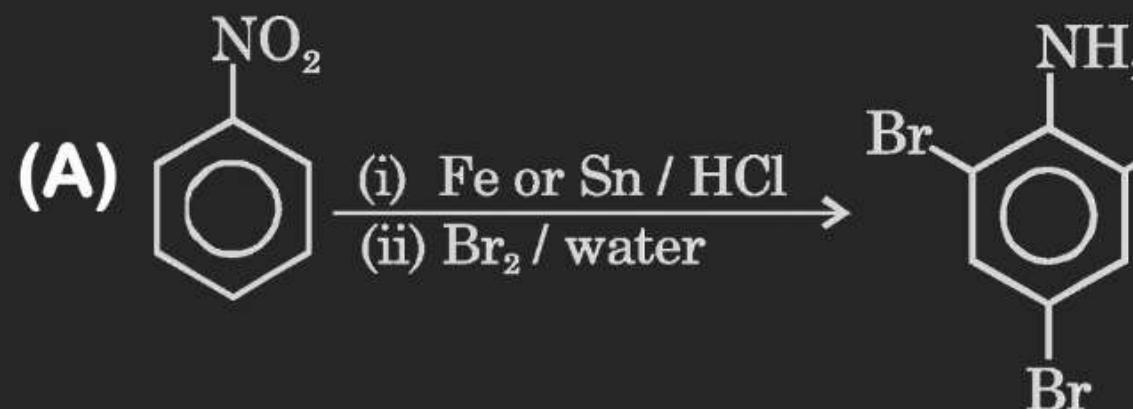
- (A) Lindane (B) DDT (C) Teflon (D) Ethanoperchlorate

AROMATIC COMPOUNDS



AROMATIC COMPOUNDS

44. Select the reaction giving correct major product:

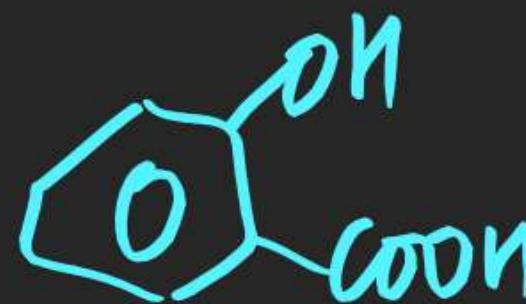


AROMATIC COMPOUNDS



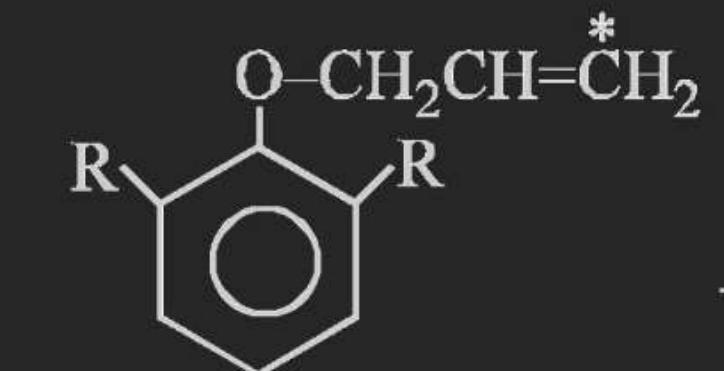
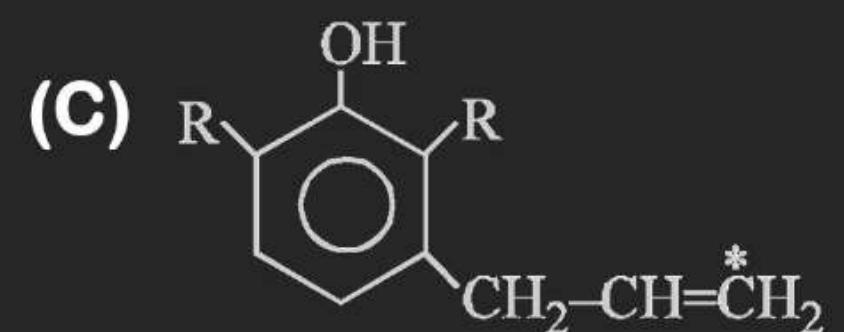
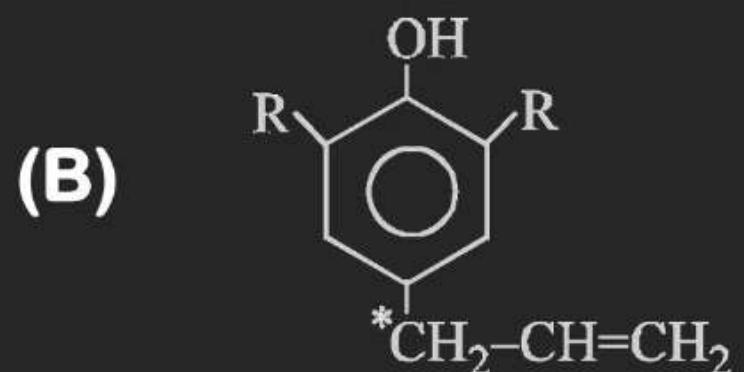
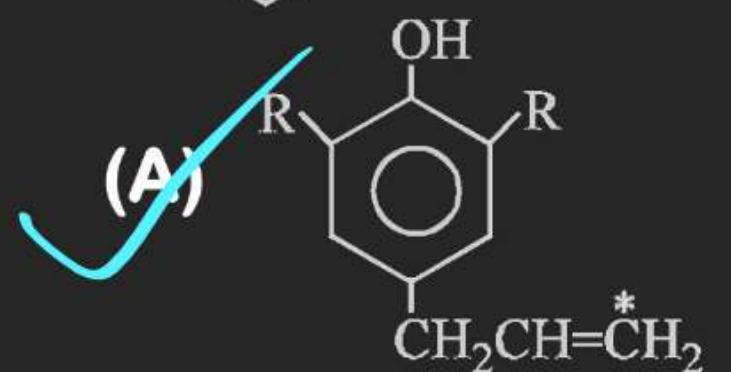
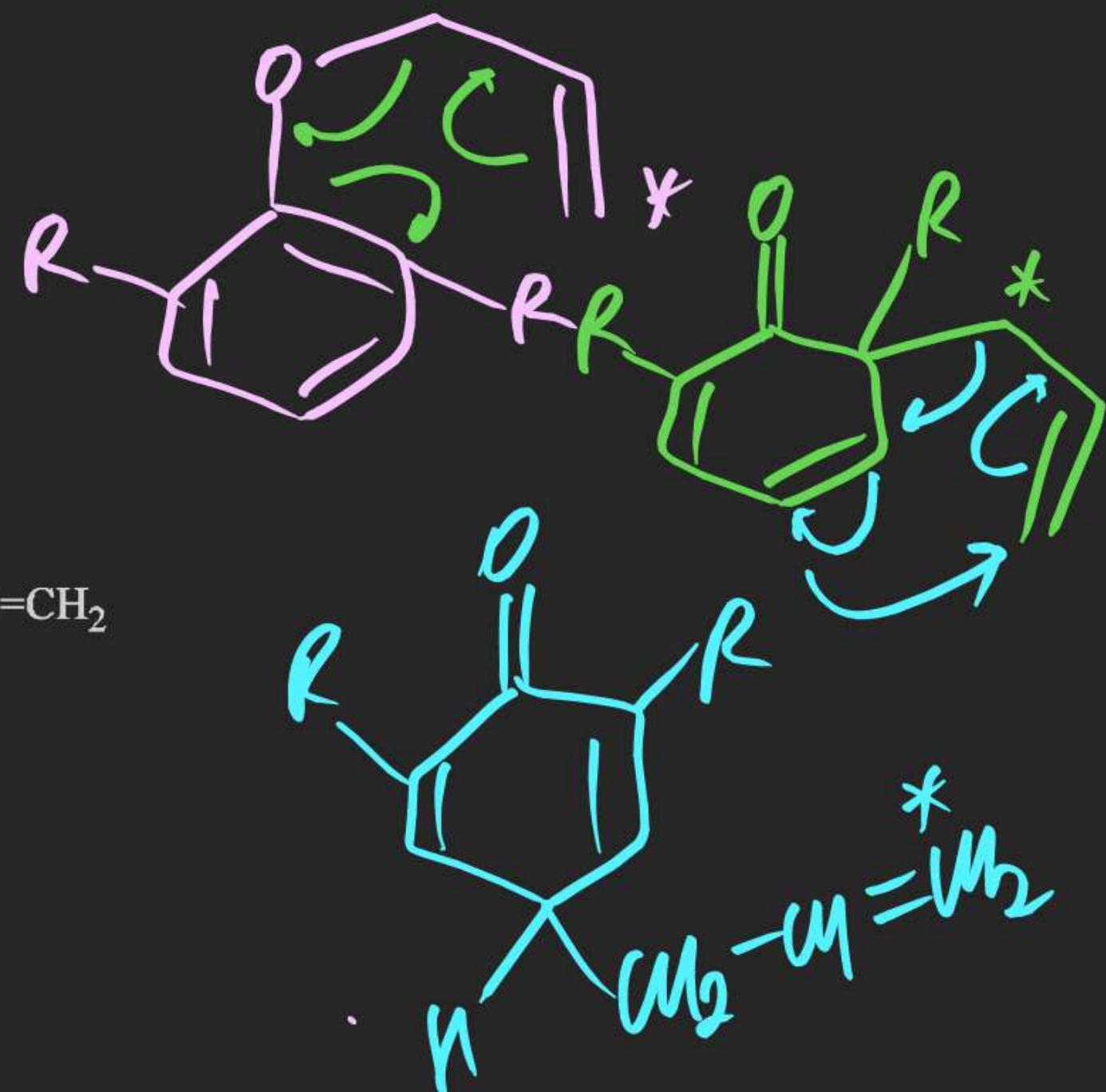
In this reaction, the end product C is:

- (A) Salicylaldehyde (B) Salicylic acid (C) Phenyl acetate (D) Aspirin



AROMATIC COMPOUNDS

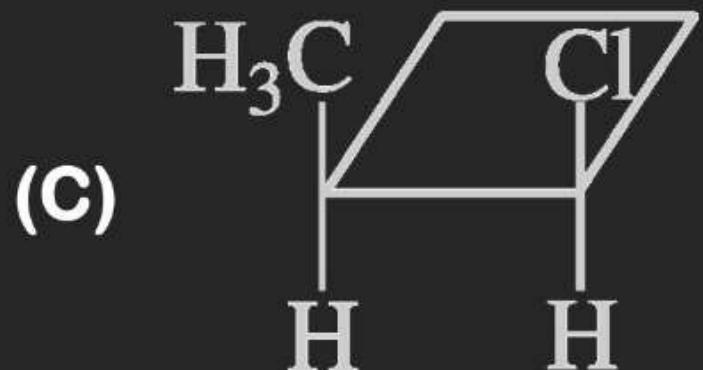
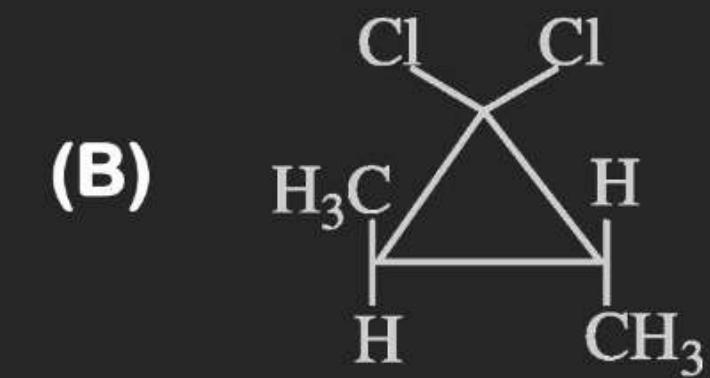
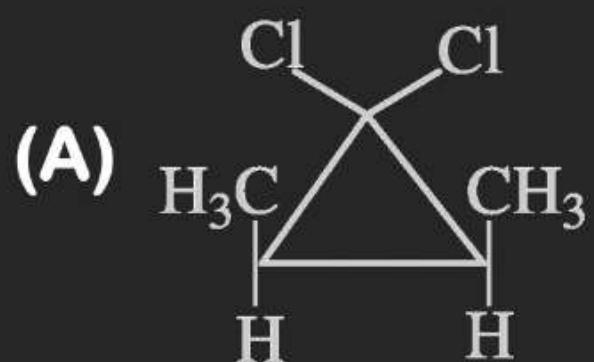
47.

 $\xrightarrow{\Delta}$? Product is:**(D) No reaction**

AROMATIC COMPOUNDS

50. Trans-Butene-2 $\xrightarrow[\text{Solvent}]{\text{CHCl}_3/\text{KOH}}$ Product

$^{11}\text{CCl}_2$ Singlet Carbene



(D) Both (A) & (B)

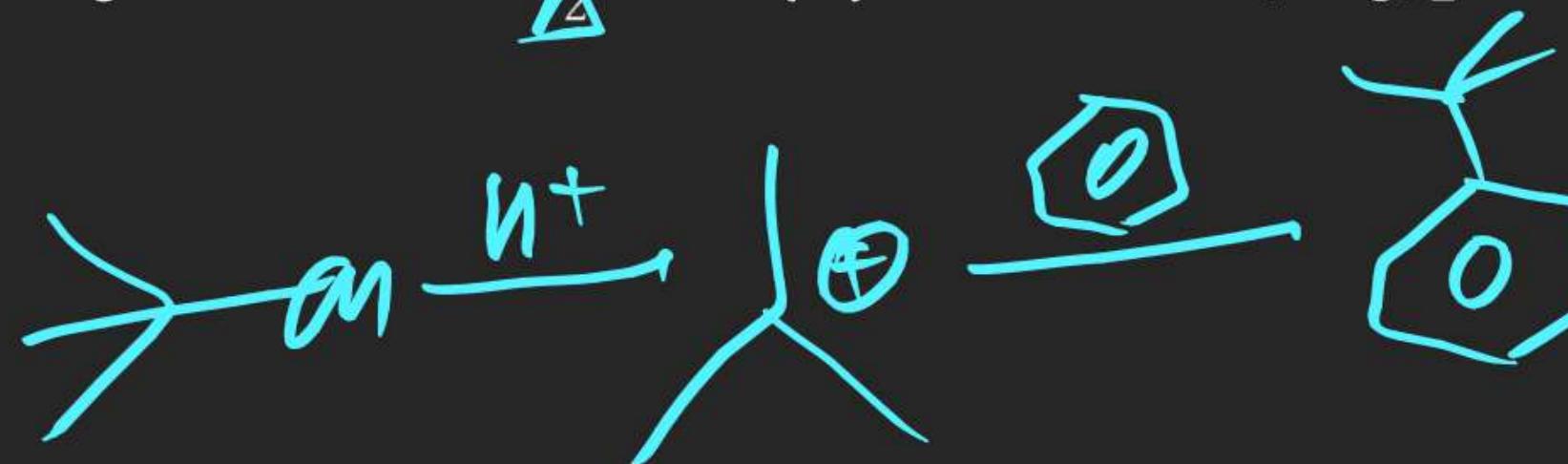


AROMATIC COMPOUNDS

EXERCISE -II

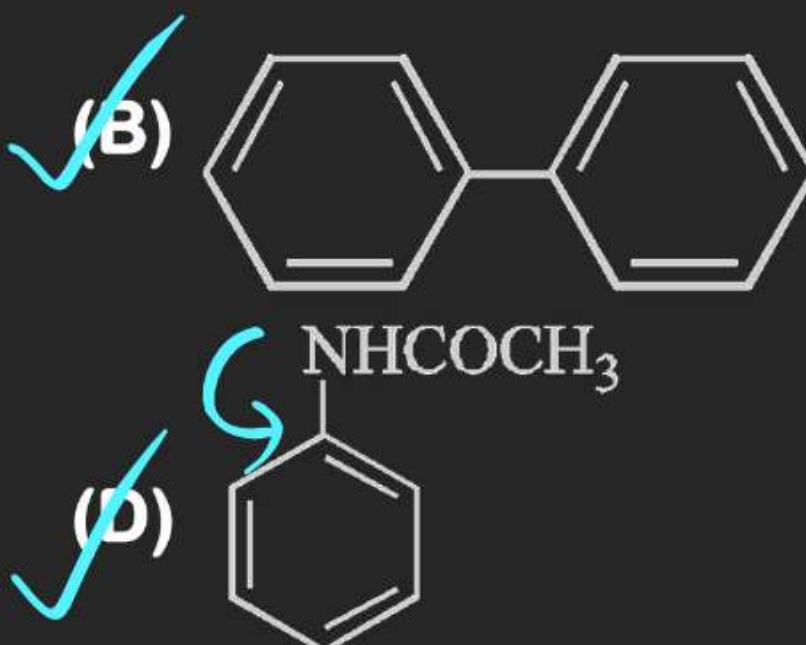
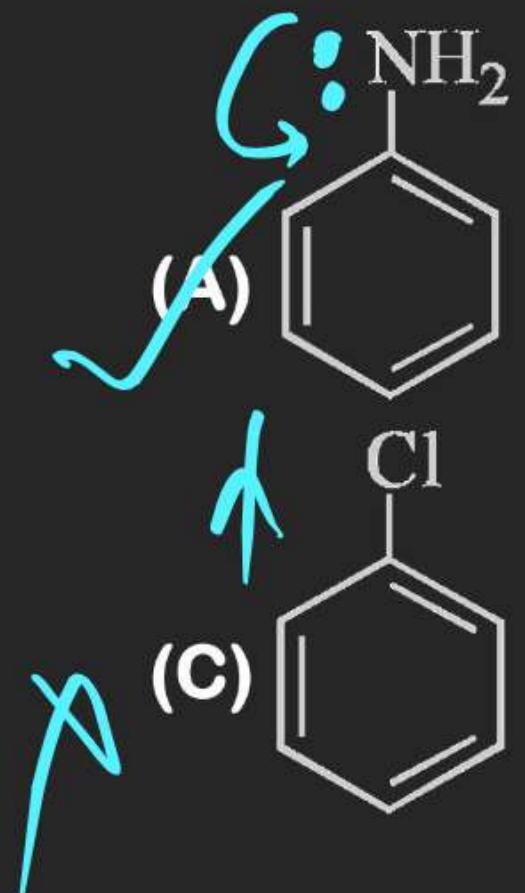
1. In which of the following reaction t-butylbenzene is formed:

- (A) Benzene + iso-butyl chloride, AlCl_3 (B) Benzene + $(\text{CH}_3)_2\text{C} = \text{CH}_2 \xrightarrow{\text{BF}_3 \cdot \text{HF}}$
(C) Benzene + t-butyl alcohol $\xrightarrow[\Delta]{\text{H}_2\text{SO}_4}$ (D) Benzene + $(\text{CH}_3)_2\text{C} = \text{CH}_2 \xrightarrow{\text{AlCl}_3}$



AROMATIC COMPOUNDS

6. Which of the following will undergo nitration faster than benzene?



AROMATIC COMPOUNDS

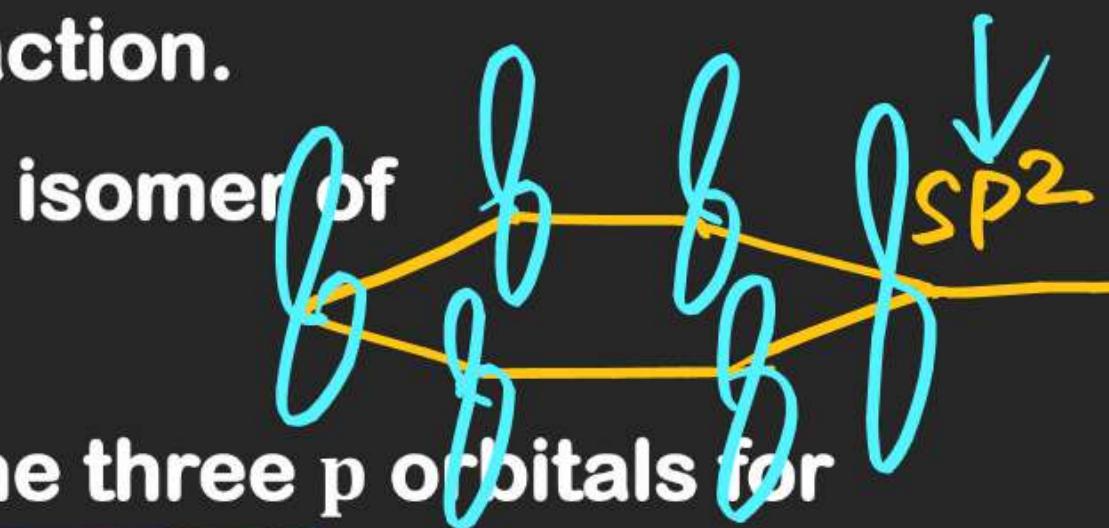
9. Of the species PhSR , $\text{Ph}\overset{\text{O}}{\underset{\text{O}}{\text{S}}} \text{R}$, $\text{Ph}\overset{\text{O}}{\underset{\text{O}}{\text{S}}} \text{R}$ and $\text{Ph}-\overset{\text{O}}{\underset{\text{O}}{\text{S}}}-\text{OR}$ the meta-substituted product is obtained from
- (A) PhSR (B) $\text{Ph}\overset{\text{O}}{\underset{\text{O}}{\text{S}}} \text{R}$ (C) $\text{Ph}\overset{\text{O}}{\underset{\text{O}}{\text{S}}} \text{R}$ (D) $\text{Ph}-\overset{\text{O}}{\underset{\text{O}}{\text{S}}}-\text{OR}$

AROMATIC COMPOUNDS

11.

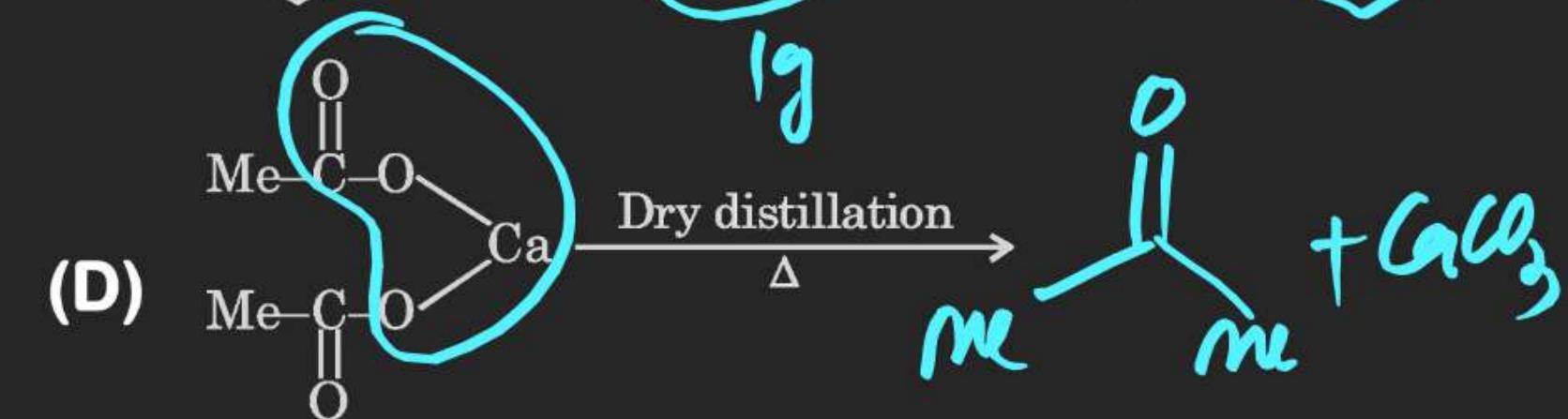
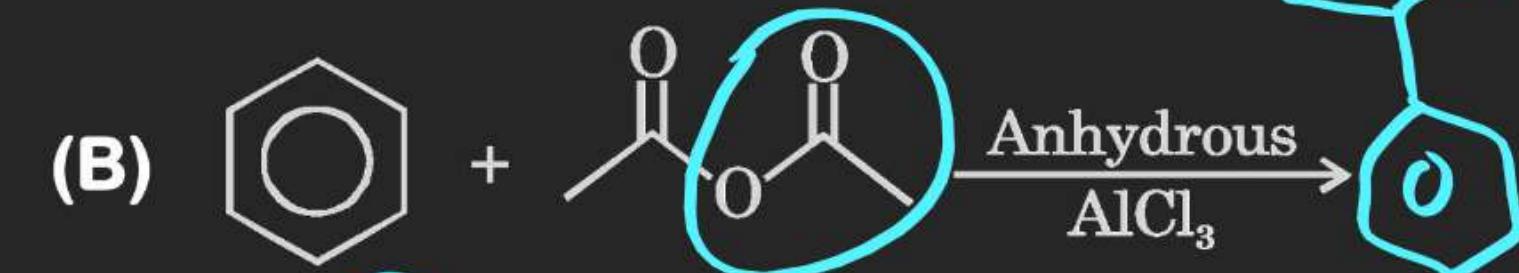
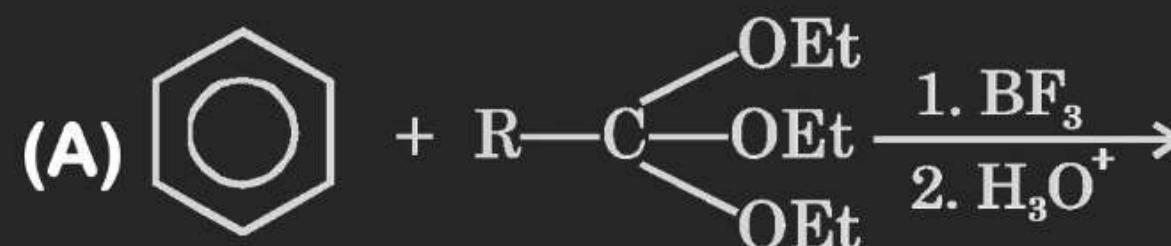
False statement is / are :

- (A) Although benzene contains three double bonds, normally it does not undergo addition reaction.
- (B) m-Chlorobromobenzene is an isomer of m-bromochlorobenzene.
- (C) In benzene, carbon uses all the three p orbitals for hybridization.
- (D) An electron donating substituent in benzene orients the incoming electrophilic group to the meta position.



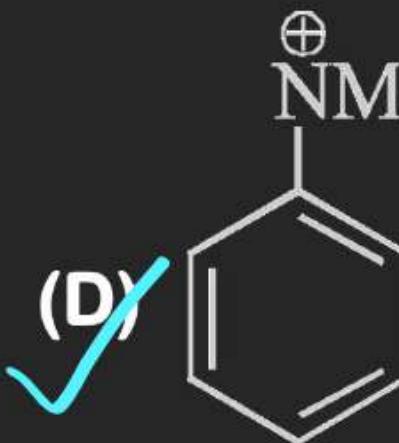
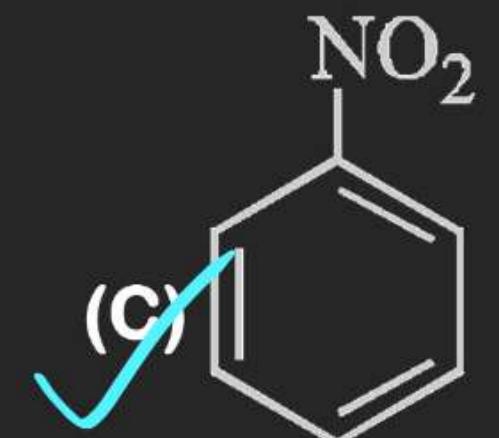
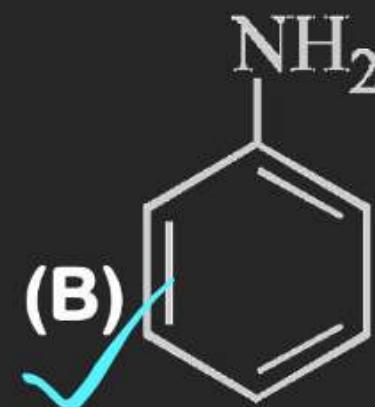
AROMATIC COMPOUNDS

13. Identify reactions give ketone product?



AROMATIC COMPOUNDS

17. Which of the following does not give Friedel-Crafts reaction?



Strongly deactivated

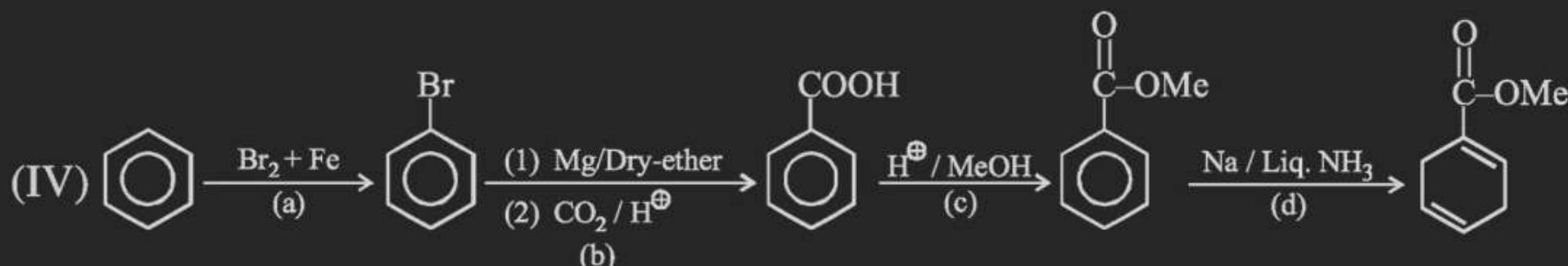
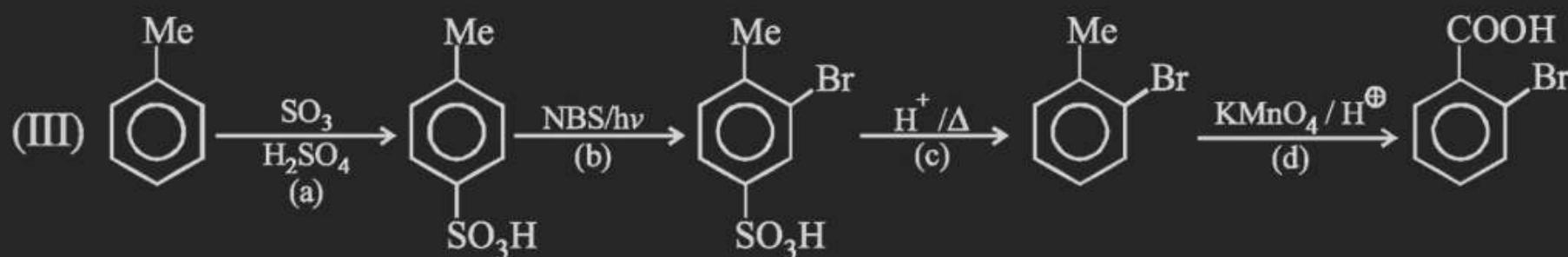
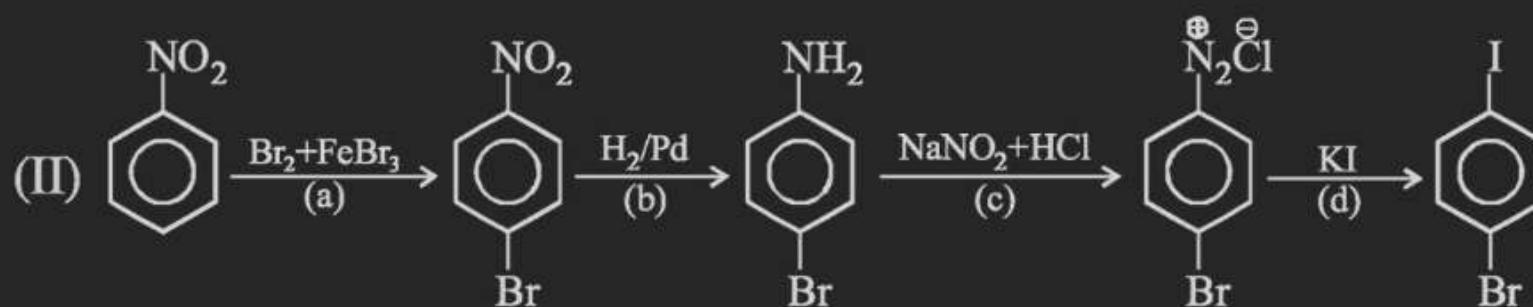
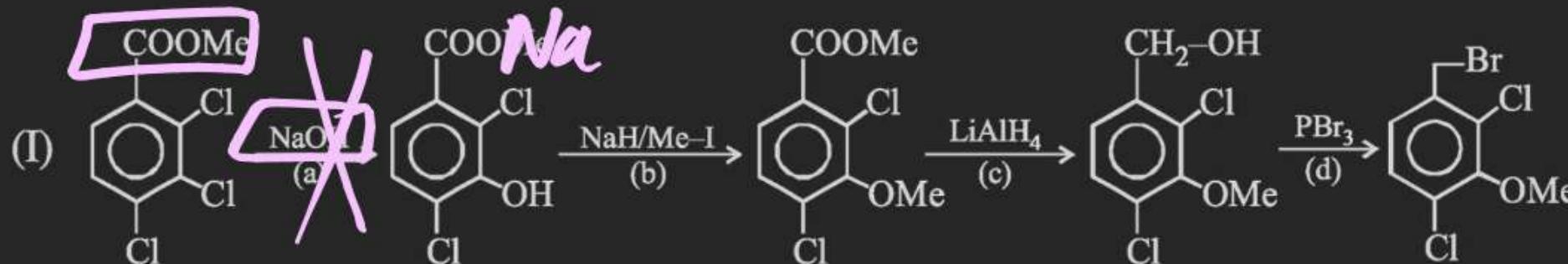
AROMATIC COMPOUNDS

18. Which of the following reactions of benzene proves the presence of three carbon-carbon double bonds in it :

- (A) Formation of a **triozonide**
- (B) Hydrogenation of benzene to cyclohexane
- (C) Formation of $C_6H_6Cl_6$ by addition of chlorine
- (D) Formation of nitrobenzene on heating benzene with a mixture of concentrated nitric acid and sulphuric acid

AROMATIC COMPOUNDS

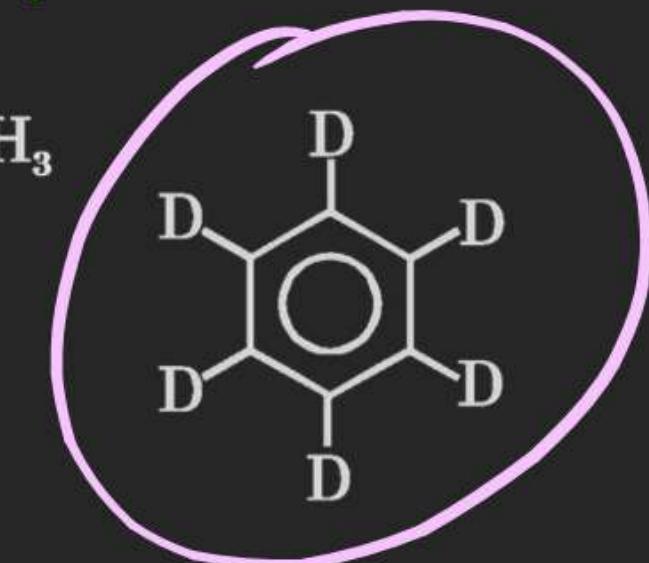
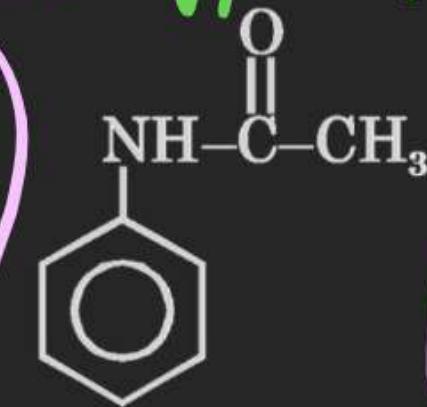
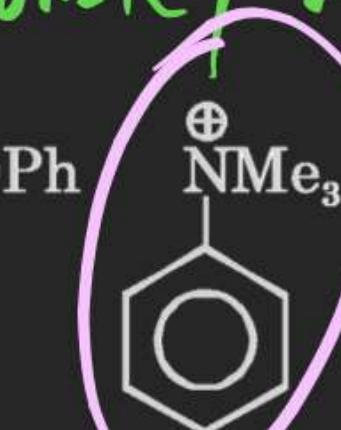
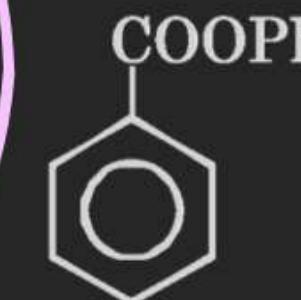
21. Among the following reaction sequences identify incorrect step :



- (A) I-a ; II - b ; III -c; IV -d
 (B) I-b; II - a ; III -d; IV -d
 (C) I-a; II - a ; III - b ; IV - d
 (D) I-b ; II - a ; III - d ; IV - c

AROMATIC COMPOUNDS

22. How many of following compounds are less reactive than benzene for sulphonation by conc. H_2SO_4 : *Rewritable / K.F effect prnt*



(A) 2

(B) 4

(C) 6

(D) 8