TOP 50 Organic Chemistry Questions

Given below are two statements :

Statement (I) : p-nitrophenol is more acidic than m-nitrophenol and o-nitrophenol.

Statement (II) : Ethanol will give immediate turbidity with Lucas reagent. In the light of the above statements, choose the correct answer from the options given below :

[27-Jan-2024 Shift 1]

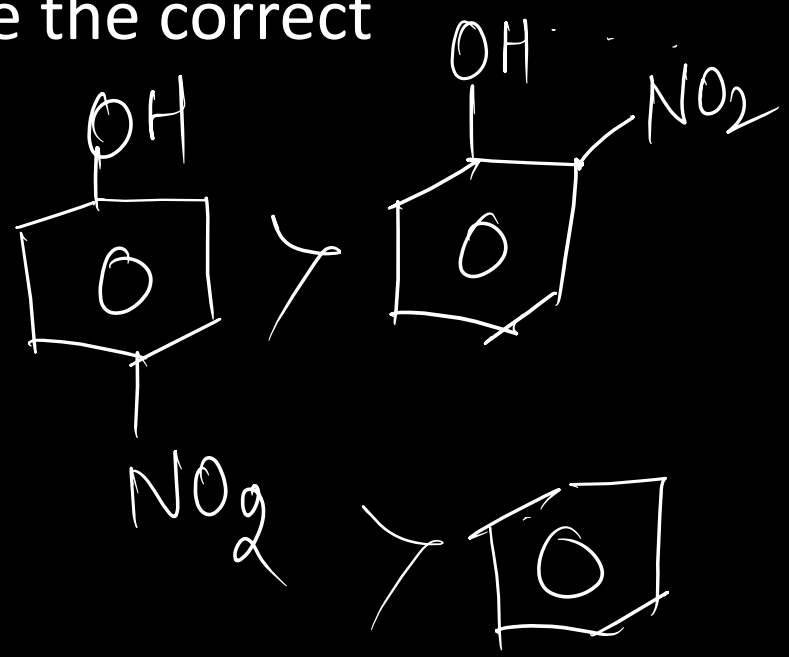
Options:

A. Statement I is true but Statement II is false

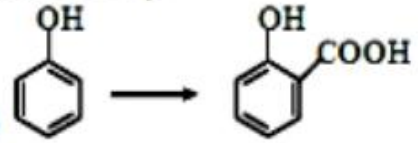
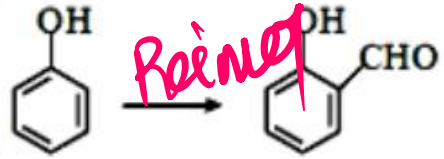
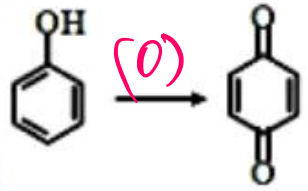
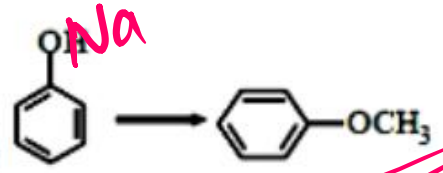
B. Both Statement I and Statement II are true

C. Both Statement I and Statement II are false

D. Statement I is false but Statement II is true



TOP 50 Organic Chemistry Questions

List – I (Reaction)	List – II (Reagent(s))
(A) 	(I) $Na_2Cr_2O_7$, H_2SO_4
(B) 	(II) (i) NaOH (ii) CH_3Cl
(C) 	(III) (i) NaOH, $CHCl_3$ (ii) NaOH (iii) HCl
(D) 	(IV) (i) NaOH (ii) CO_2 (iii) HCl

C – (i), B (iii)

A (iv) D (ii)

TOP 50 Organic Chemistry Questions

Phenolic group can be identified by a positive:

[27-Jan-2024 Shift 2]

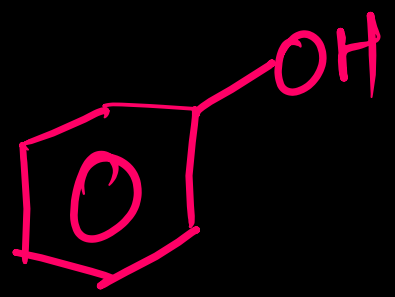
Options:

A. Phthalein dye test → Phenols

B. Lucas test → 1°, 2°, 3°

C. Tollen's test → Aldehydes

D. Carbylamine test → 1° amines.



TOP 50 Organic Chemistry Questions

Phenol treated with chloroform in presence of sodium hydroxide, which further hydrolysed in presence of an acid results [29-Jan-2024 Shift 2]

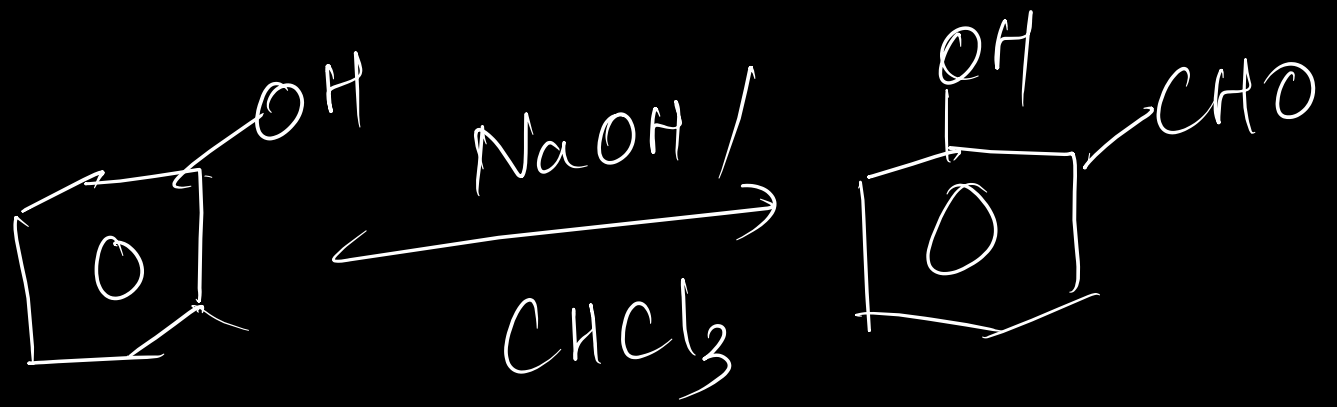
Options:

A. Salicyclic acid

B. Benzene-1,2-diol

C. Benzene-1, 3-diol

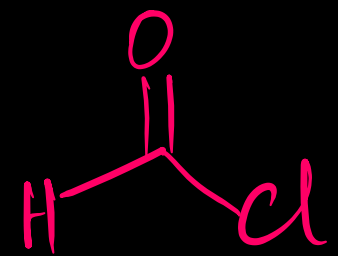
D. 2-Hydroxybenzaldehyde



Reimer-Tiemen

TOP 50 Organic Chemistry Questions

Salicylaldehyde is synthesized from phenol, when reacted with [30-Jan-2024 Shift 2]

a)  , NaOH

b) CO_2, NaOH

c) CCl_4, NaOH

d) $HCCl_3$, NaOH

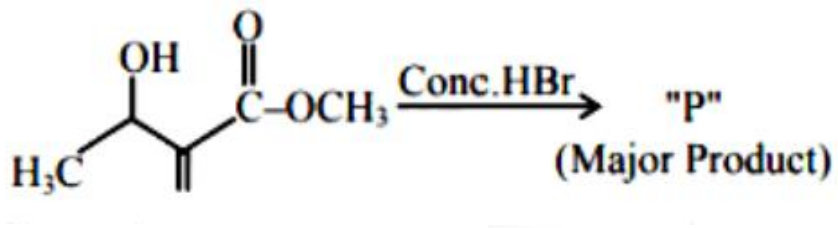
TOP 50 Organic Chemistry Questions

Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

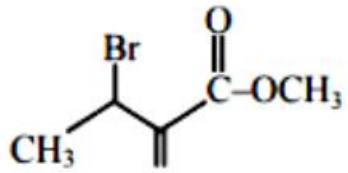
Assertion A: Alcohols react both as nucleophiles and electrophiles.

Reason R: Alcohols react with active metals such as sodium, potassium and aluminum to yield corresponding alkoxides and liberate hydrogen.

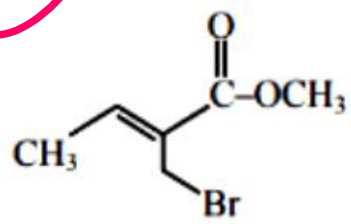
In the light of the above statements, choose the correct answer from the options given below:


OH
O
C–OCH3
H3C
Conc.HBr
"P"
(Major Product)

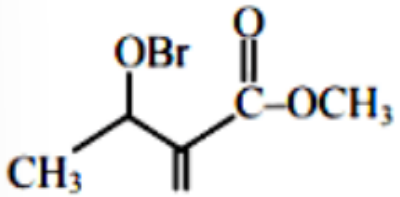
A.

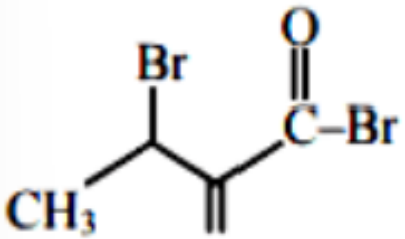

Br
O
C–OCH3
CH3

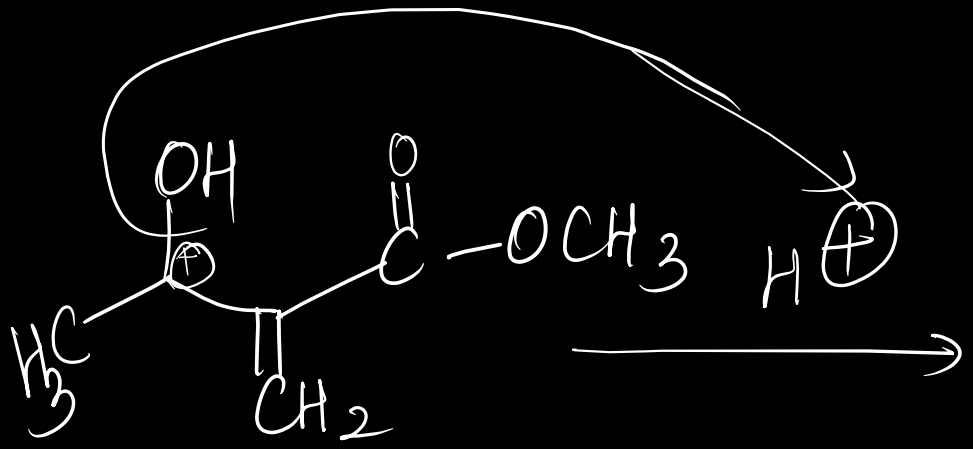
B.

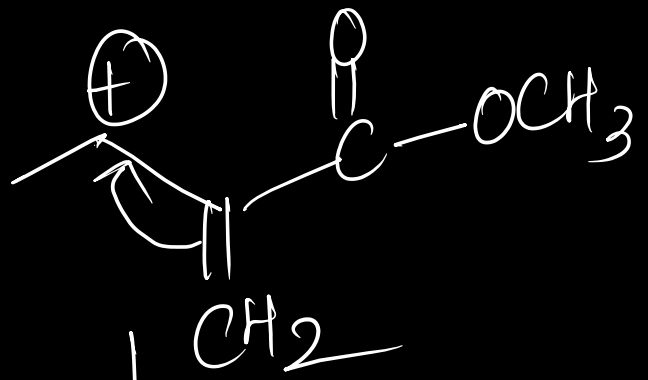

O
C–OCH3
CH3
Br

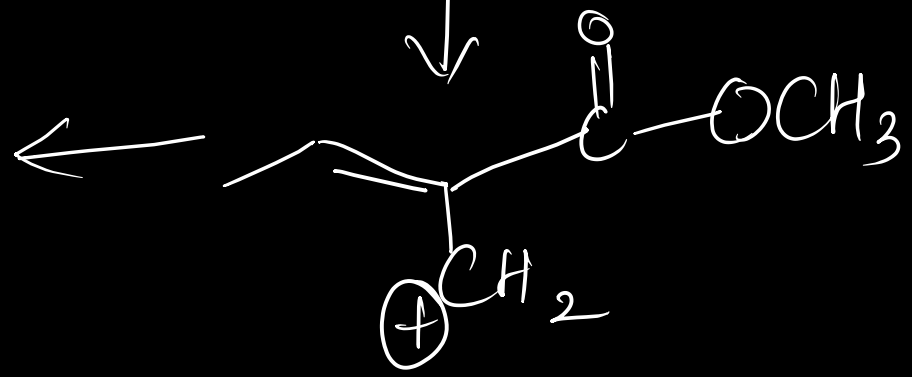
C.


OBr
O
C–OCH3
CH3


Br
O
C–Br
CH3


OH
C–OCH3
H
H3C
CH2


C–OCH3
CH2


C–OCH3
CH2

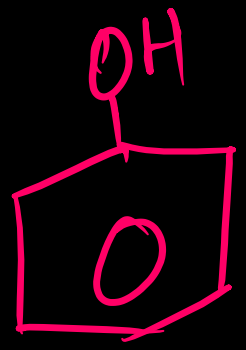
TOP 50 Organic Chemistry Questions

Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: pKa value of phenol is 10.0 while that of ethanol is 15.9.

Reason R: Ethanol is stronger acid than phenol. In the light of the above statements, choose the correct answer from the options given below:

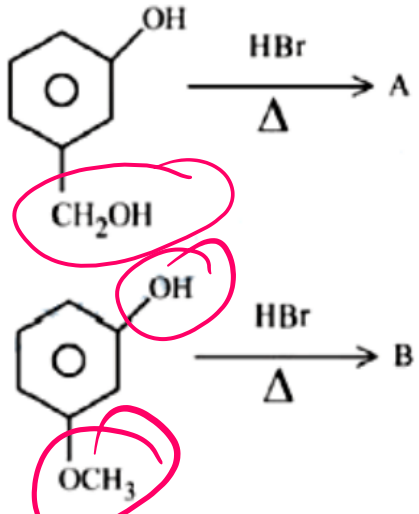
$pKa \propto \frac{1}{acidity}$

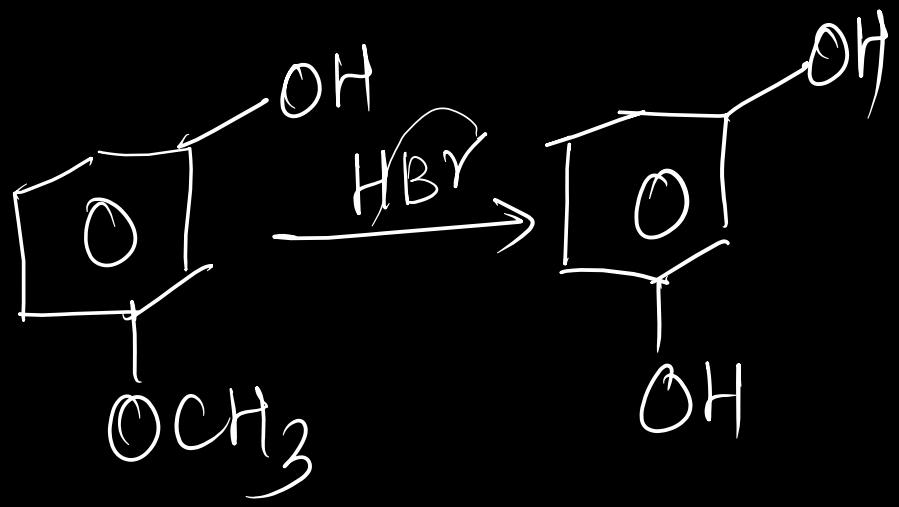


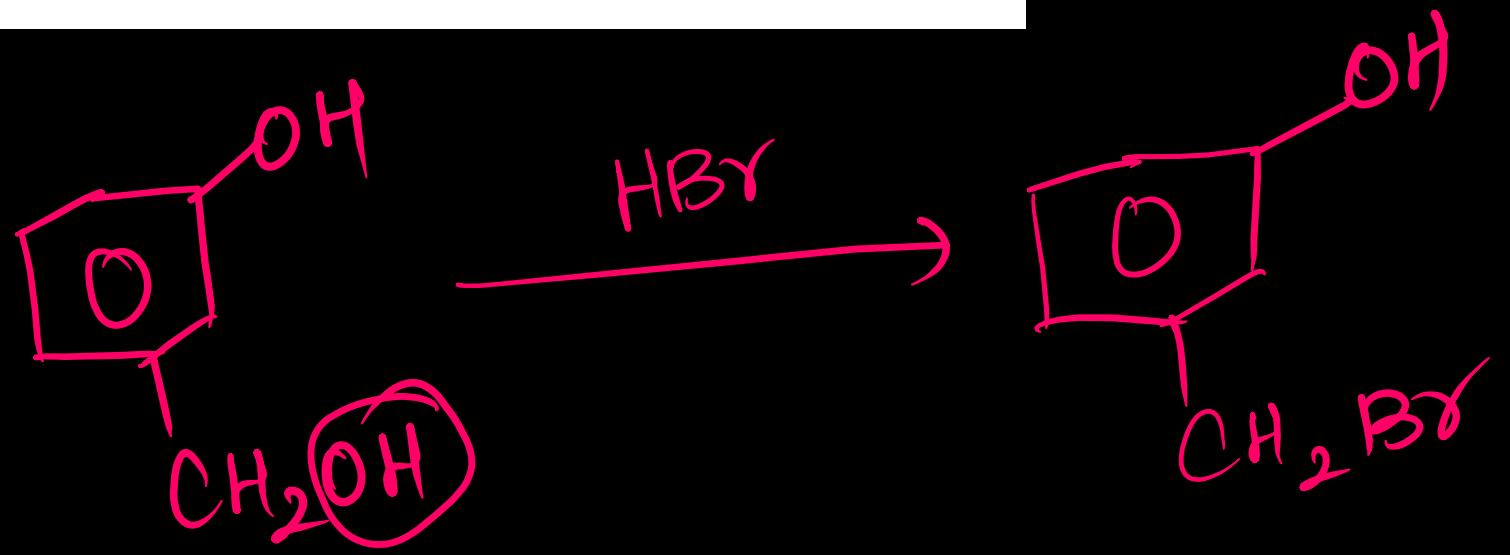
$> C_2H_5OH$

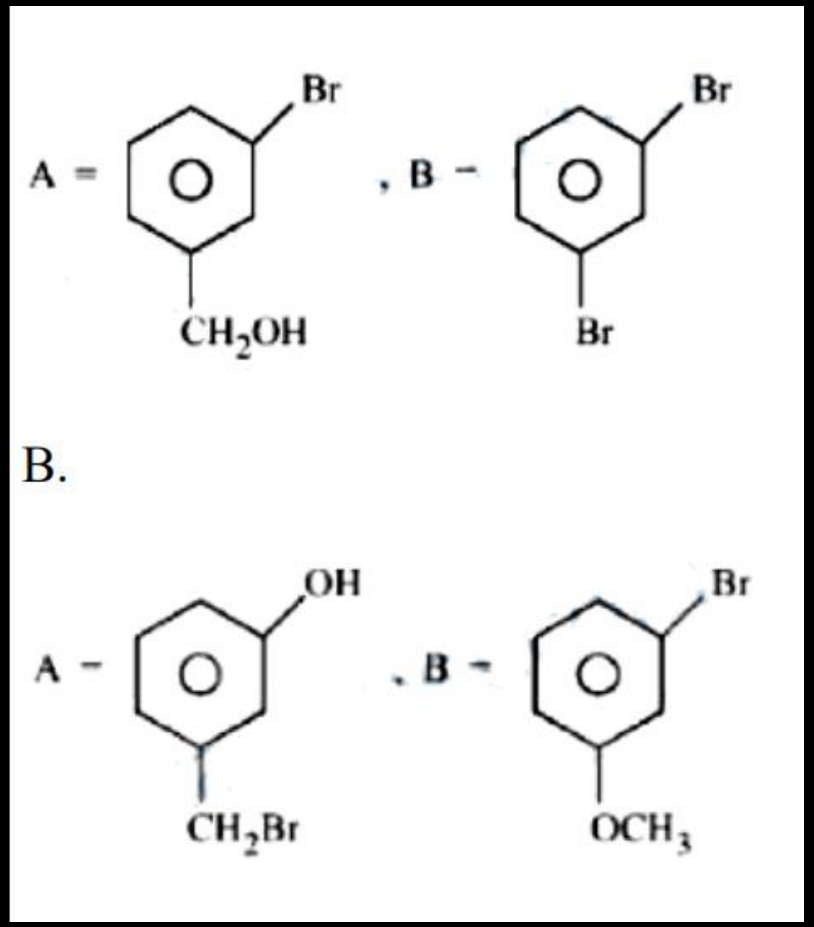
$acidity \propto ka \propto \frac{1}{pKa}$

'A' and 'B' formed in the following set of reactions are :



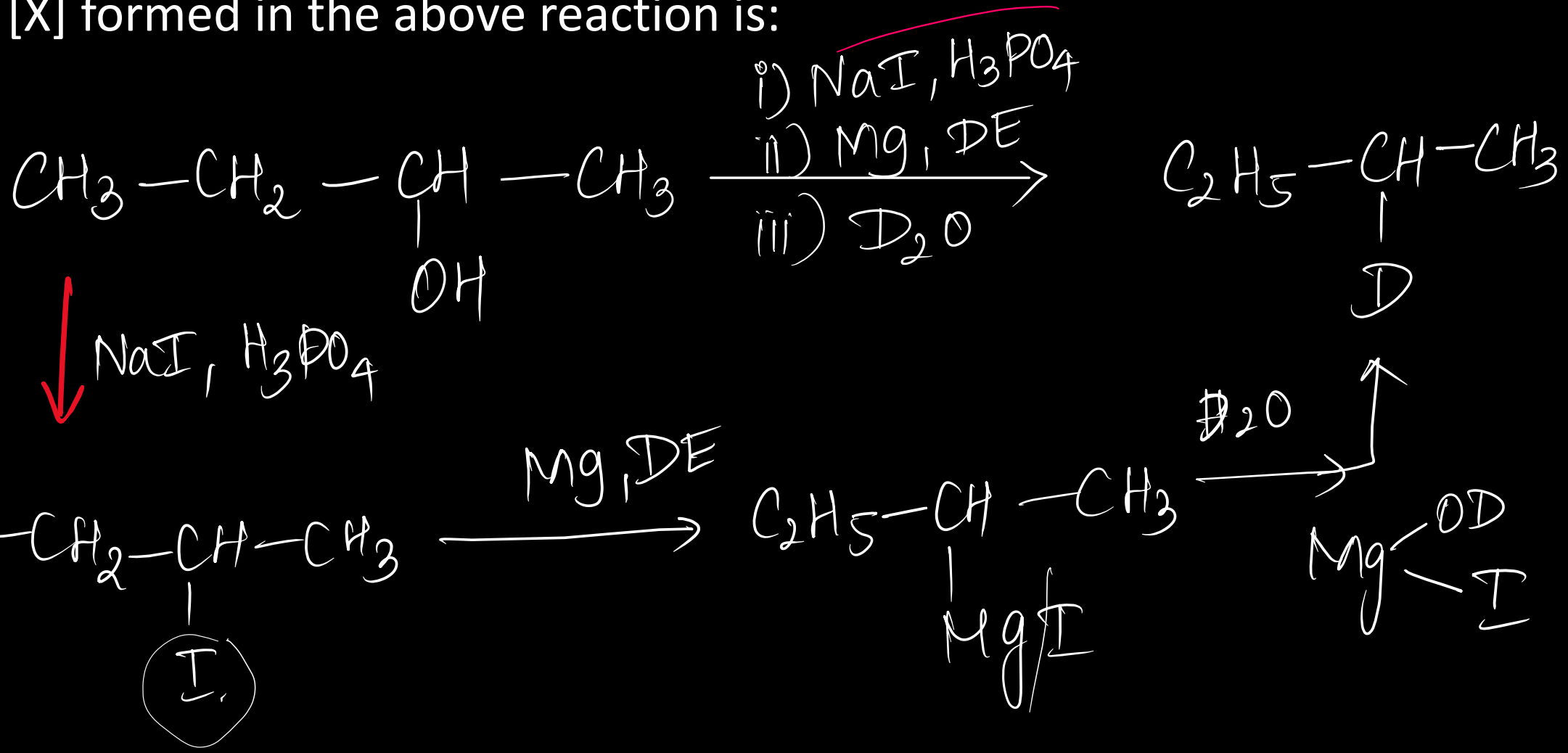




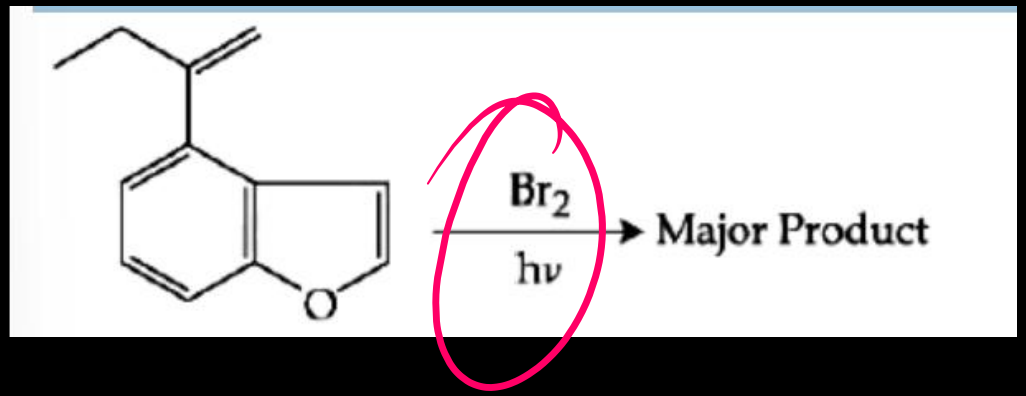

A =
Br
CH2OH
, B =
Br
Br
B.
A =
OH
CH2Br
, B =
Br
OCH3
C.
A =
OH
CH2Br
, B =
OH
Br
D.
A =
OH
CH2Br
, B =
OH
OH

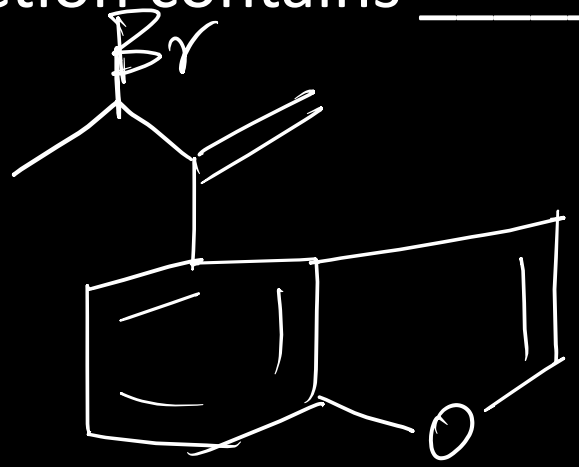
TOP 50 Organic Chemistry Questions

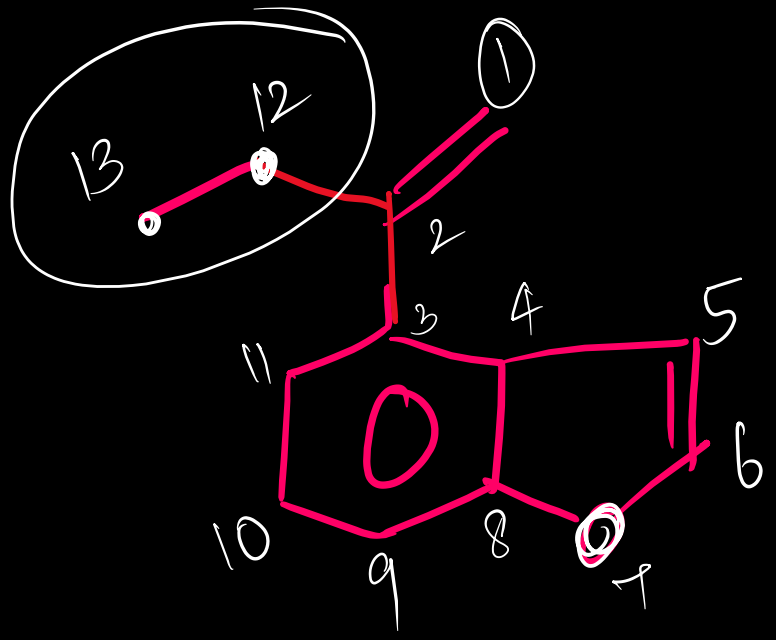
Product [X] formed in the above reaction is:

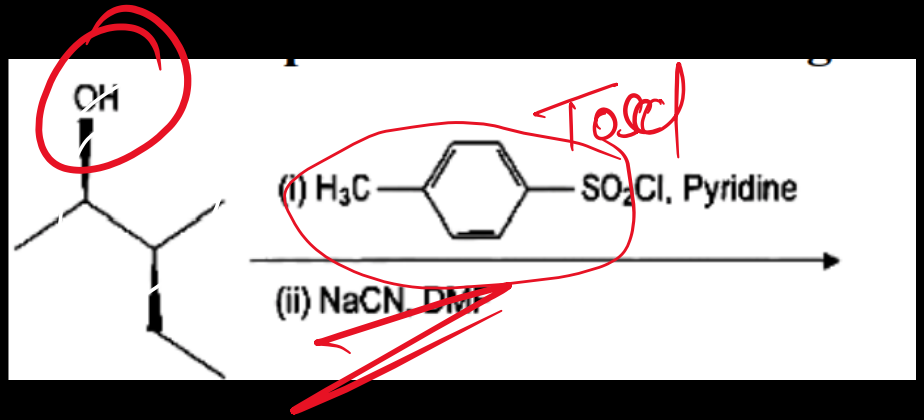


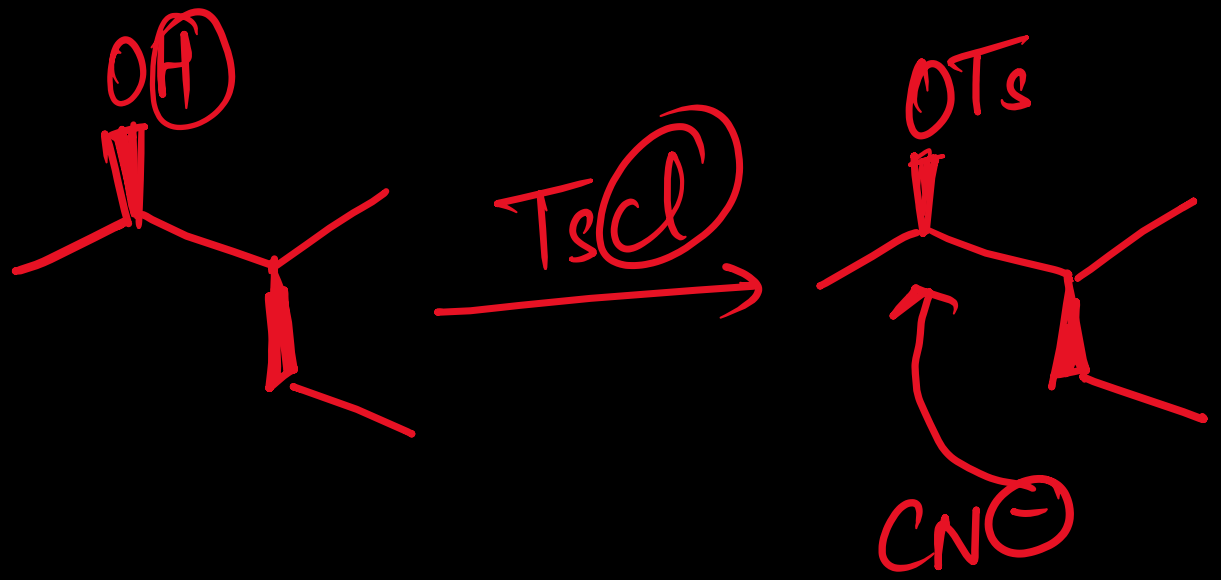
The major product of the following reaction contains _____bromine atom(s)

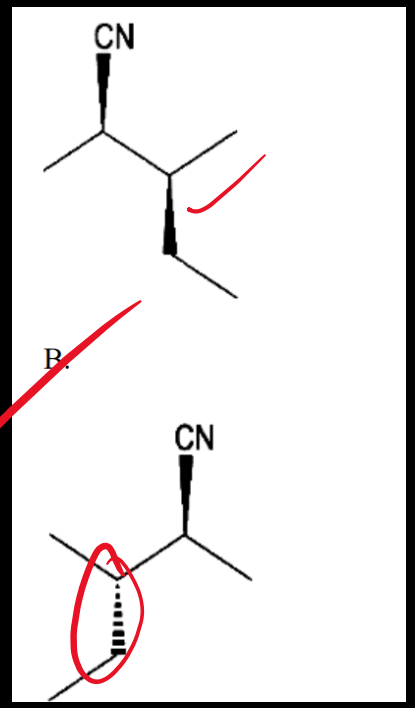


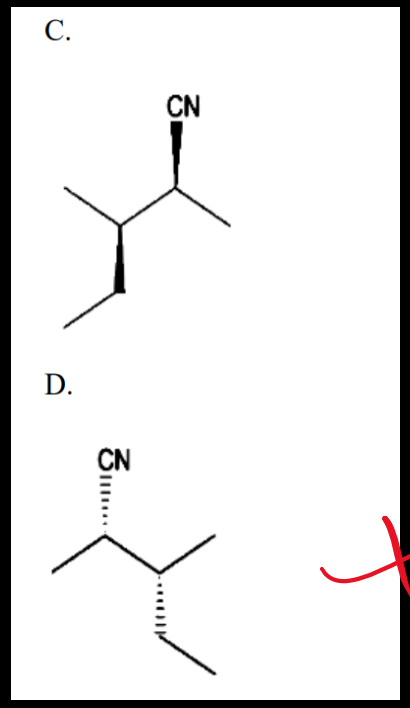


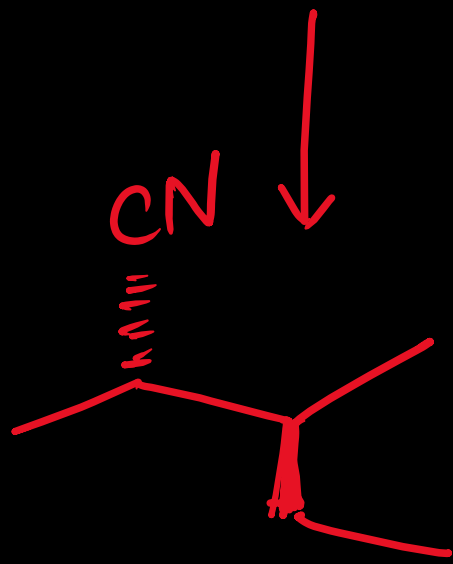



OH
(i) H_3C — SO_2Cl, Pyridine
(ii) NaCN, DMF

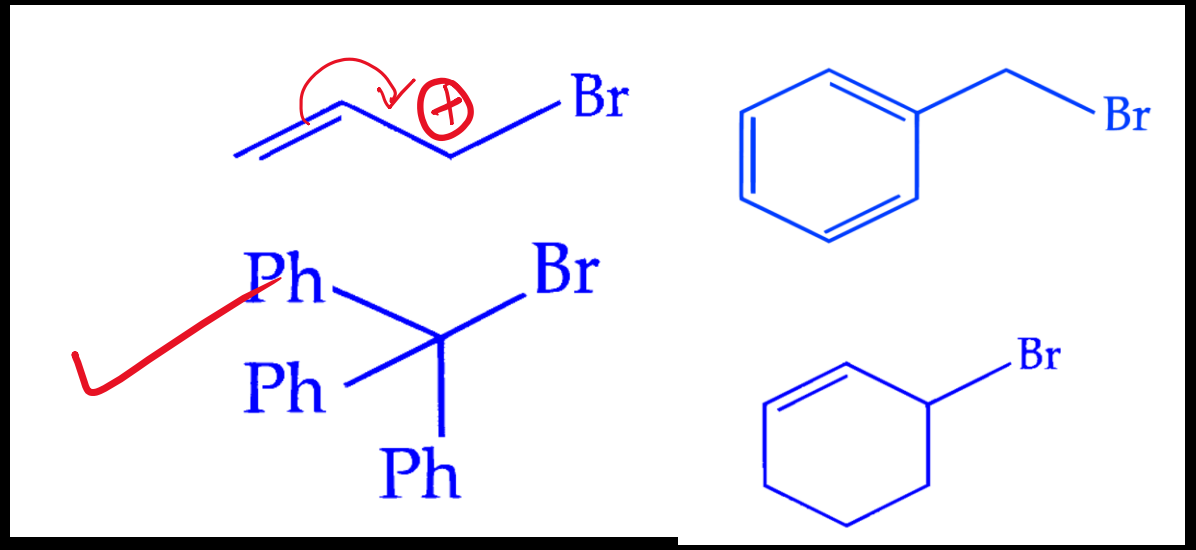

OH
TsCl
OTs
CN⊖

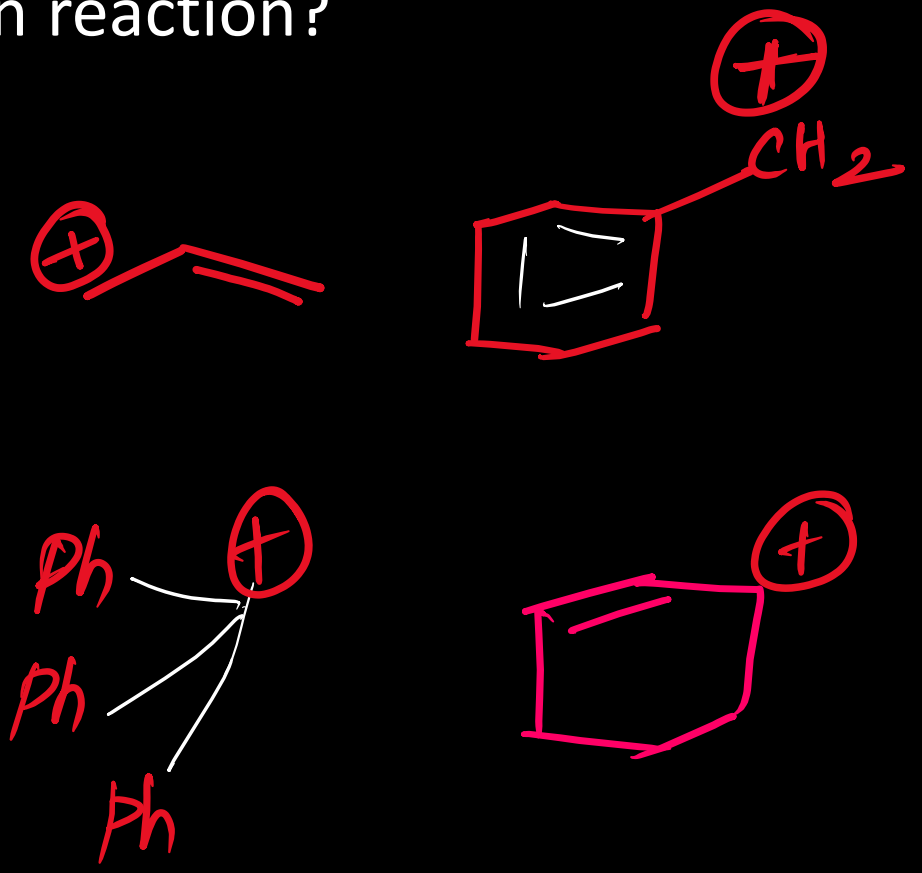

CN
B.
CN


C.
CN
D.
CN

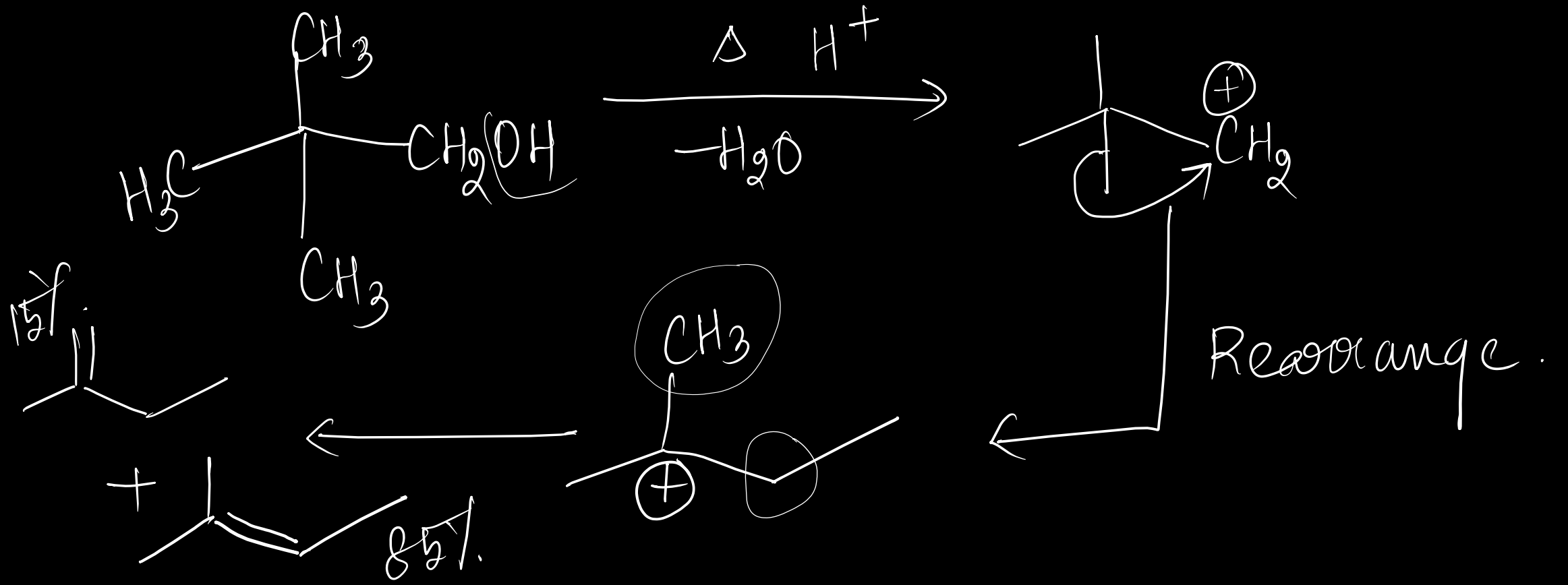

CN

Which among the following halides will generate the most stable carbocation in the nucleophilic substitution reaction?





When neopentyl alcohol is heated with an acid, it slowly converted into an 85: 15 mixture of alkenes A and B, respectively. What are these alkenes?



TOP 50 Organic Chemistry Questions

14.Amongst the following alcohols which would react fastest with conc. HCl and $ZnCl_2$? [Online April 22, 2013]

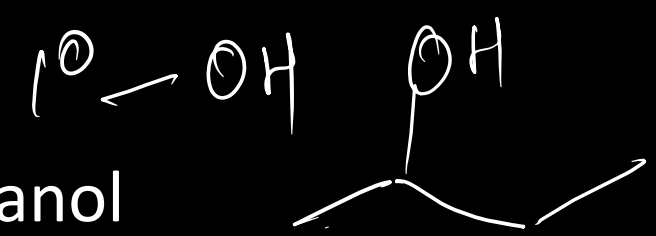
Options:

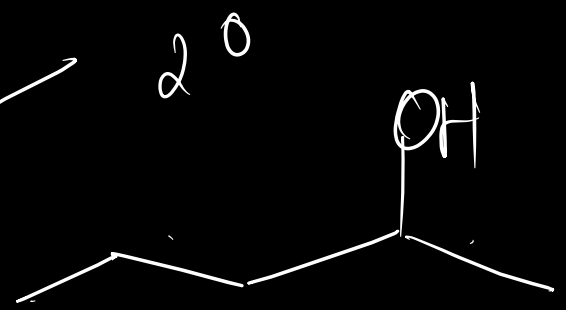
A. pentanol

B. 2 -methyl butanol

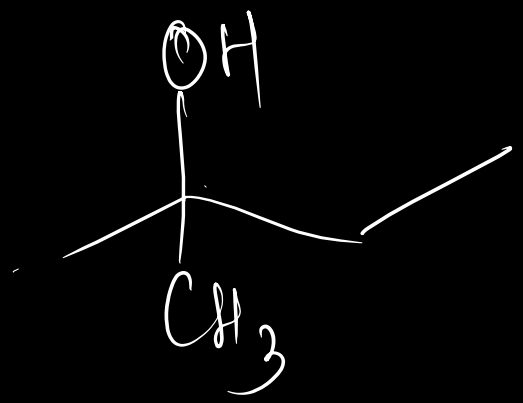
C. 2 -pentanol

D. 2 -methyl butan-2-ol

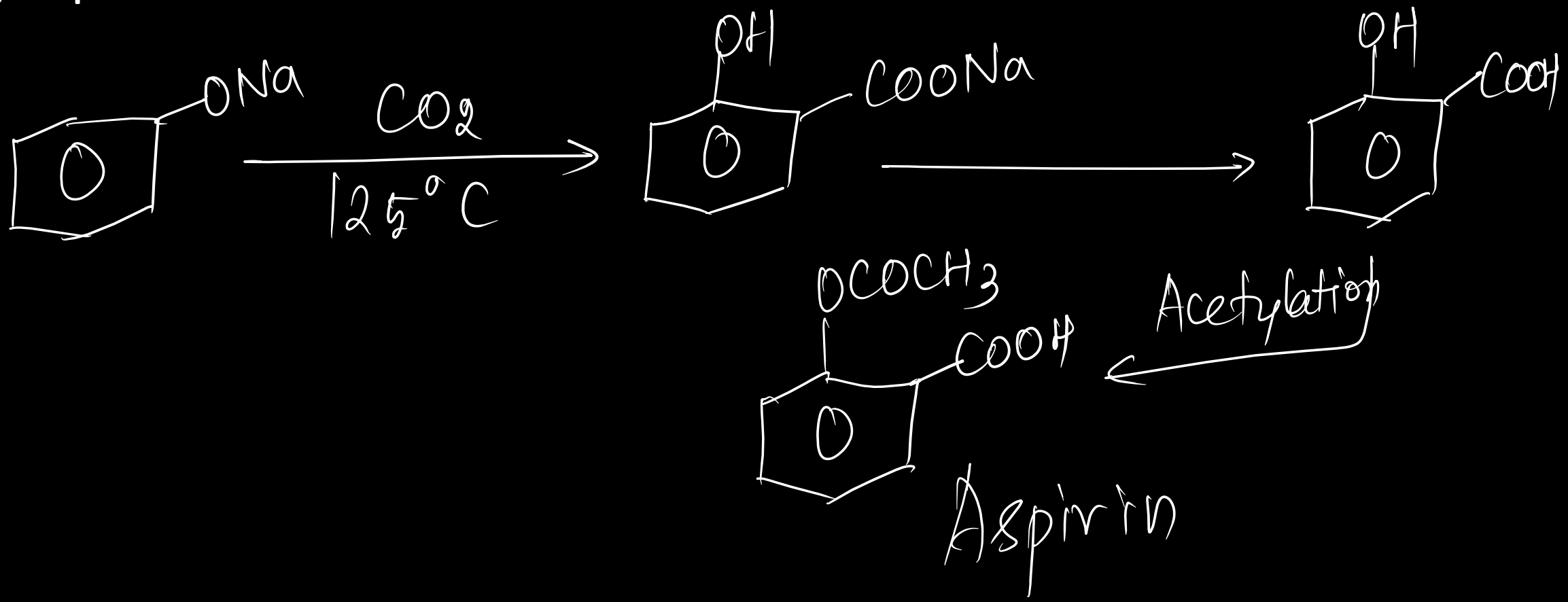




Lucas test



Sodium phenoxide when heated with CO_2 under pressure at 125°C yields a product which on acetylation produces C. The major product C would be



The incorrect statements regarding geometrical isomerism are :

(A) Propene shows geometrical isomerism.

(B) Trans isomer has identical atoms/groups on the opposite sides of the double bond.

(C) Cis-but-2-ene has higher dipole moment than trans-but-2-ene.

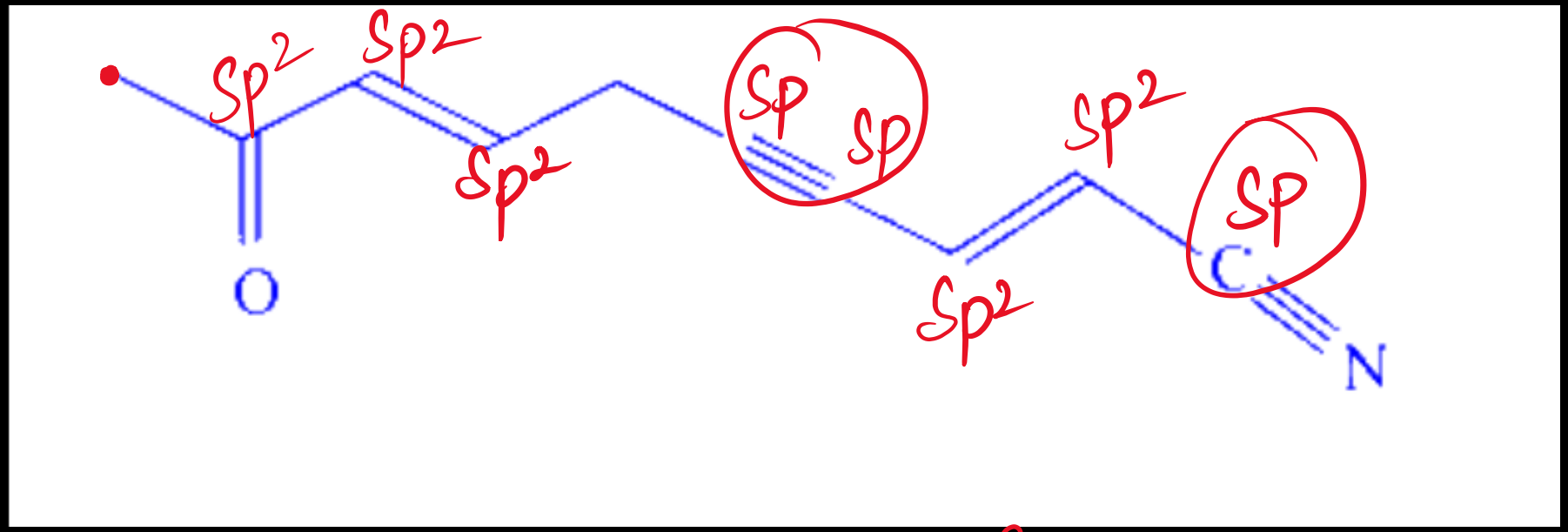
(D) 2-methylbut-2-ene shows two geometrical isomers.

(E) Trans-isomer has lower melting point than cis isomer.

Choose the correct answer from the options given below :

TOP 50 Organic Chemistry Questions

In the given structure, number of sp^2 and sp hybridized carbon atoms present respectively are :



3-Sp, 5-Sp2

Consider the following reaction The correct statement for product B is.

It is

CH_3-CH_2-CHO

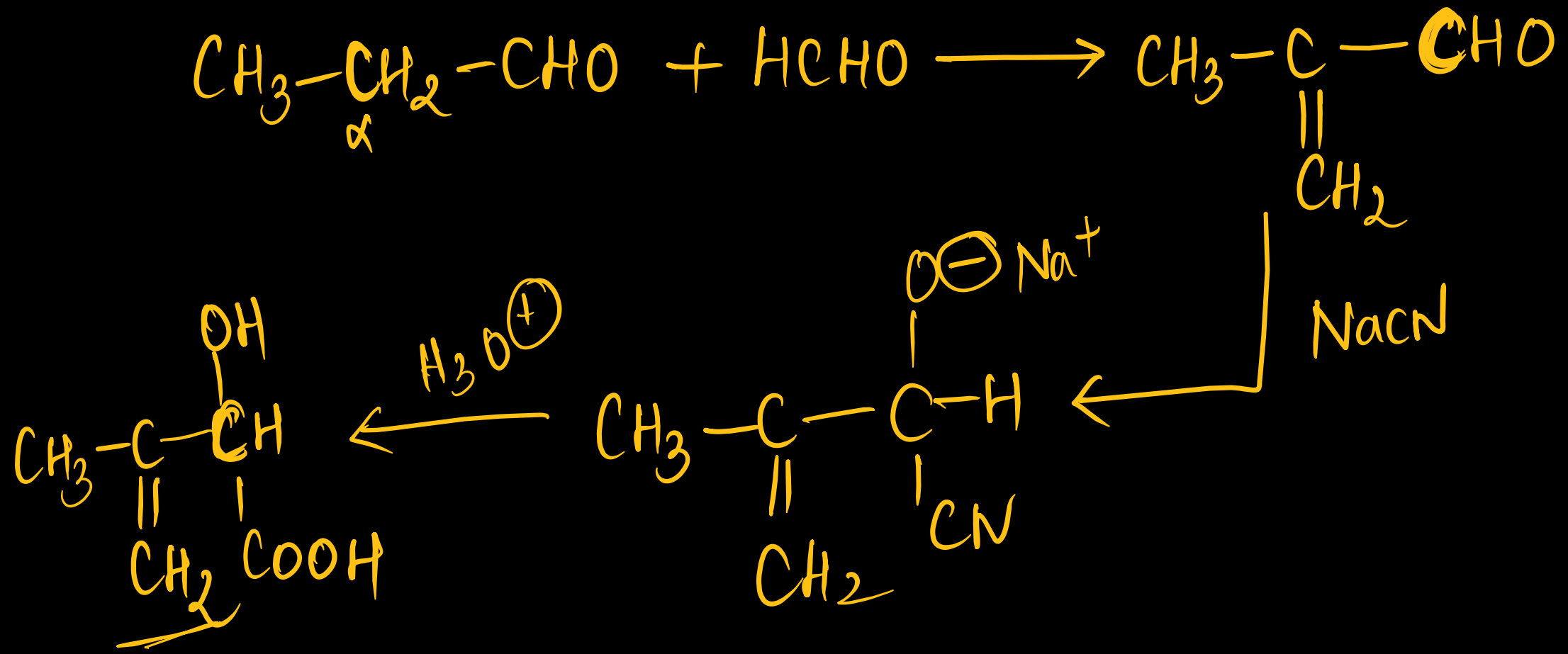
Options:

A. optically active and adds one mole of bromine

B. racemic mixture and is neutral

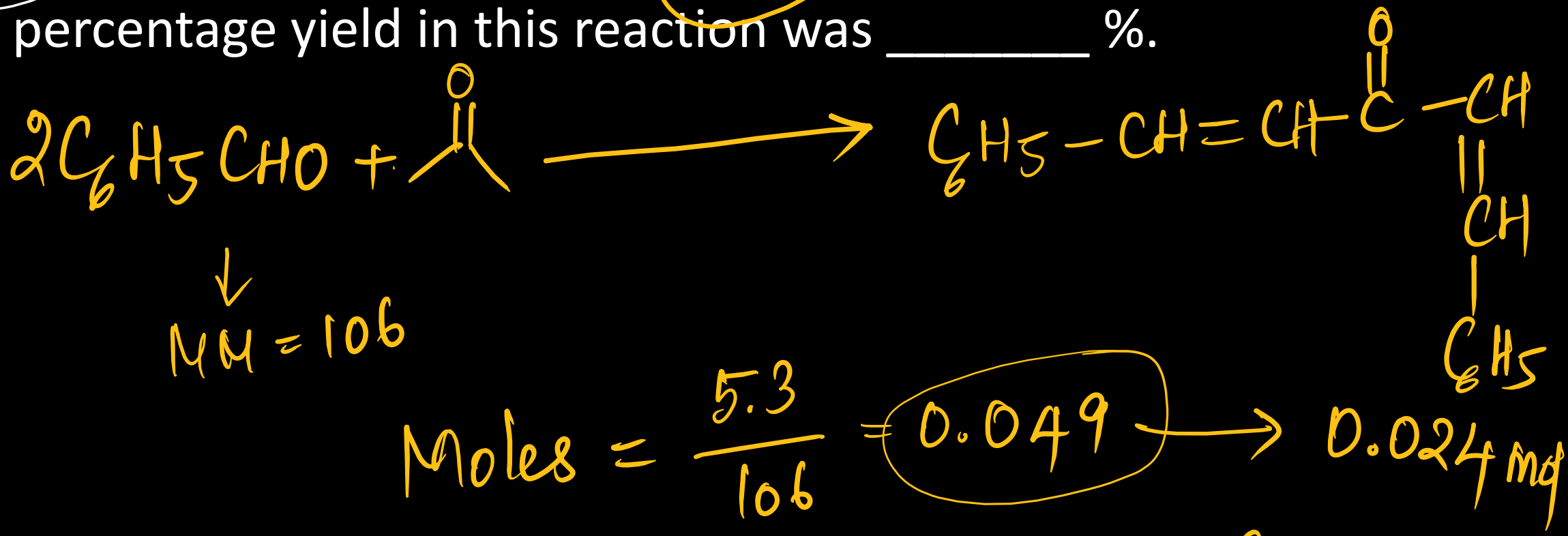
C. racemic mixture and gives a gas with saturated NaHCO3 solution

D. optically active alcohol and is neutral


CH3-CH2-CHO + HCHO
α
CH3-C(=CH2)-CHO
NaCN
CH3-C(=CH2)-CH(CN)-C(=O⊖ Na⊕)-H
H3O⊕
CH3-C(=CH2)-CH(COOH)-C(OH)-H

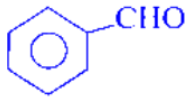
Kjeldahl's method was used for the estimation of nitrogen in an organic compound. The ammonia evolved from 0.55g of the compound neutralised 12.5 mL of 1MH_2SO_4 solution. The percentage of nitrogen in the compound is_

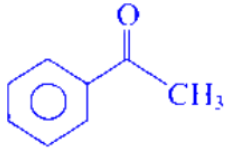
In the Claisen-Schmidt reaction to prepare, dibenzalacetone from 5.3 g of benzaldehyde, a total of 3.51 g of product was obtained. The percentage yield in this reaction was _____ %.



$$\% \text{ yield} = \frac{3.519}{5.85} \times 100$$

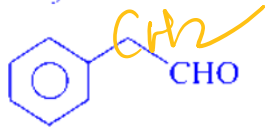
$$= 60\%$$

(A) 

(B) 

(C) $HOCH_2 - CO - (CHOH)_3 - CH_2 - OH$

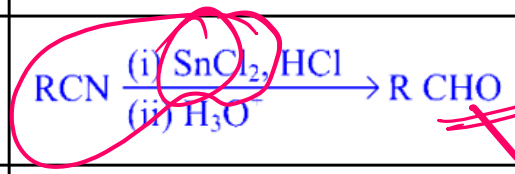
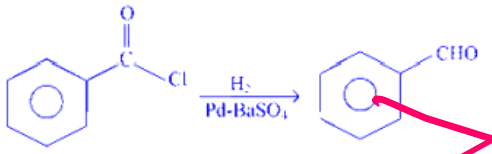
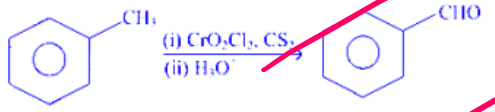
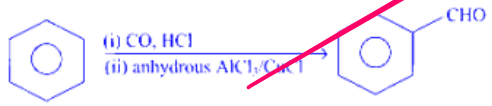
(D) $CH_3 - \overset{O}{\overset{\|}{C}} - H$

(E) 

The compounds which give positive Fehling's test are

Aliphatic CHO

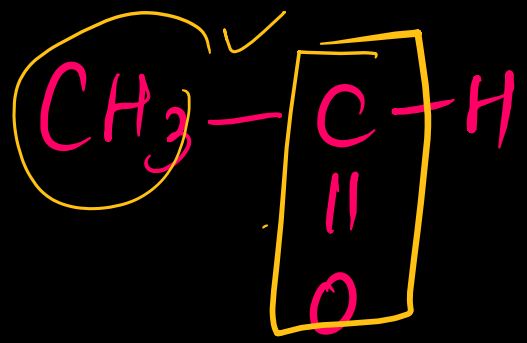
Match List - I with List - II.

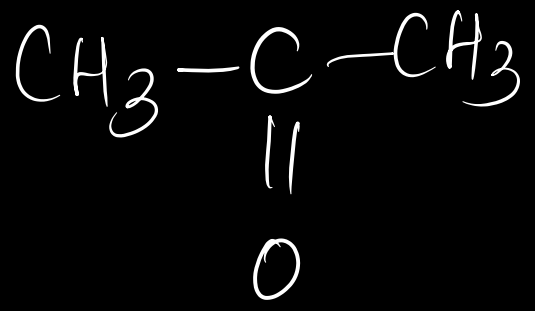
	List - I		List - II
(A)		(I)	Etard reaction
(B)		(II)	Gatterman-Koch reaction
(C)		(III)	Rosenmund reduction
(D)		(IV)	Stephen reaction

TOP 50 Organic Chemistry Questions

Both acetaldehyde and acetone (individually) undergo which of the following reactions?

A. Iodoform Reaction
B. Cannizaro Reaction
C. Aldol Condensation
D. Tollen's Test
E. Clemmensen Reduction





No α.

α-H

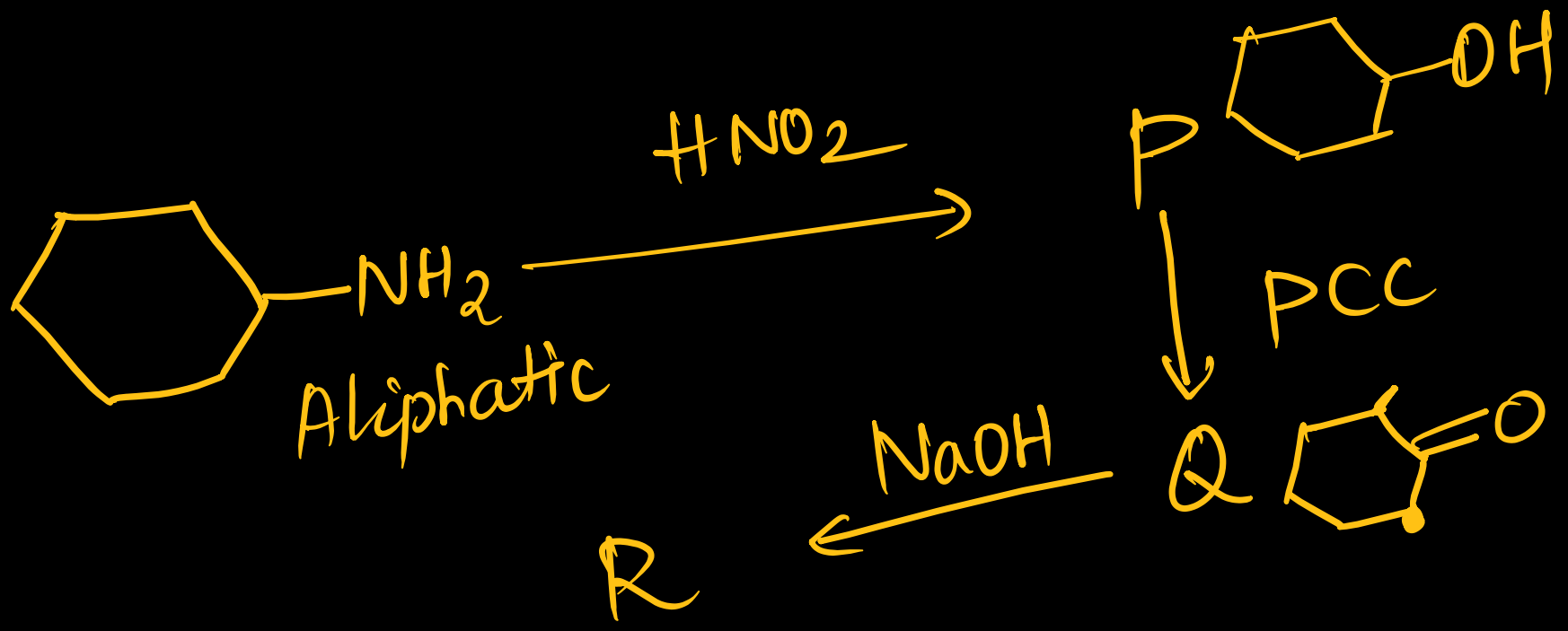
CH_3-CH_3

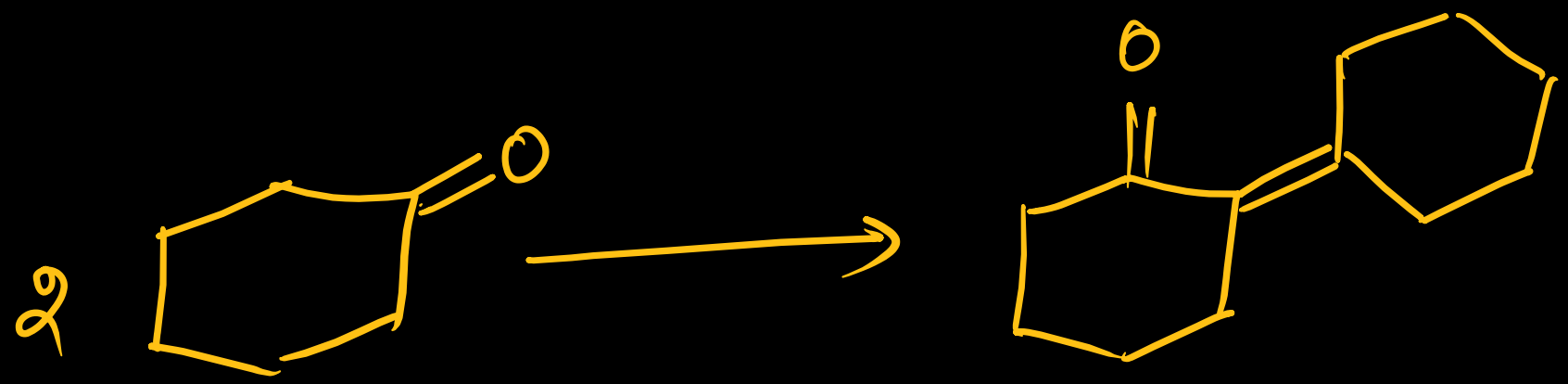
$CH_3-CH_2-CH_3$

A, C, E

TOP 50 Organic Chemistry Questions

Cyclohexylamine when treated with nitrous acid yields (P). On treating (P) with PCC results in (Q). When (Q) is heated with dil. NaOH we get (R) The final product (R) is:





25.Among the following, the number of compounds which will give positive iodoform reaction is___

(a) 1-Phenylbutan-2-one

(b) 2-Methylbutan-2-ol

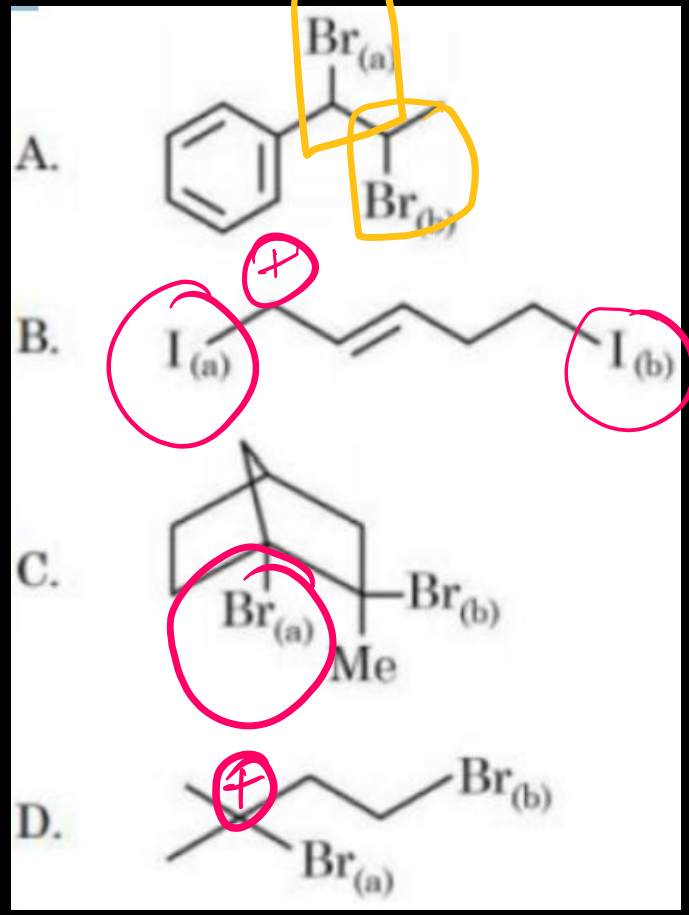
(c) 3-Methylbutan-2-ol

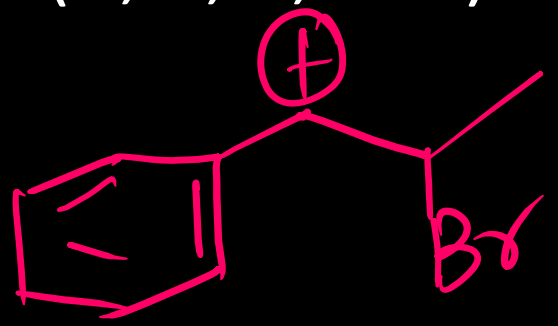
(d) 1-Phenylethanol

(e) 3,3-dimethylbutan-2-one

(f) 1-Phenylpropan-2-ol

Choose the halogen which is most reactive towards SN 1 reaction in the given compounds (A, B, C, & D)



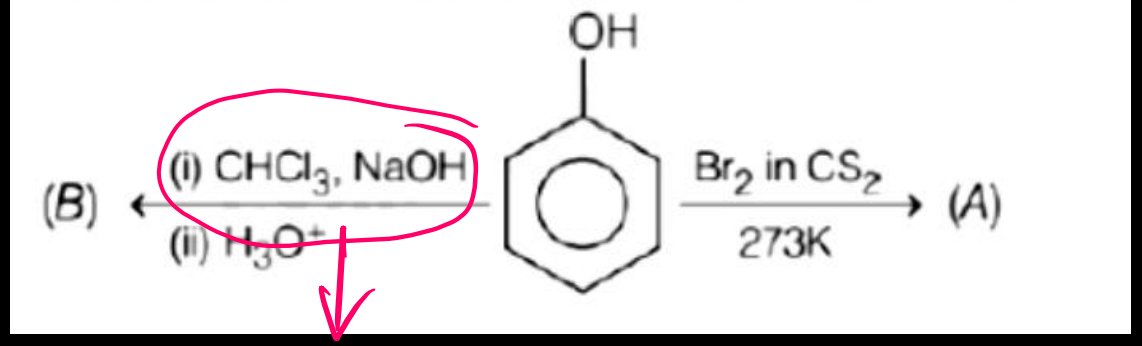


$1^0 < 2^0 < 3^0$

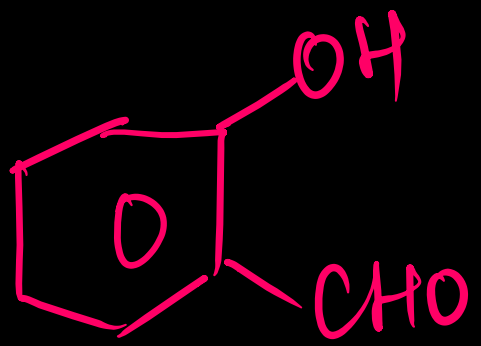
A – $Br_{(a)}$ B – $I_{(a)}$

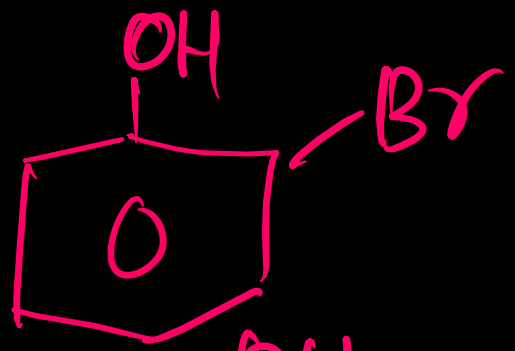
C – $Br_{(b)}$ D – $Br_{(a)}$

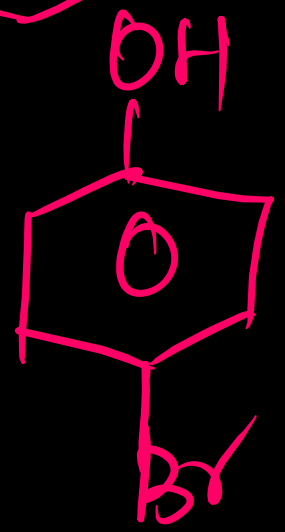
Identify the major products A and B respec



Reimer

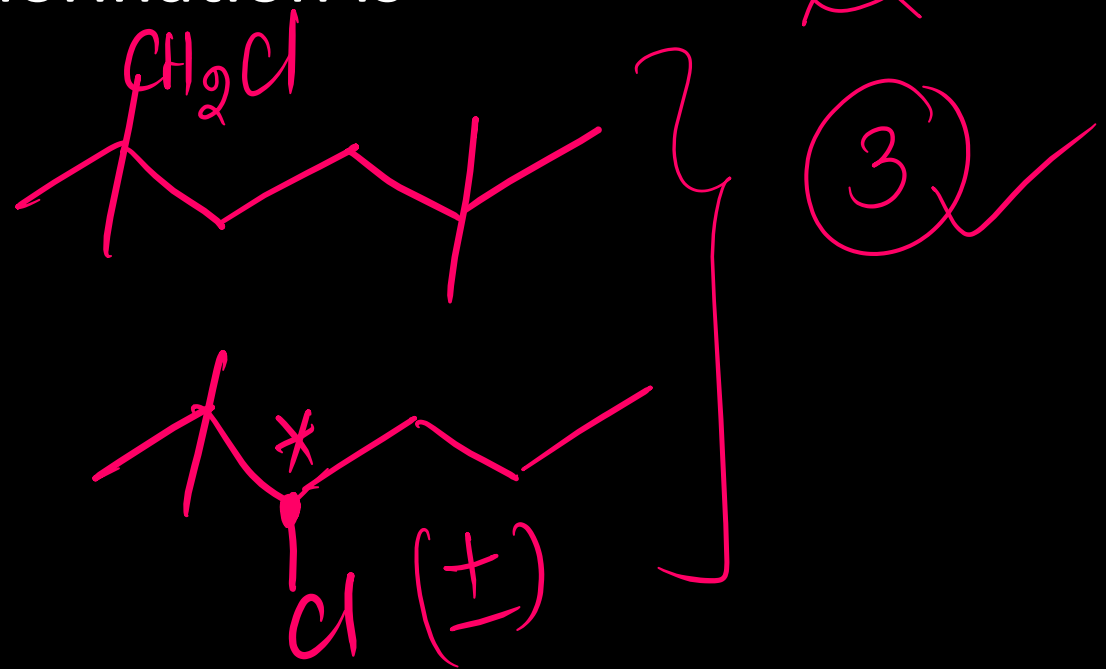






Organic Chemistry Questions

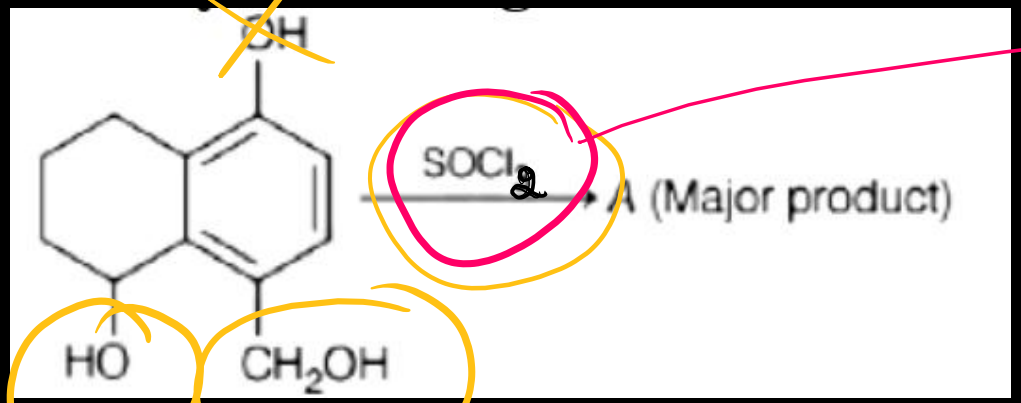
Maximum number of isomeric monochloro derivatives which can be obtained from 2,2,5,5 tetramethylhexane by chlorination is



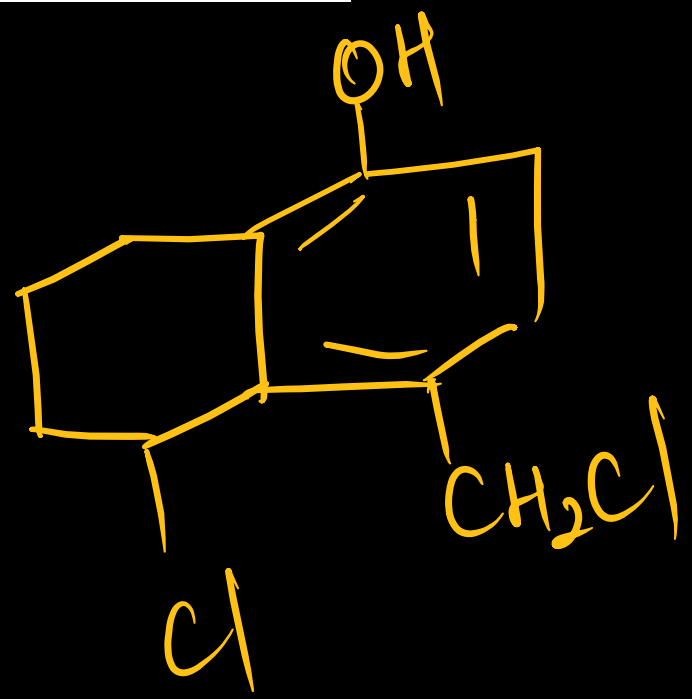
~~2~~

3

TOP 50 Organic Chemistry Questions

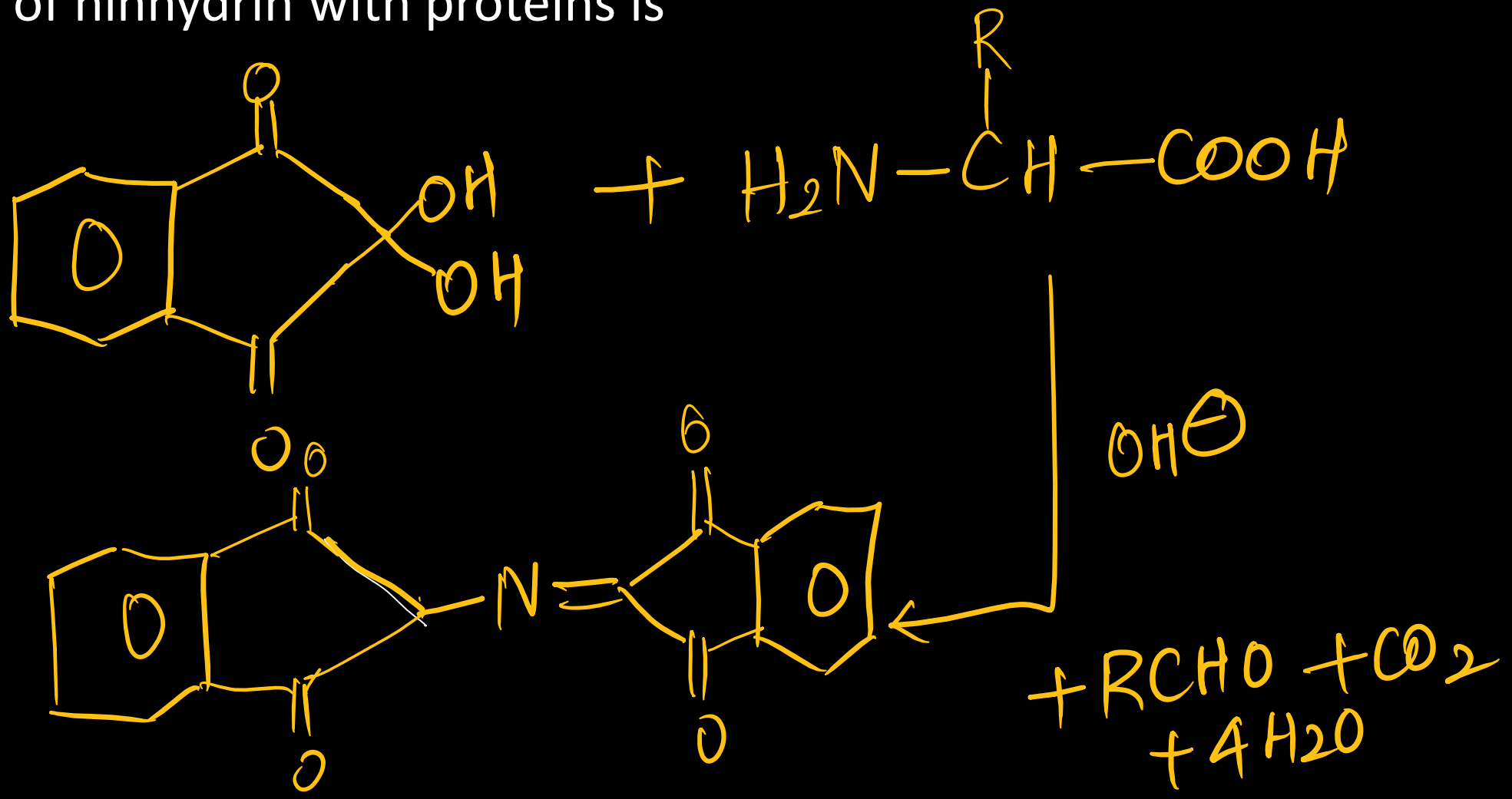


→ Haloalkanes not acyl.



TOP 50 Organic Chemistry Questions

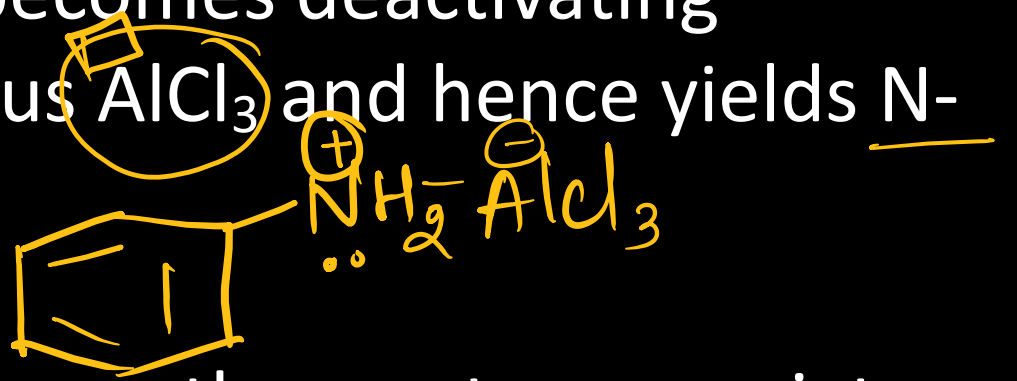
The correct structure of Rhumann's Purple, the compound formed in the reaction of ninhydrin with proteins is



30.Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : Experimental reaction of CH_3Cl with aniline and anhydrous AlCl3 does not give o and p methylaniline.

Reason (R): The $-NH_2$ group of aniline becomes deactivating because of salt formation with anhydrous $AlCl_3$ and hence yields N-methyl aniline as the product.



In the light of the above statements, choose the most appropriate answer from the options given below

The correct order in aqueous medium of basic strength in case of methyl substituted amines is :

A. $Me_2NH > MeNH_2 > Me_3N > NH_3$

B. $Me_2NH > Me_3N > MeNH_2 > NH_3$

C. $NH_3 > Me_3N > MeNH_2 > Me_2NH$

D. $Me_3N > Me_2NH > MeNH_2 > NH_3$

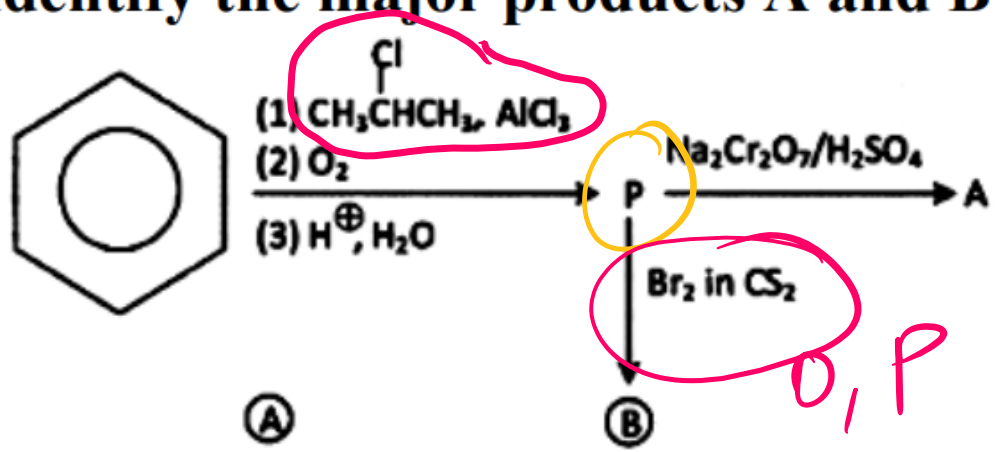
gaseous

$3^0 > 2^0 > 1^0$

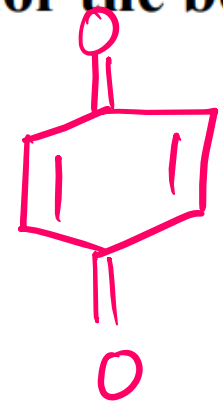
$2^0 > 3^0 > 1^0$

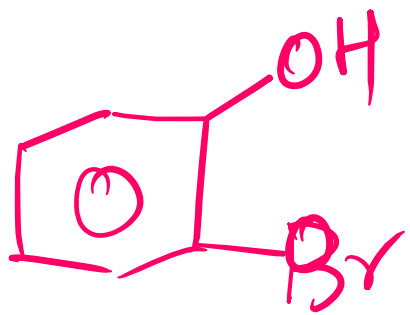
$2^0 > 1^0 > 3^0$

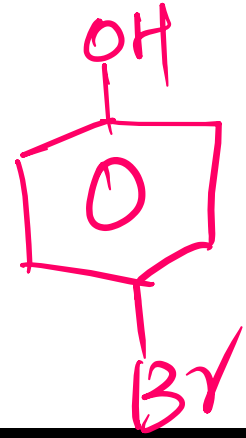
Identify the major products A and B for the below given reaction sequence.

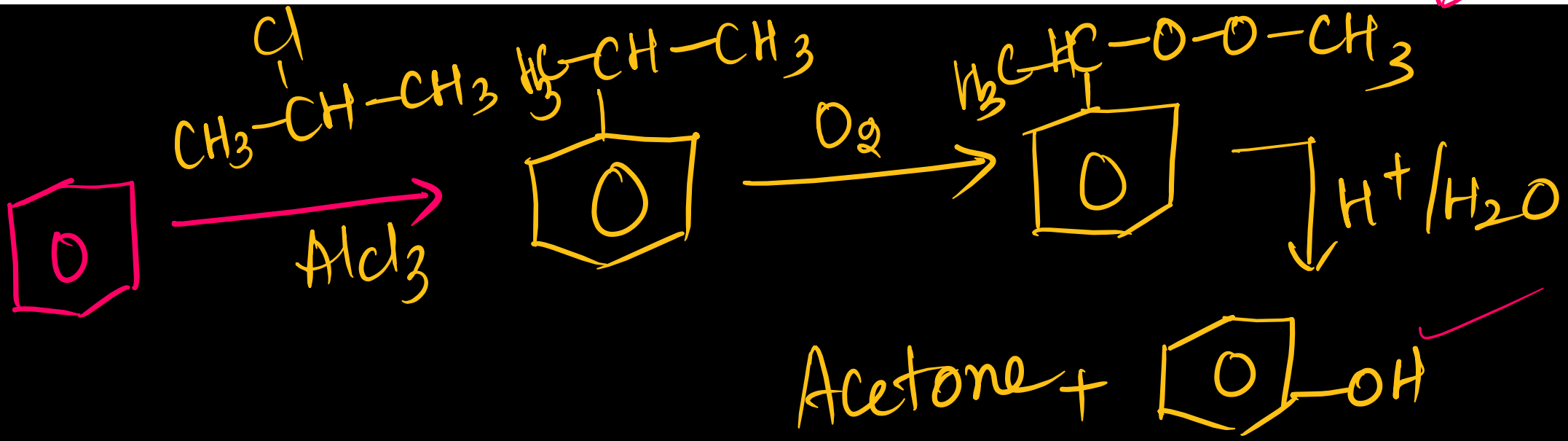


O, P

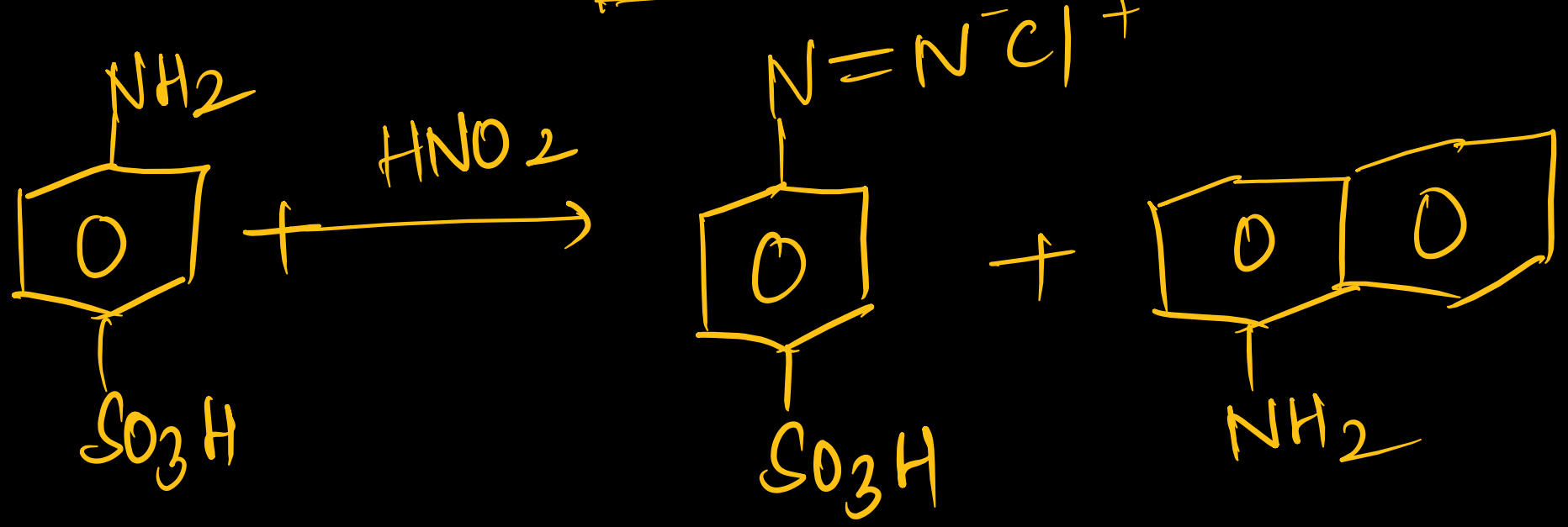




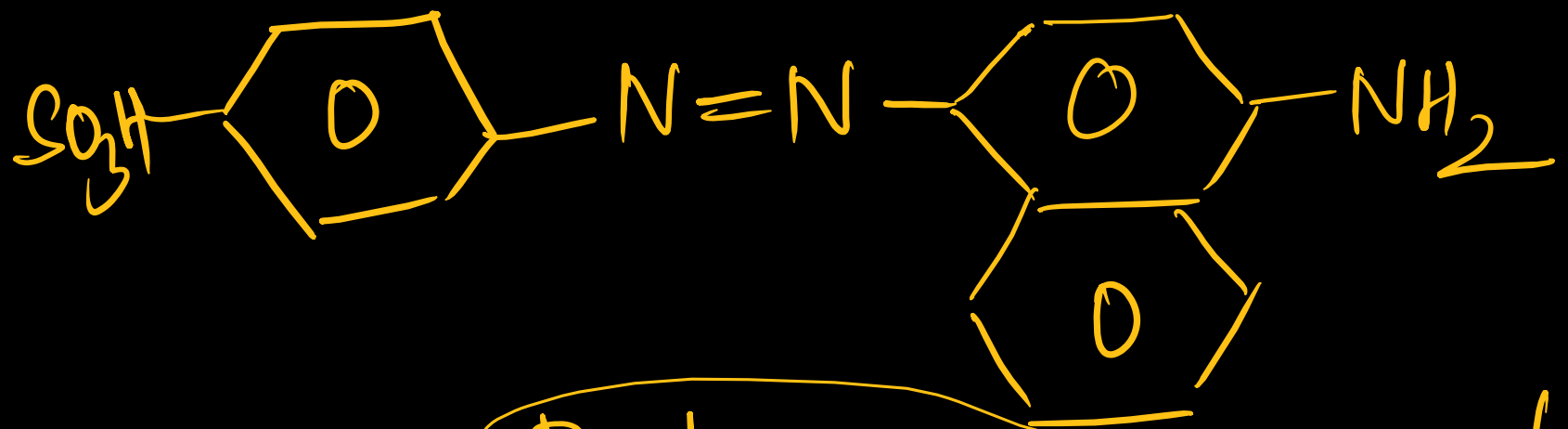




When a concentrated solution of sulphanilic acid and 1-naphthylamine is treated with nitrous acid and acidified with acetic acid, the mass of 0.1 mole of product formed is :



TOP 50 Organic Chemistry Questions



Red-azo dye. 327 g/mol.

$327 \times 0.1 = 32.7 \simeq 33\,g$

TOP 50 Organic Chemistry Questions

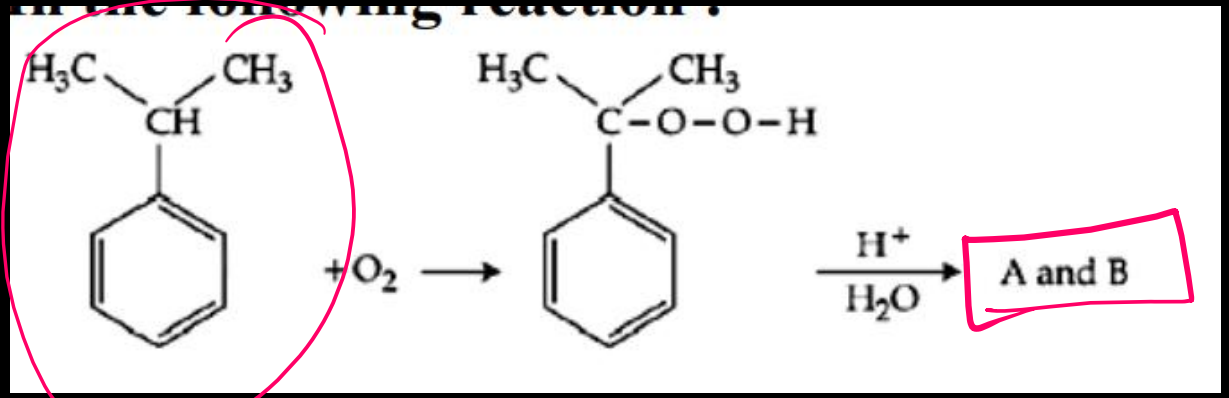
Ceric ammonium nitrate and $CHCl_3$ /alc. KOH are used for the identification of functional groups present in and respectively.

a. phenol, alcohol

b. amine, alcohol

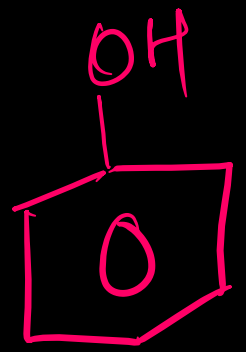
c. alcohol, amine

d. Amine, phenol.

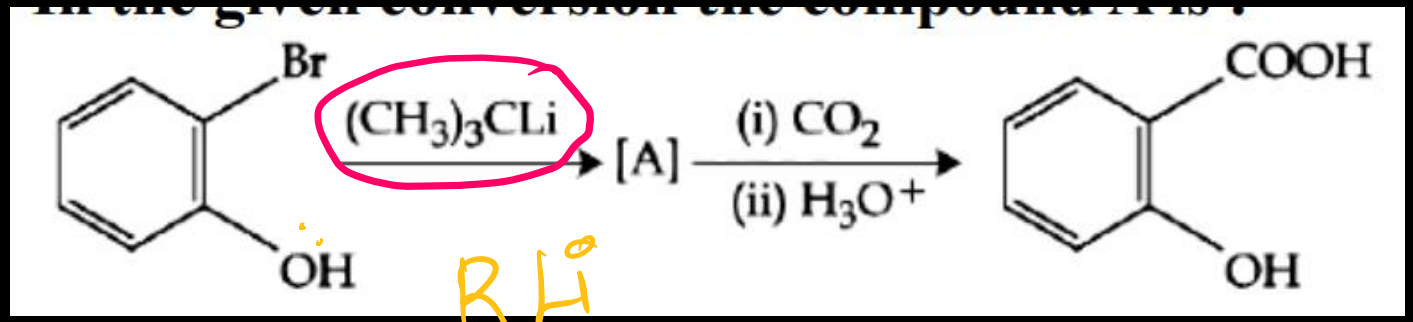


Cumene

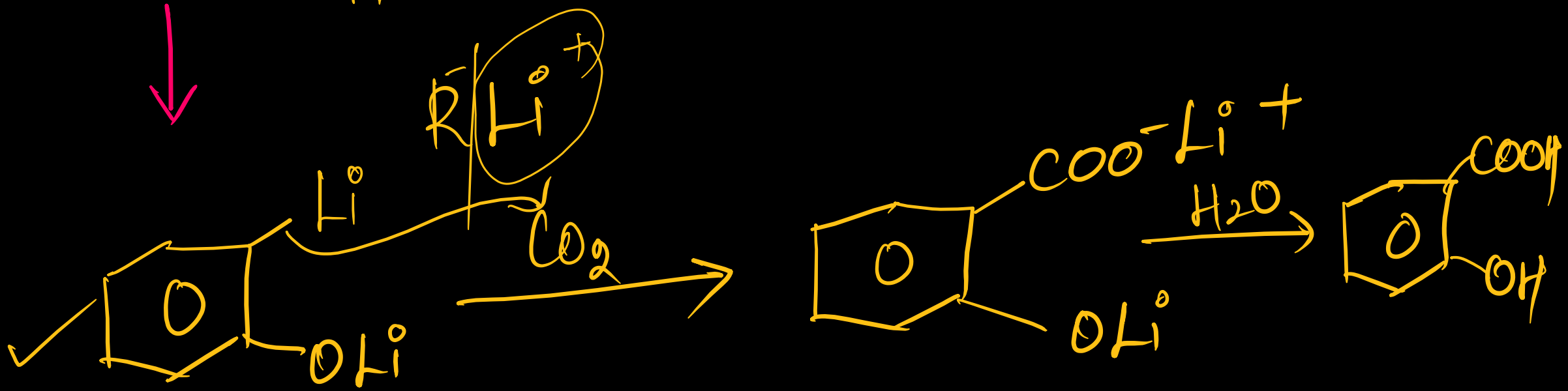
Cumene peroxide

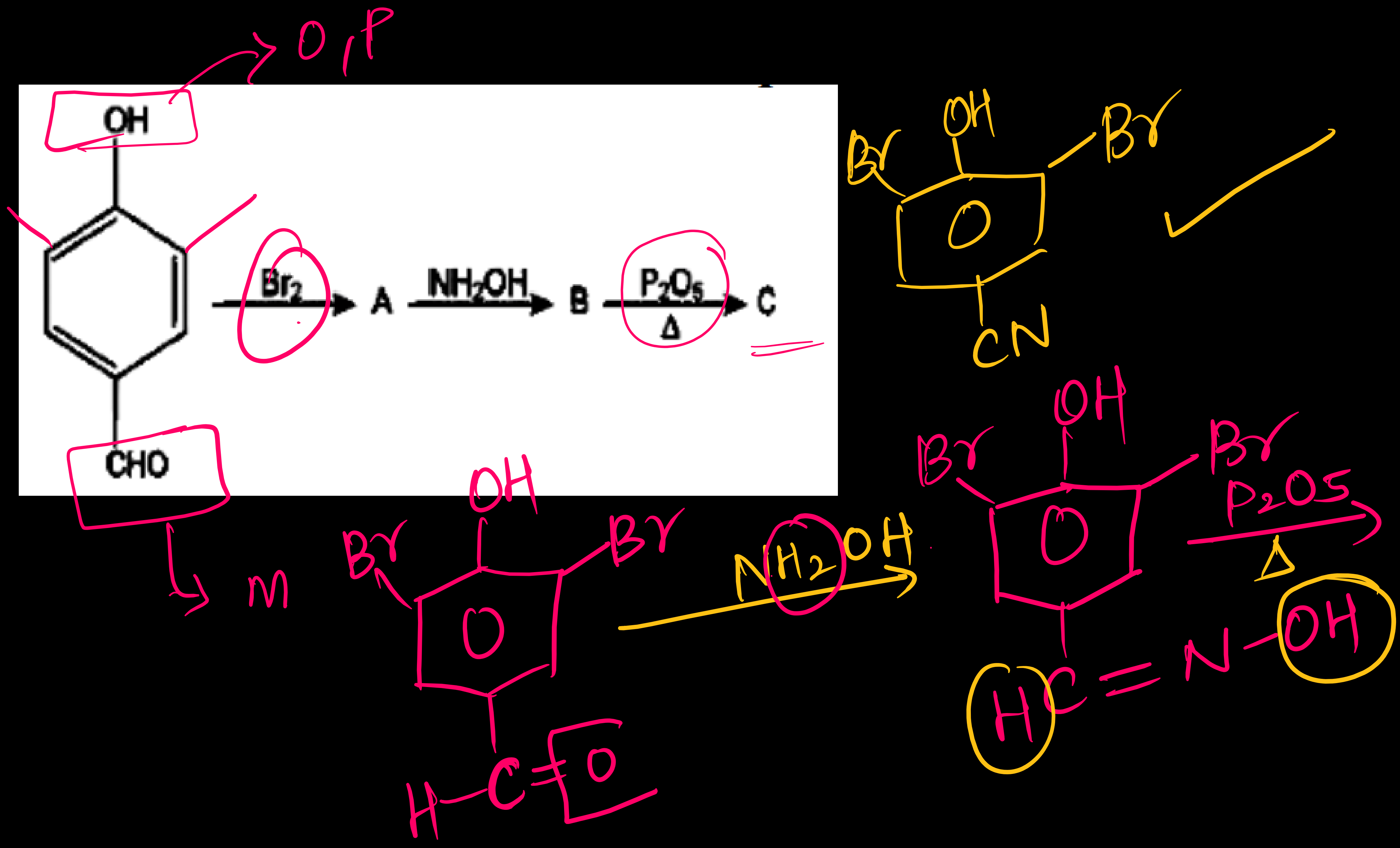


+ CH_3COCH_3.


Br
$(CH_3)_3CLi$
[A]
(i) CO_2
(ii) H_3O^+
COOH
OH
OH

RLi

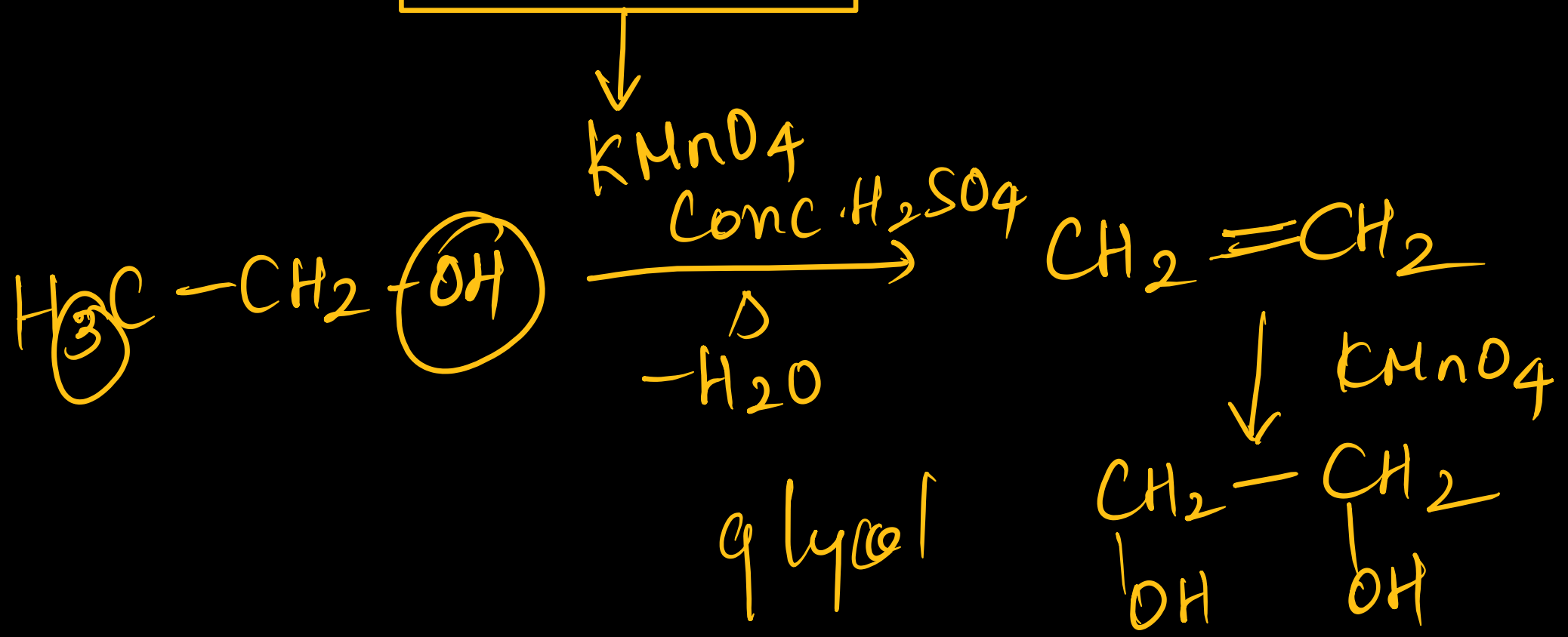

$R^- Li^+$
Li
CO_2
OLi
$COO^- Li^+$
H_2O
COOH
OH
OLi



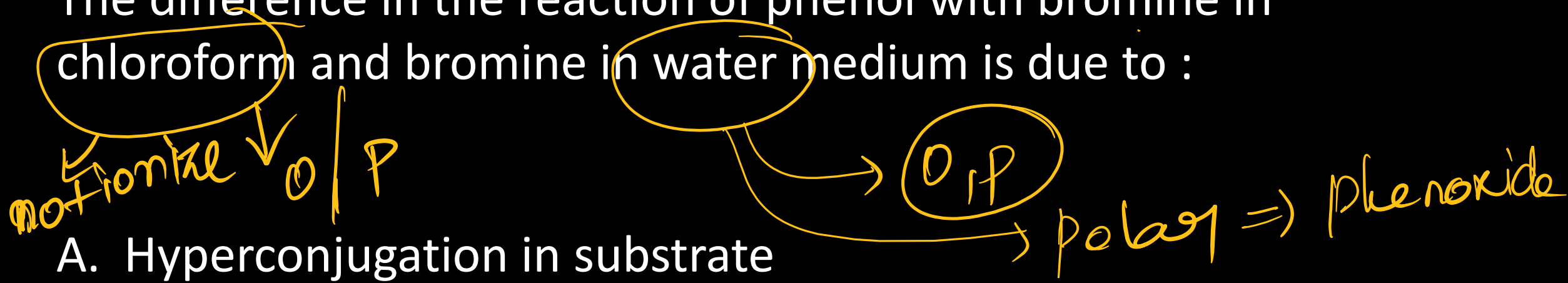
OH
CHO
Br_2
A
NH_2OH
B
P_2O_5
Δ
C

TOP 50 Organic Chemistry Questions

When ethanol is heated with conc. H_2SO_4 , a gas is produced. The compound formed, when this gas is treated with cold dilute aqueous solution of Baeyer's reagent, is



The difference in the reaction of phenol with bromine in chloroform and bromine in water medium is due to :



A. Hyperconjugation in substrate
B. Polarity of solvent
C. Free radical formation
D. Electromeric effect the substrate

Oxidation of toluene to benzaldehyde can be easily carried out with which of the following reagents? [26-Jun-2022-Shift-2]

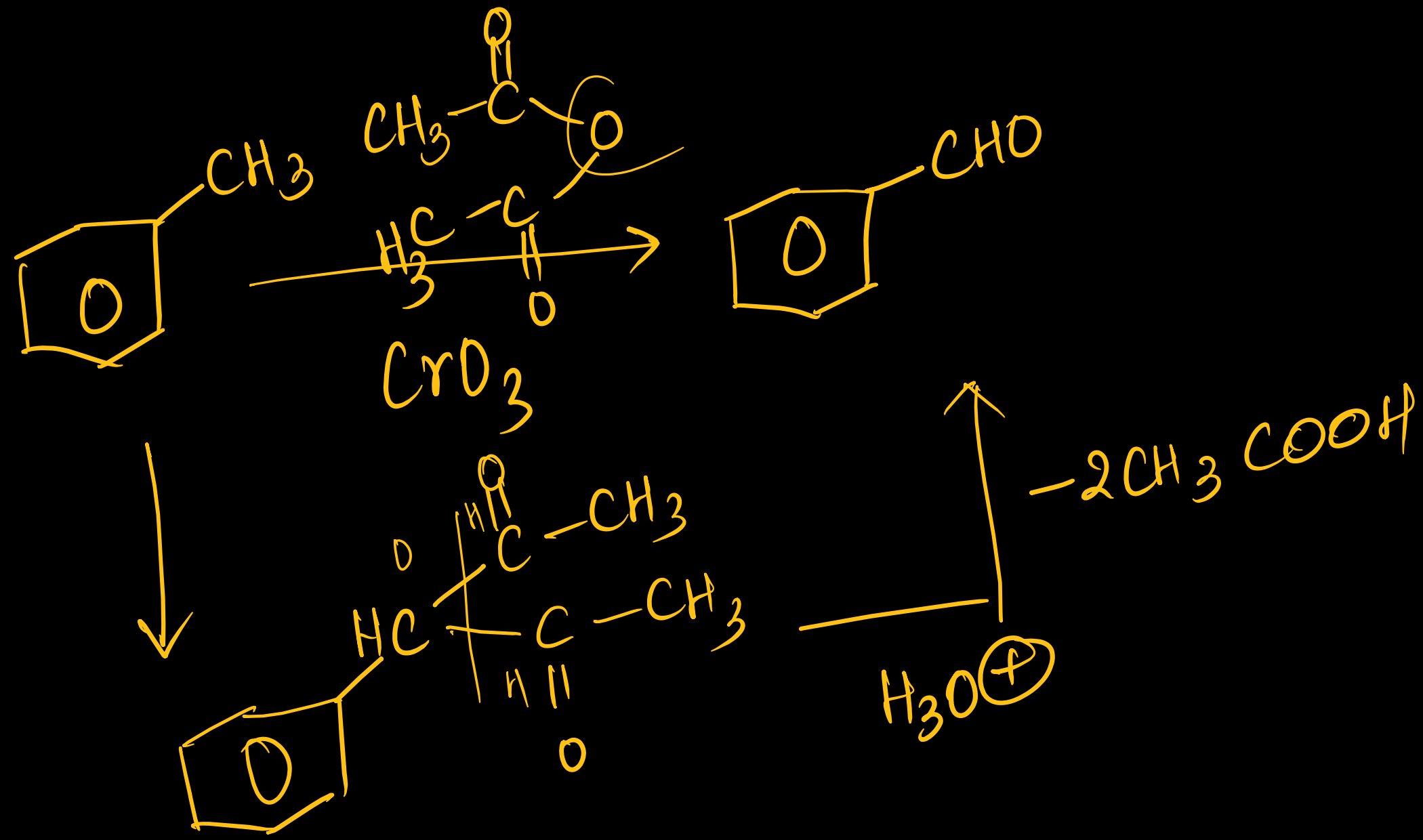
Options:

A. CrO_3 /acetic acid, H_3O^+

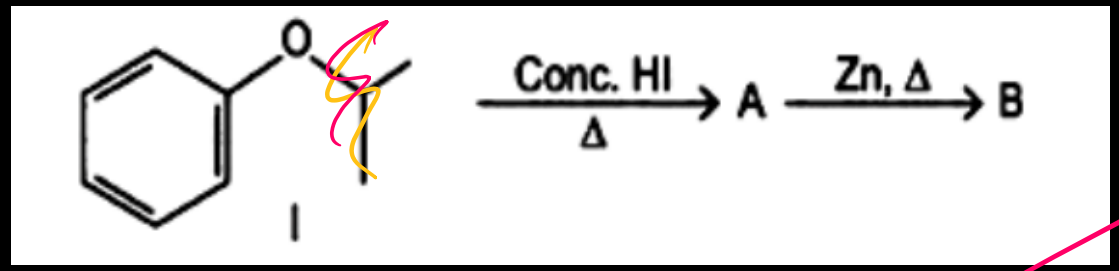
B. CrO_3 /acetic anhydride, H_3O^+

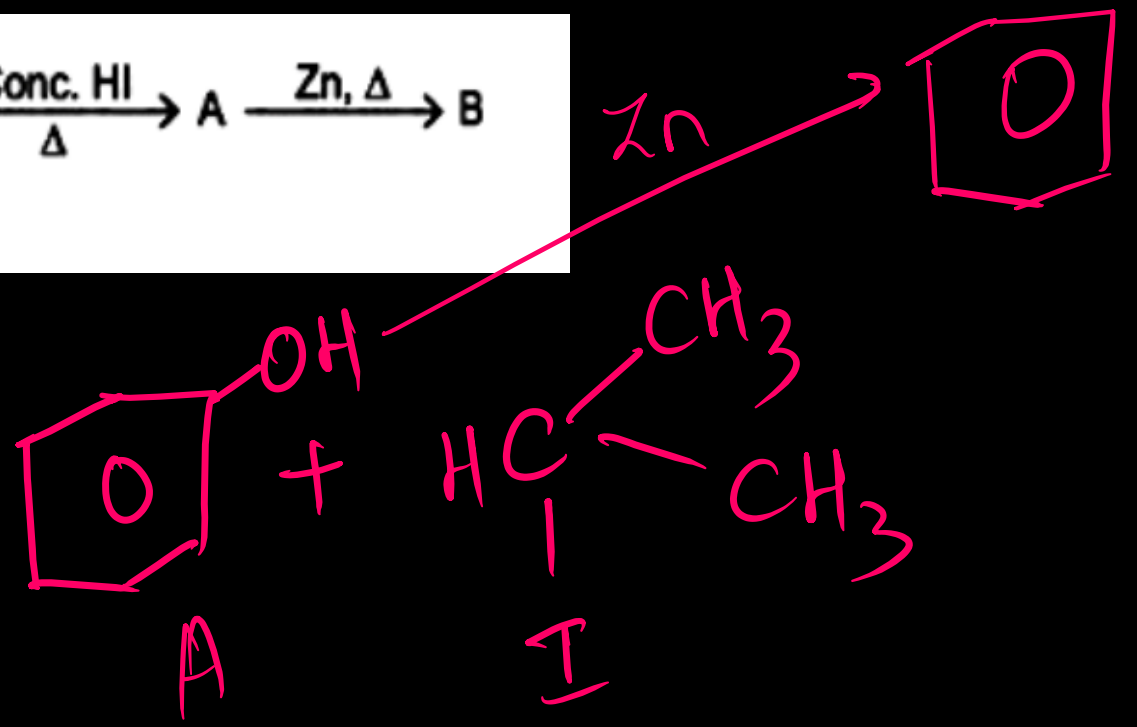
C. $KMnO_4$ / HCl, H_3O^+

D. CO / HCl, anhydrous $AlCl_3$

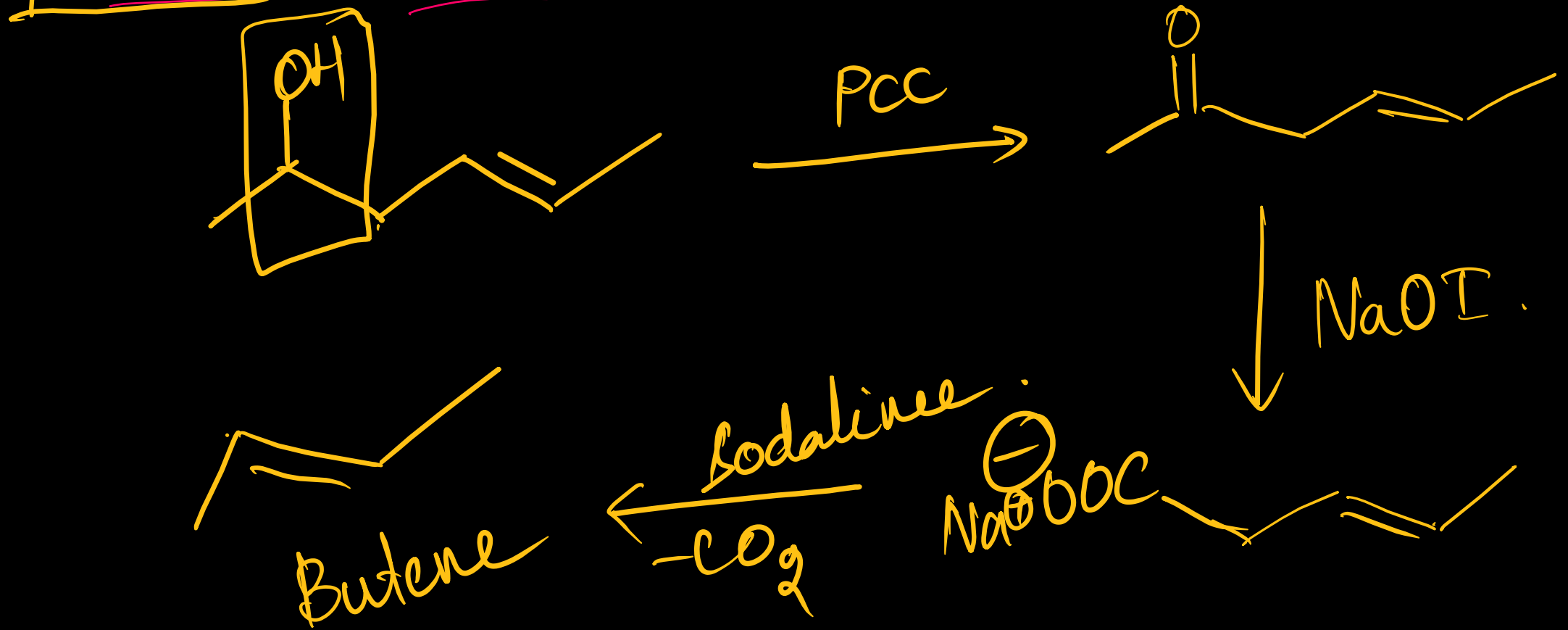

CH3
O
CH3
C
O
HC
C
H3
O
CHO
O
CrO3
HC
C
CH3
C
CH3
O
O
O
−2CH3COOH
H3O⊕

Compound I is heated with Conc. HI to give a hydroxy compound A which is further heated with Zn dust to give compound B. Identify A and B.



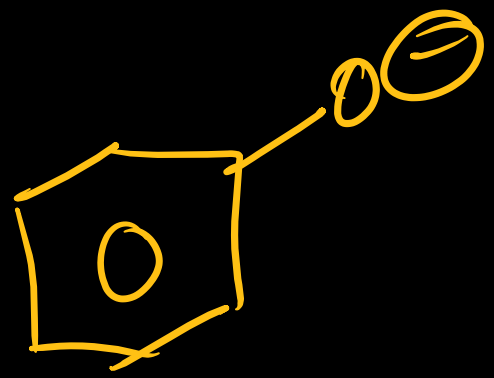


Hex-4-ene-2-ol on treatment with PCC gives 'A'. 'A' on reaction with sodium hypoiodite gives ' B ', which on further heating with soda lime gives ' C '. The compound ' C ' is



46. Statement I : Phenols are weakly acidic.

Statement II : Therefore they are freely soluble in NaOH solution and are weaker acids than alcohols and water. Choose the most appropriate option :



48.The separation of two coloured substances was done by paper chromatography. The distances travelled by solvent front, substance A and substance B from the base line are 3.25cm, 2.08cm and 1.05cm, respectively. The ratio of Rf values of A to B is

3.25, 2.08, 1.05

2:1

$$R_f = \frac{\text{distance travelled by Substance}}{\text{" by Solvent front}}$$

$$= \frac{2.08}{3.25} \neq \qquad A = \frac{1.05}{3.25}$$

50.In the estimation of bromine, 0.5g of an organic compound gave 0.40g of silver bromide. The percentage of bromine in the given compound is ____% (nearest integer) (Relative atomic masses of Ag and Br are 108u and 80u, respectively)

341.

188 g AgBr has 80g of Br

$\therefore$ 0.4g of AgBr $= \frac{80 \times 0.4}{188}$

% Br in Org. cpd $= \frac{80 \times 0.4}{188 \times 0.5} \times 100$