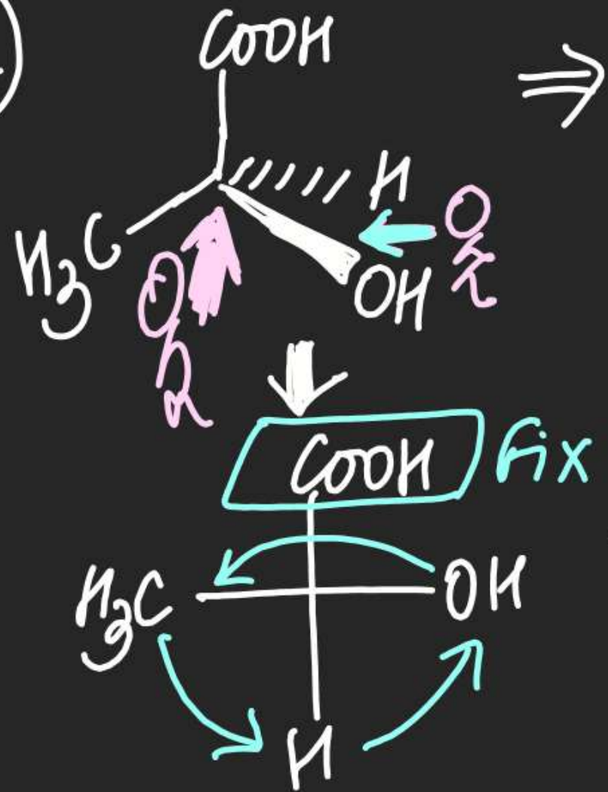
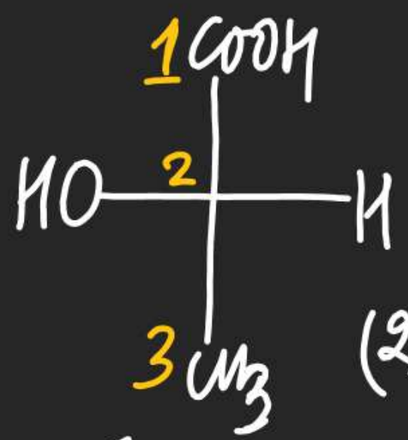
Nishant Jindal

(1)

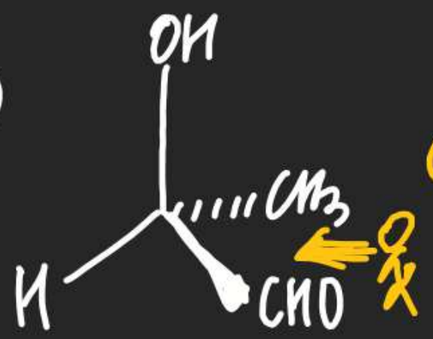


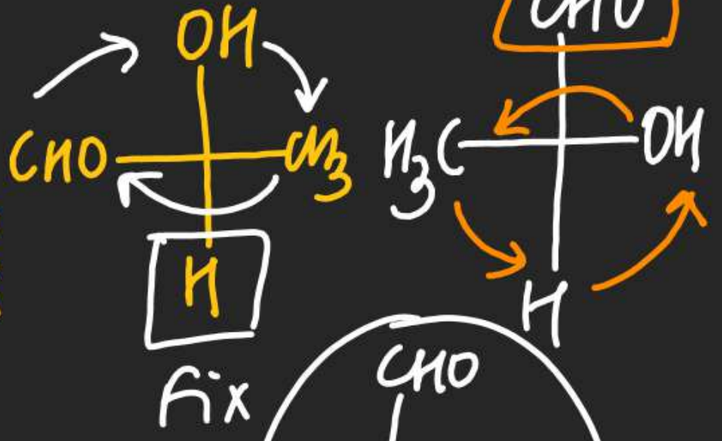
⇒



[Rule-1, Rule-2 & Rule-3]
Golden Rule Fischer

(2)

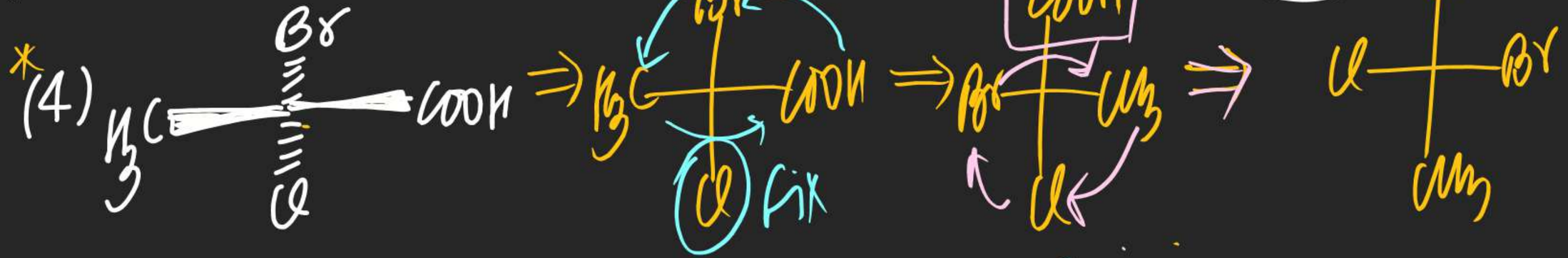




*(3)

[Rule-2 & Rule-3]

*(4)



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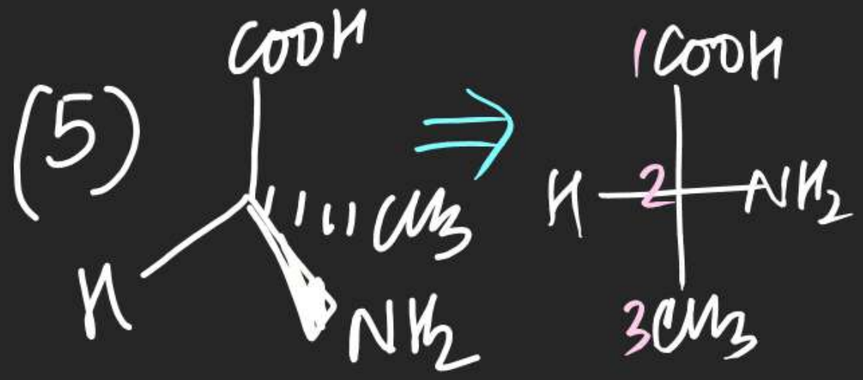
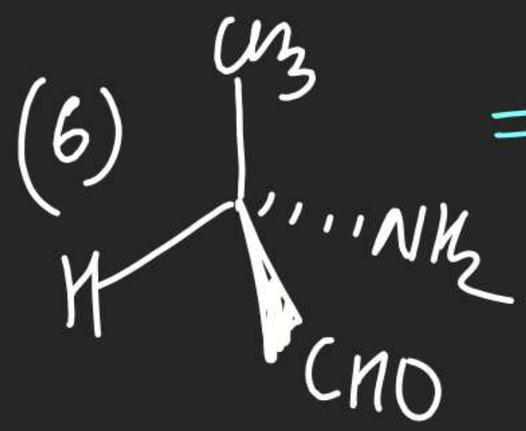
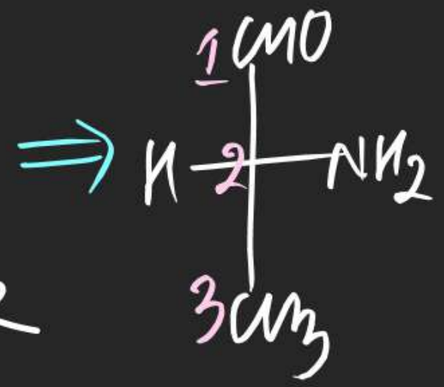
(5)



(6)





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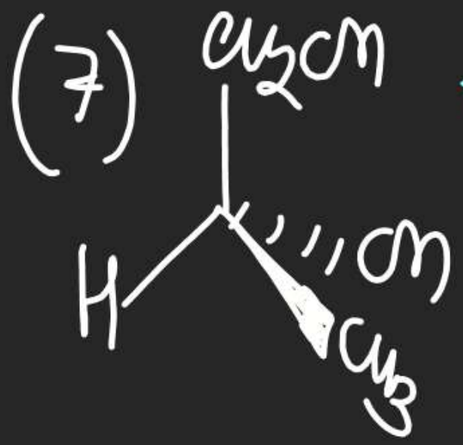

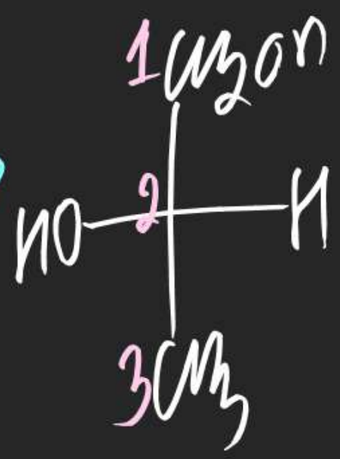

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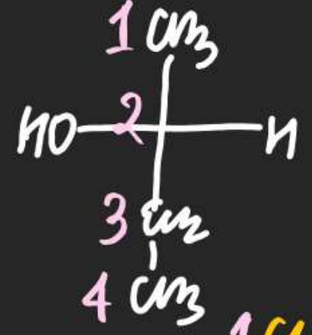

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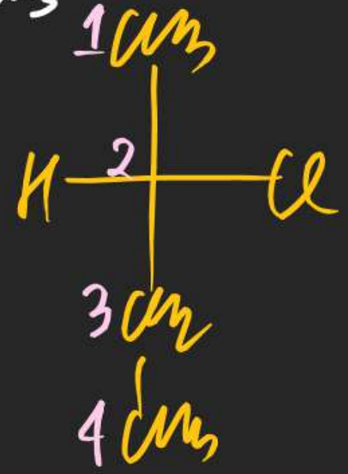

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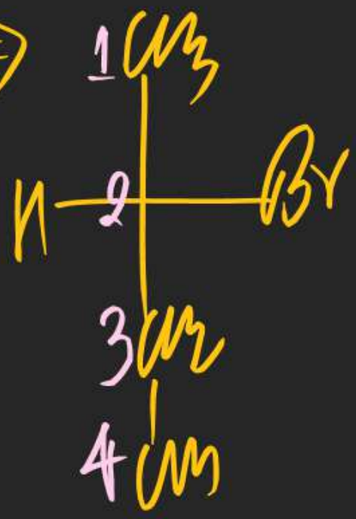

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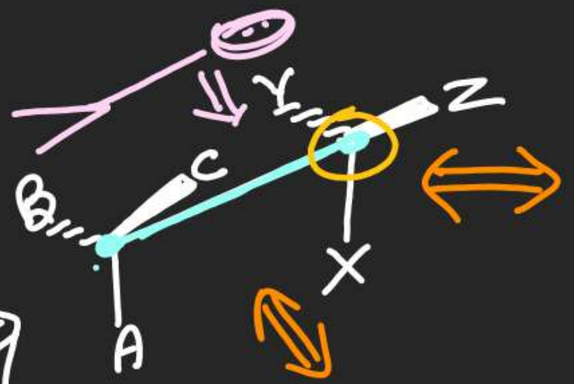
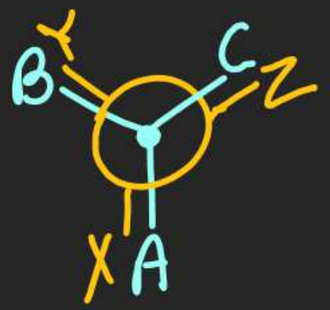
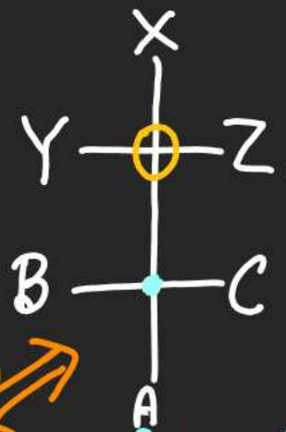
(11)



[Wedge-Dash formula]

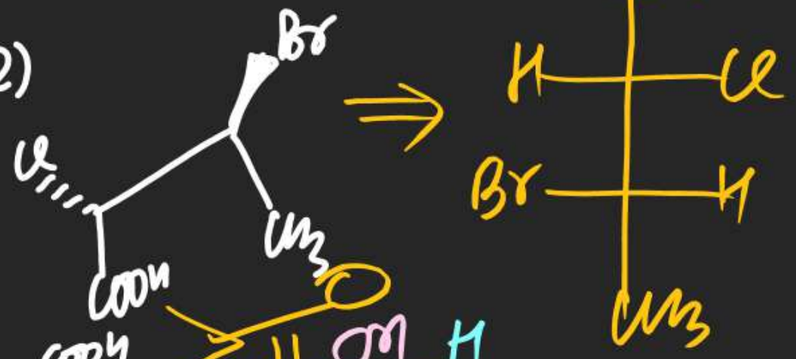


[Newmann Projection formula]



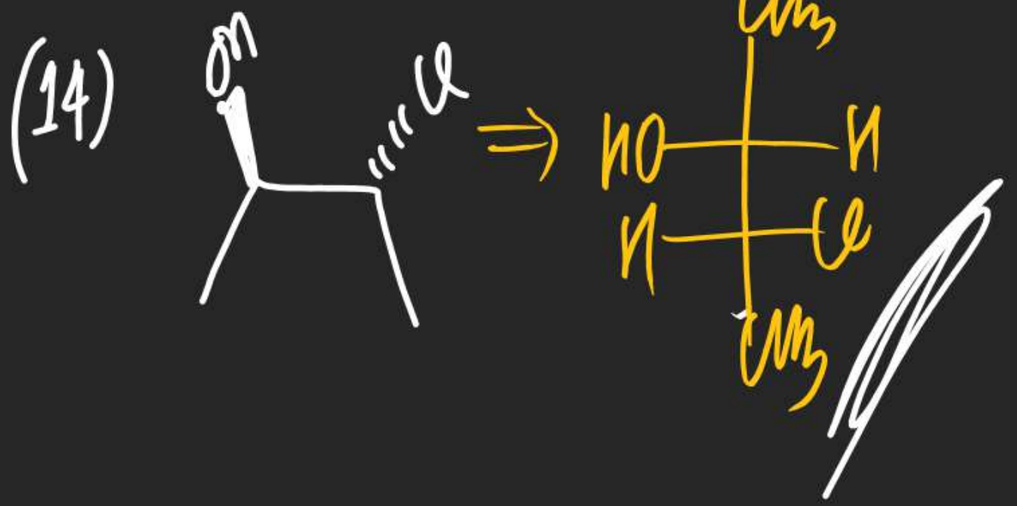
[Fischer Projection formula]

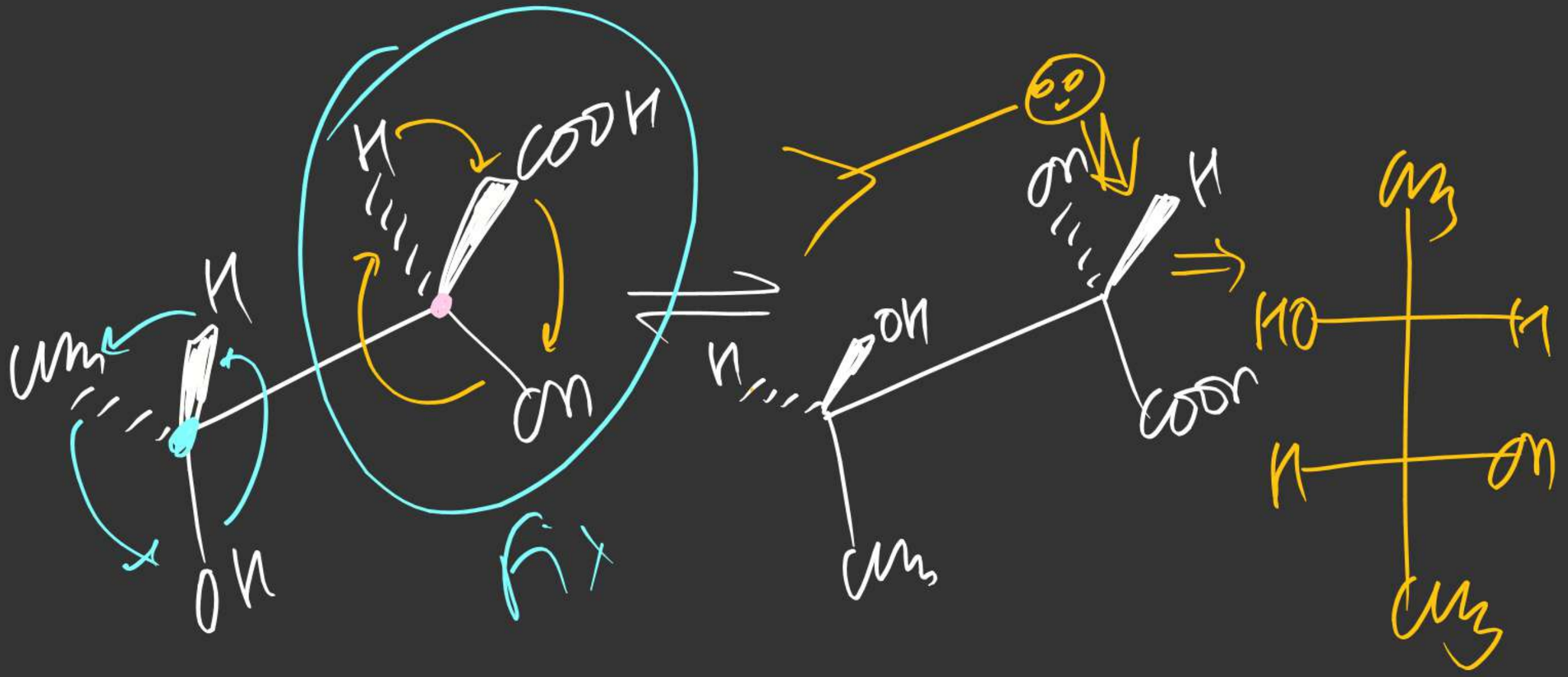
(12)



(13)

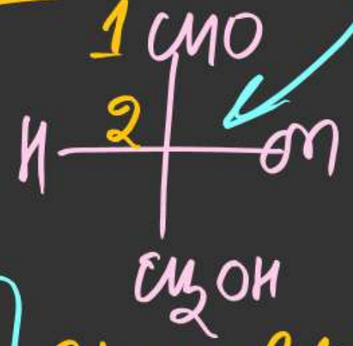
(14)





(#) D & L Configuration (Relative Conf.)

(1)

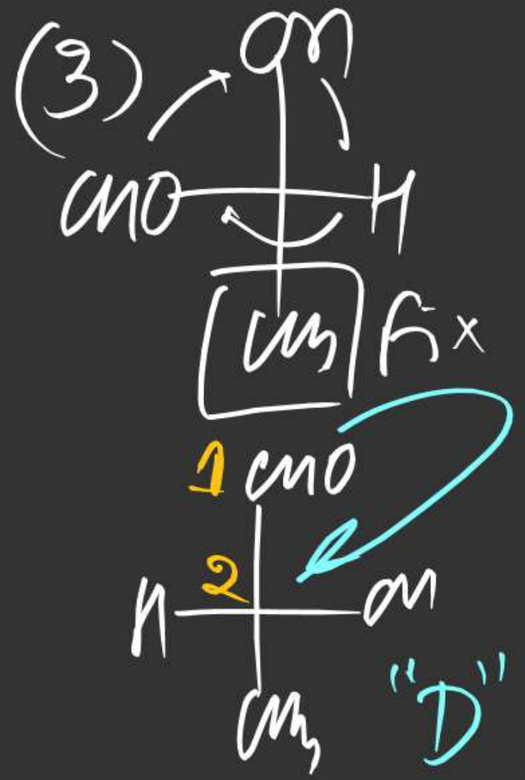


D-Glyceraldehyde

(2)

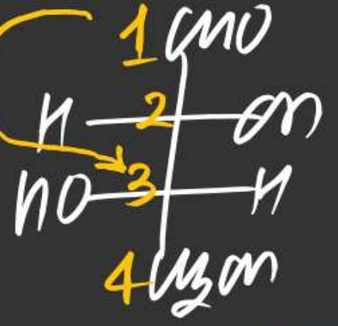
L-Glyceraldehyde

(3)

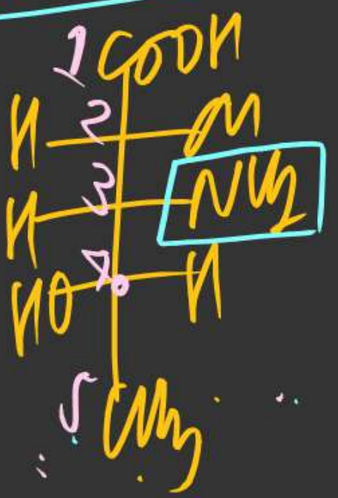


(4)

(5)



(6)



Amino
Hydroxy

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Rule-1: Compound must be in Golden Fischer form

Rule-2: Observe Chiral centre farthest from C_1
if it contains $-OH$ / $-NH_2$ towards Right ⇒ D
towards left ⇒ L

Rule-3: If both $-OH$ & $-NH_2$ are present together
then observe farthest centre which
contain $-NH_2$ & apply (Rule-2)

Nishant Jindal

Structural isomerism

Q.4 Molecular formula $C_3H_6Br_2$ can have:

(A) Two gem dibromide

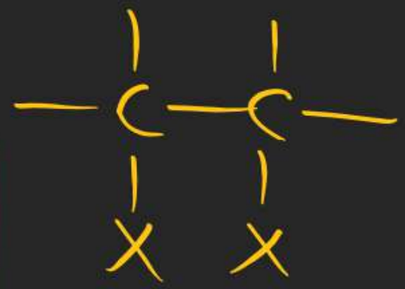
(B) Three vic dibromide

(C) Two tert. -dibromo alkane

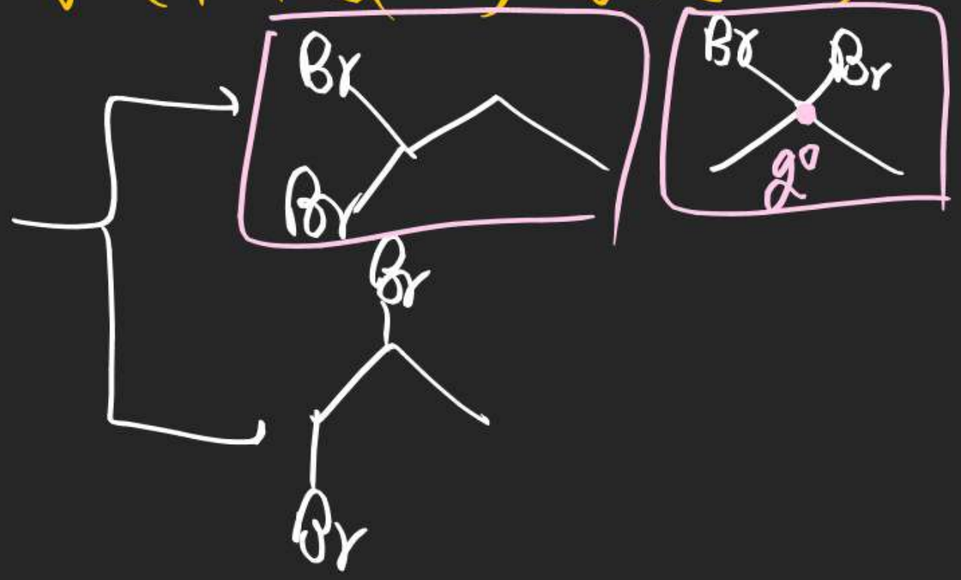
(D) Two sec.-dibromo alkane

Solution:

geminal ⇒ gem ⇒ 

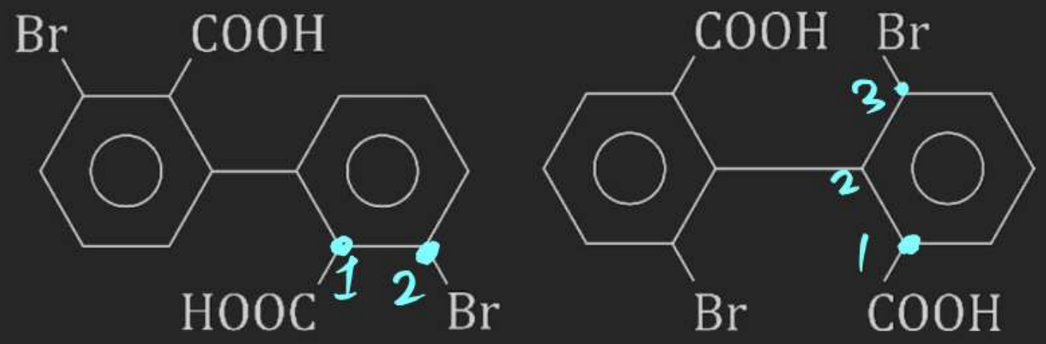
Vicinal ⇒ vic ⇒ 

$C_3H_6Br_2$



Structural isomerism

Q.5 Following compounds are:



(A) Position isomer

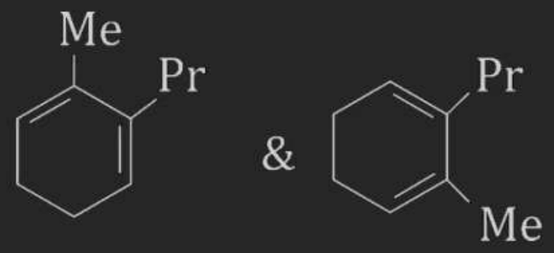
(B) Chain isomer

(C) Metamers

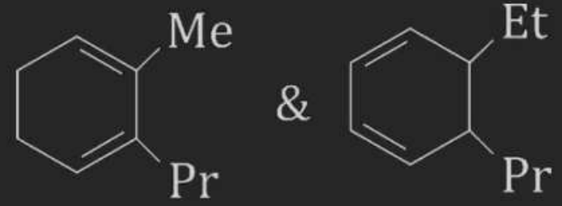
(D) Functional isomer

Structural isomerism

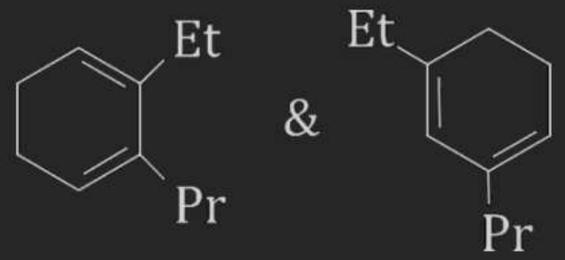
Q.6 Which of the following is incorrect relation:

(A) 

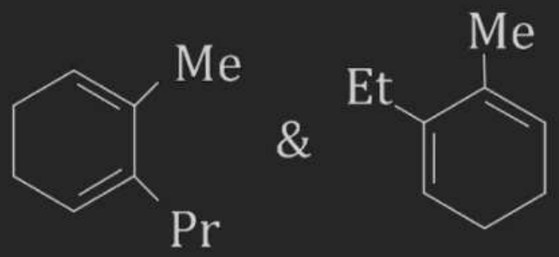
identical

(B) 

positional isomers

(C) 

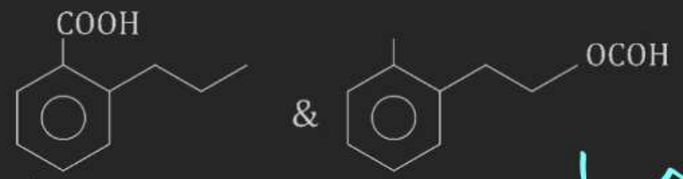
positional isomers

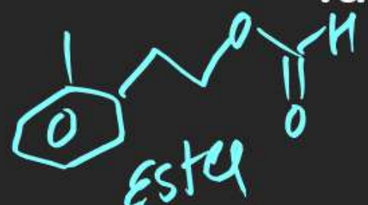
(D) 

homologues

Structural isomerism

Q.7 Select whether given relationship is true or false?

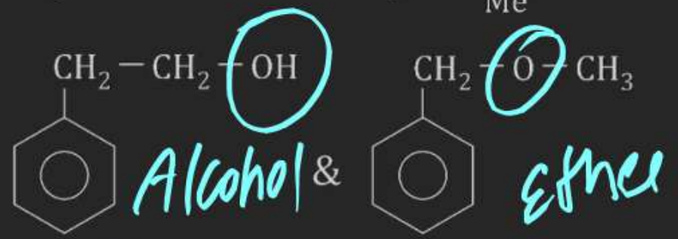
T (A) 

Acid


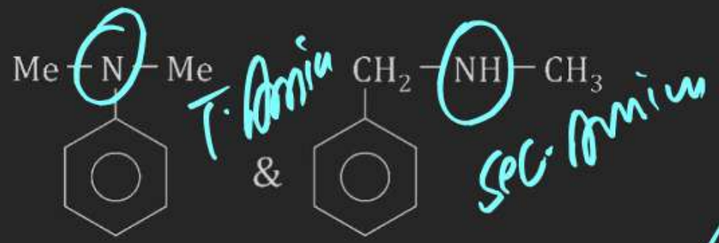
functional isomer

T (B) 

metamers

F (C) 

Alcohol
Ether
metamers

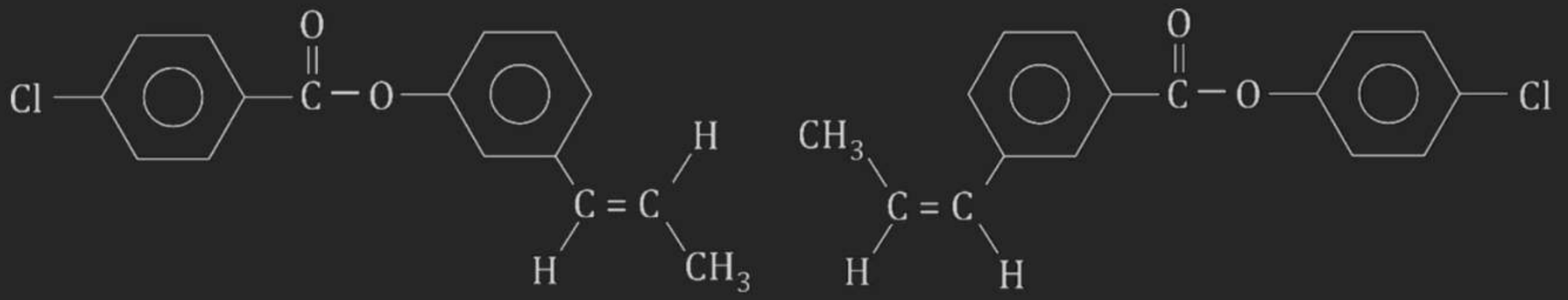
T (D) 

T. Amine
Sec. Amine
functional isomer

(A) TFTF (B) FTTF (C) TTFT ✓ (D) TFFT

Structural isomerism

Q.8 Following compounds are:



(A) Functional isomer

(B) Chain isomer

(C) Metamer

(D) Position isomer

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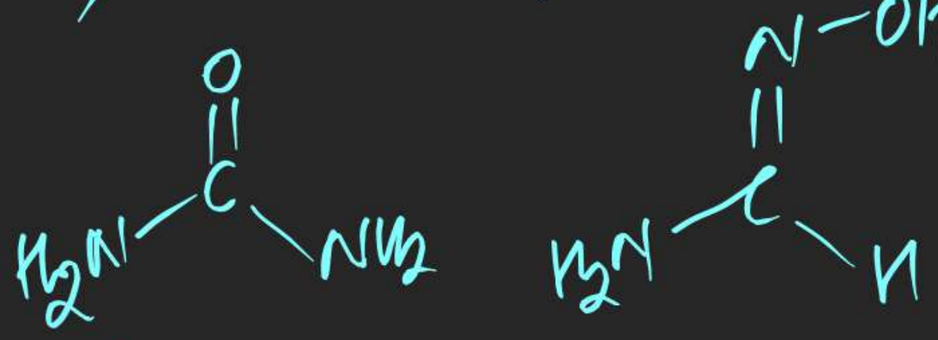
Structural isomerism

Q.9 The type of isomerism observed in urea molecule is

(A) Chain (B) Position (C) Metamers (D) Functional



(Urea)

Functional isomers.

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Structural isomerism

Q.10 How many minimum no. of C-atoms are required for position isomer in alkene?

(A) 6 (B) 4 (C) 3 (D) 5

Soln: $CH_2=CH_2$ ✗

$CH_3-CH=CH_2$ & $CH_2=CH-CH_3$ identical ✗

position isomers

(But-1-ene) (But-2-ene)

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Structural isomerism

Q.11 Which of the following cannot be written in an isomeric form?

(A) $CH_3 - CH(OH) - CH_2 - CH_3$

(B) $CH_3 - CHO$

(C) $CH_2 = CH - Cl$

(D) $Cl - CH_2CH_2 - Cl$

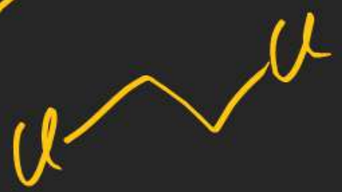
Soln:

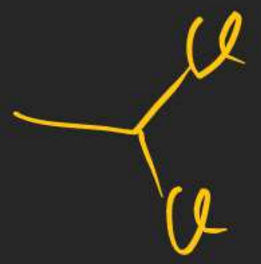
(A)

(B)

(C)

(D)





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Structural isomerism

(H+ oscillation)

Q.13 Which of the following involves Diad system for prototropy:

Tautomerism

(A) CH_3COCH_3 (B) $CH_3CH_2NO_2$

(D) H-CN

Structural isomerism

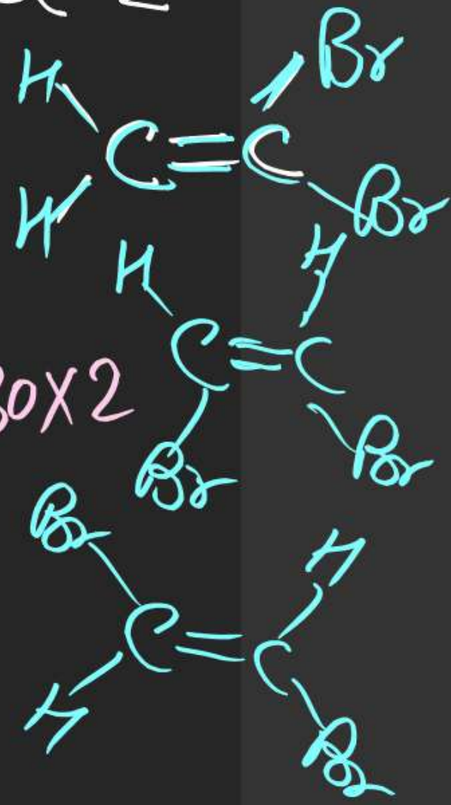
Q.15 The number of isomers of dibromoderivative of an alkene (molar mass 186 g mol^{-1}) is

(A) 2 (B) 3 (C) 4 (D) 6

Soln: Alkene: C_nH_{2n} $\xrightarrow[+2Br]{-2H}$ $C_nH_{2n-2}Br_2$

Dibromo derivative

$\rightarrow C_2H_2Br_2$



$MF = 12 \times n + (2n-2) \times 1 + 80 \times 2$

$\Rightarrow 14n + 158 = 186$

$\Rightarrow 14n = 28$

$\Rightarrow \boxed{n = 2}$

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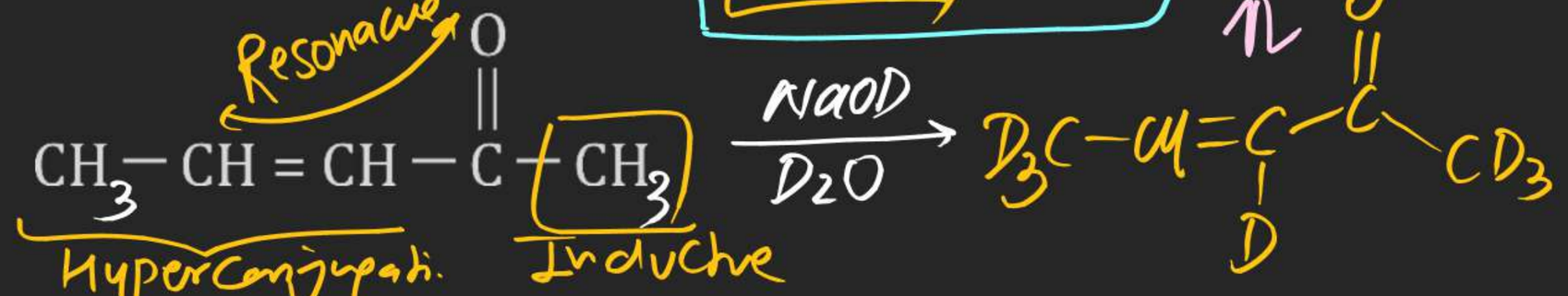
Structural isomerism

Q.17 For the given compound, choose the incorrect option?



Correct (A) On treatment with $NaOD/D_2O$ for long time, it has 7 deuterium in its enol form

Correct (B) It has all types of permanent electronic displacement effect present.

Incor (C) It has IUPAC name "Pent-2-en-4-one."

Incor (D) None of the above.

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Structural isomerism

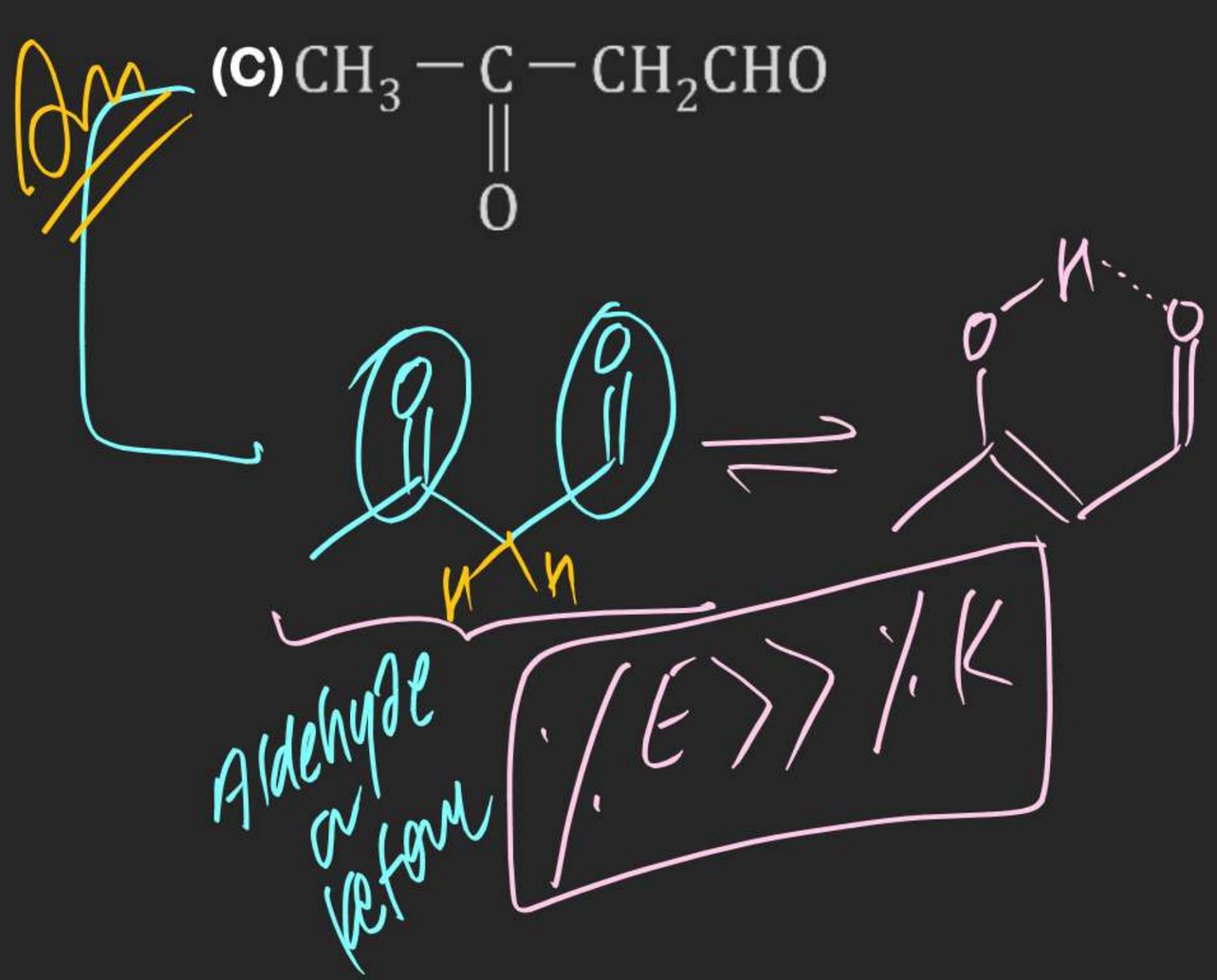
Q.18 Among the following the compounds having the highest enol content:

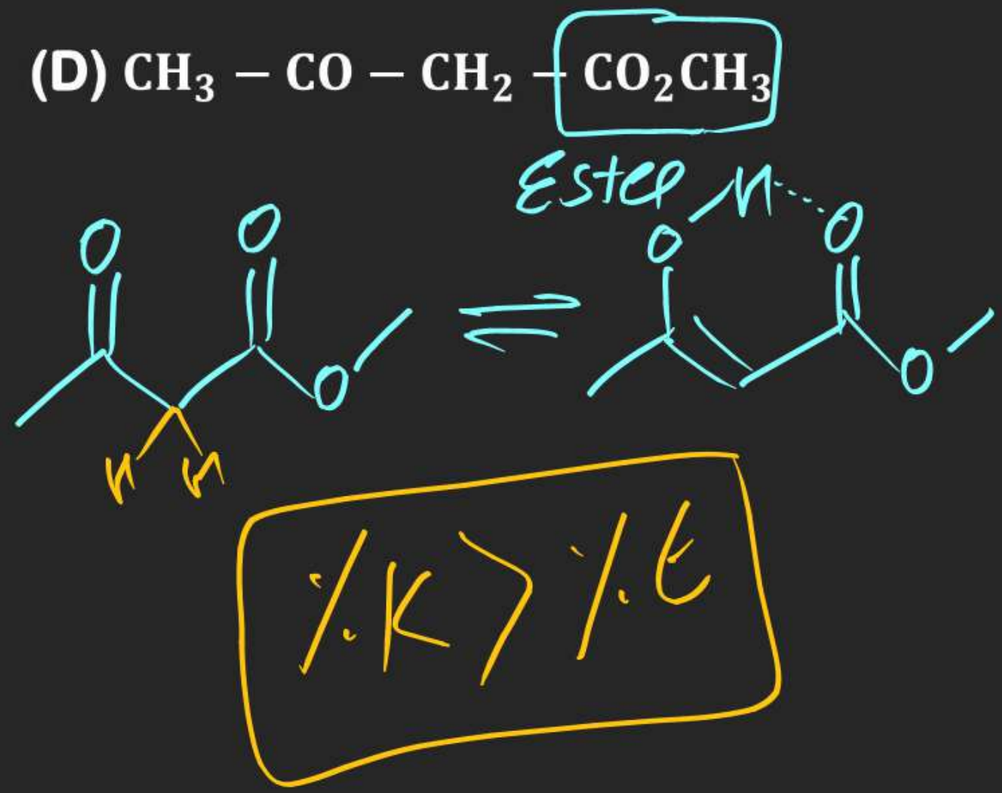
(A) CH_3CHO

(B) CH_3COCH_3

(C) $CH_3-\underset{\underset{O}{\|}}{C}-CH_2CHO$

(D) $CH_3-CO-CH_2-CO_2CH_3$





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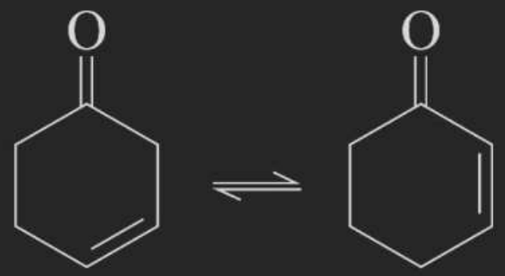
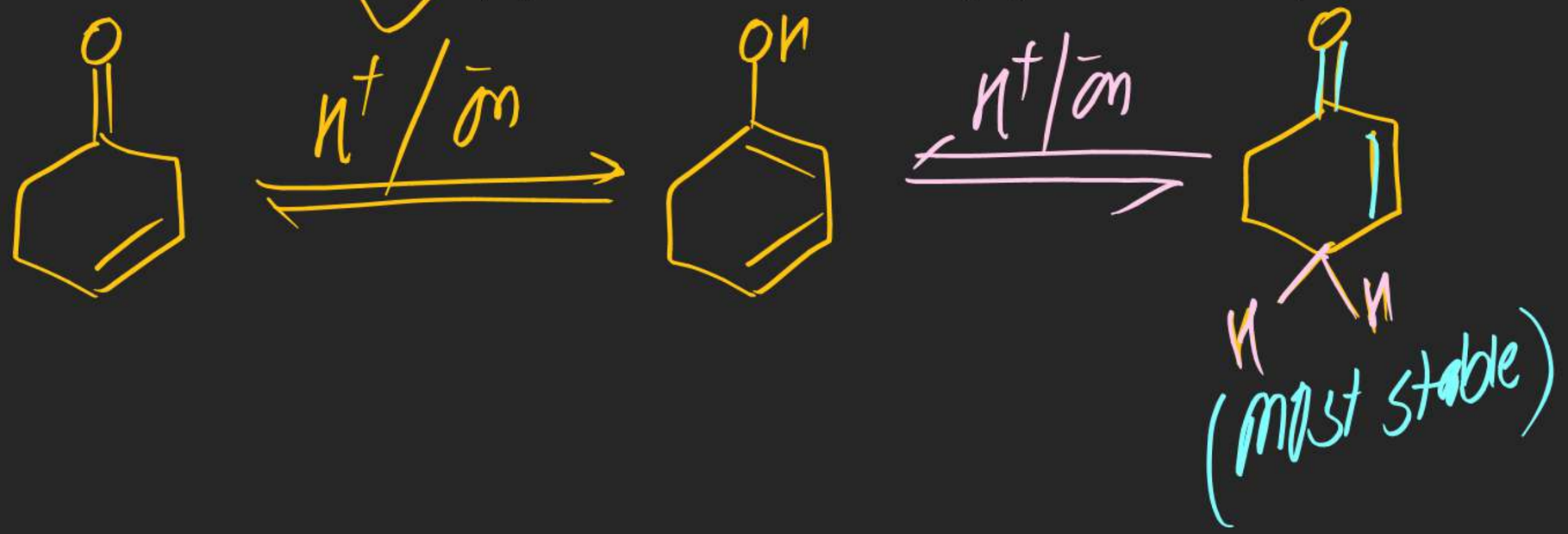
Structural isomerism

Q.19 Given interconversion takes place in

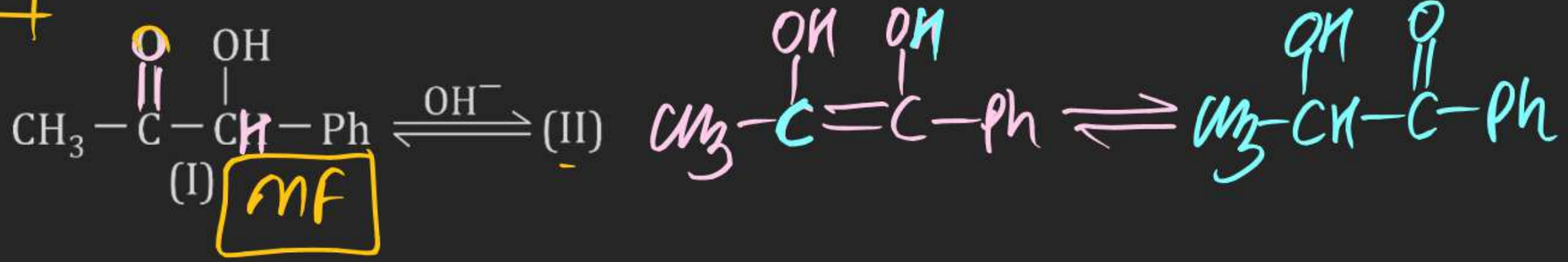


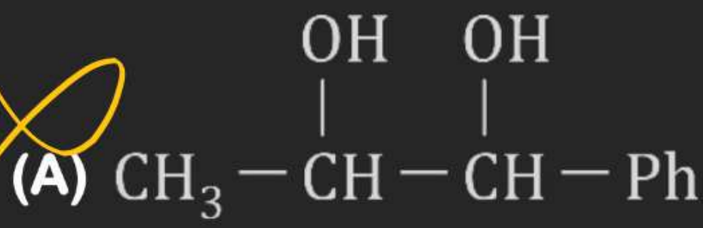
(A) Acidic medium (B) Basic medium (C) Both (D) None

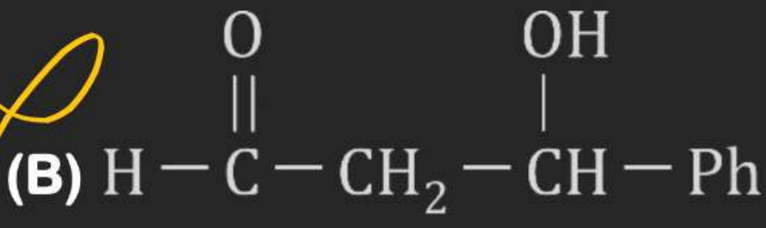


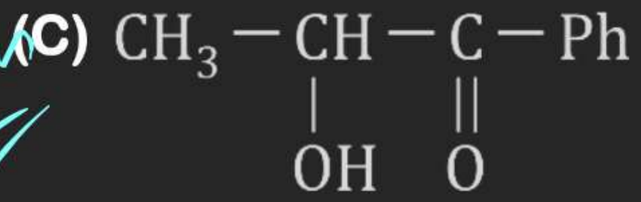
Structural isomerism

Q.20 (I) isomerizes to (II) on addition on small amount of base then structure of (II) is



(A) 

(B) 

(C) 

(D) 

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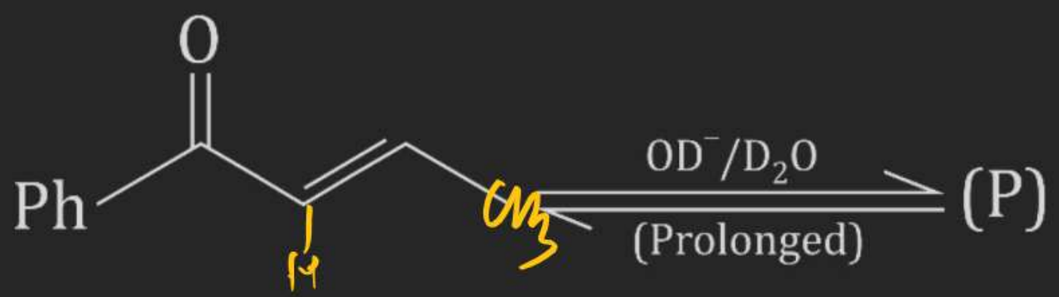
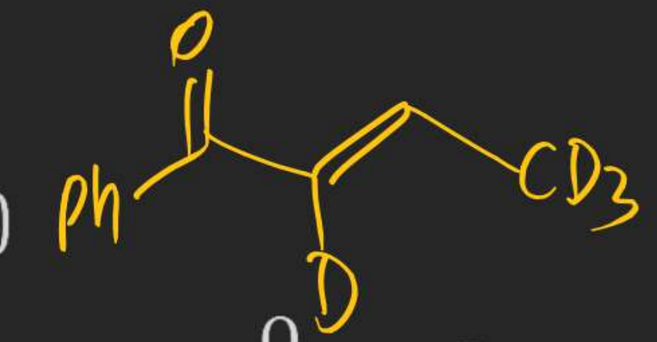
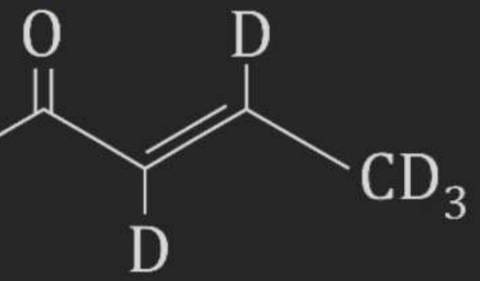
Structural isomerism

Q.21 Major product (P) obtained is:

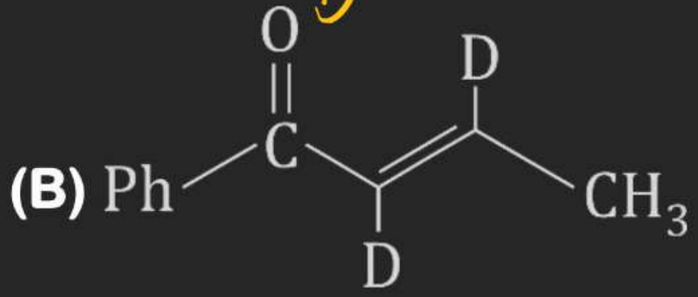




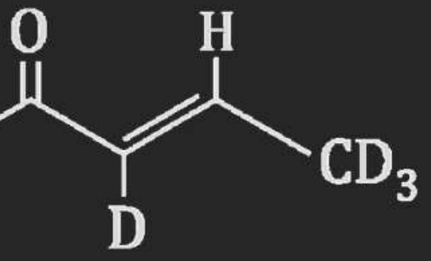
(A)



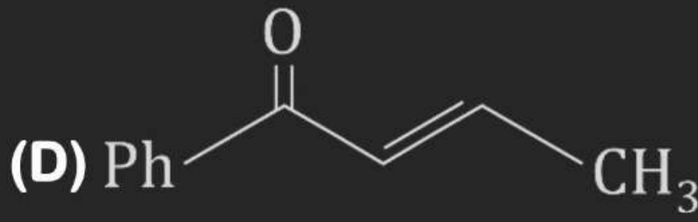
(B)



(C)



(D)



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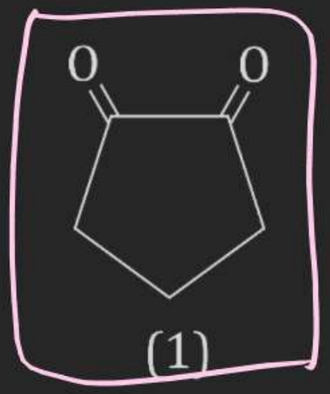
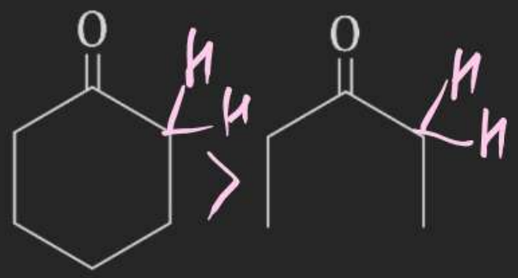
Structural isomerism

Q.22 Decreasing order of enol content of the following compounds in liquid phase is:

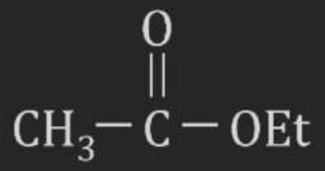


(1)



(2)

(3)



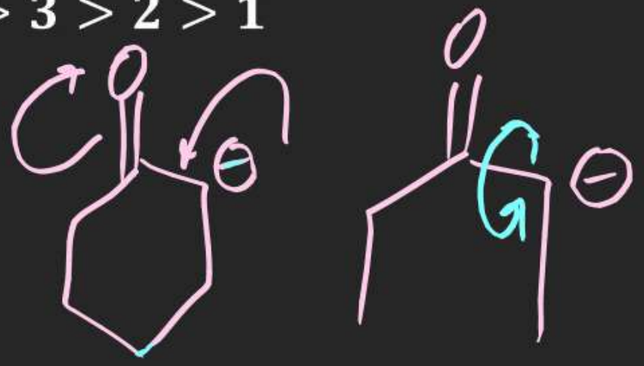
(4)

(A) $2 > 1 > 3 > 4$

(B) $1 > 2 > 3 > 4$

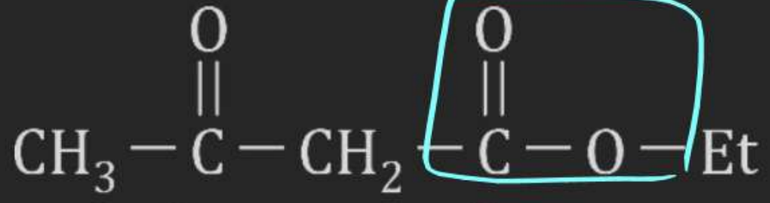
(C) $4 > 3 > 2 > 1$

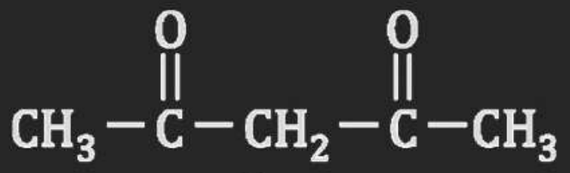
(D) $3 > 1 > 2 > 4$

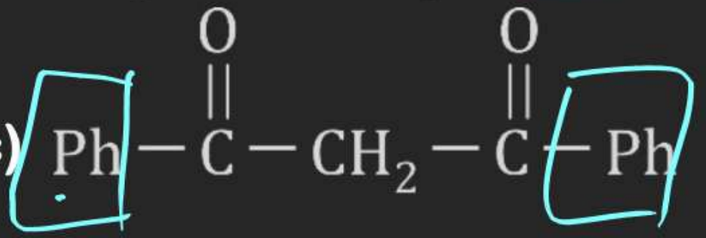


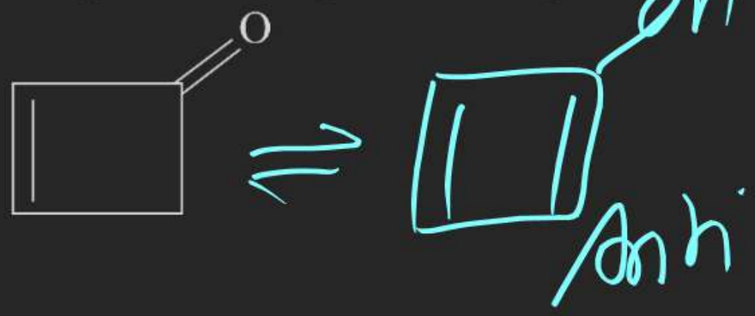
Structural isomerism

Q.23 Decreasing order of enol content of the following compound in liquid phase

(a) 

(b) 

(c) 

(d) 

(A) a > b > c > d

(B) c > b > a > d

(C) c > b > d > a

(D) b > c > a > d

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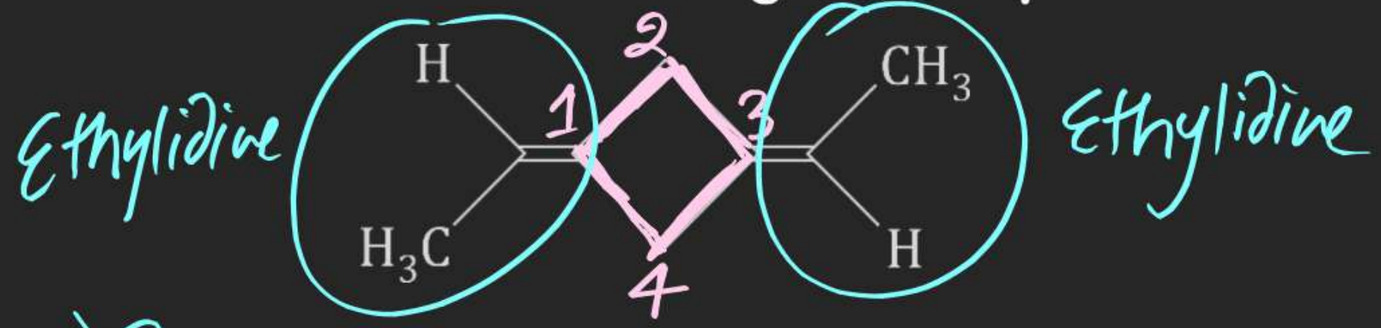
Structural isomerism

Q.25 The IUPAC name of the given compound is



(A) 2, 4-di[(E)-ethylidene] cyclobutene

(B) 1,3-di-[(E)-ethylidene] cyclobutane

(C) 1, 4-di-E-ethyldenecyclobutane

(D) (E)-1, 4-diethylidenecyclobutane

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Structural Isomerism

Next class Discuss.

1. The IUPAC name of the compound is:

(A) (2E, 4E, 6Z)-octa-2,4,6-triene

(B) (2E, 4E, 6E)-octa-2,4,6-triene

(C) (2Z, 4E, 6Z)-octa-2,4,6-triene

(D) (2Z, 4Z, 6Z)-octa-2,4,6-triene