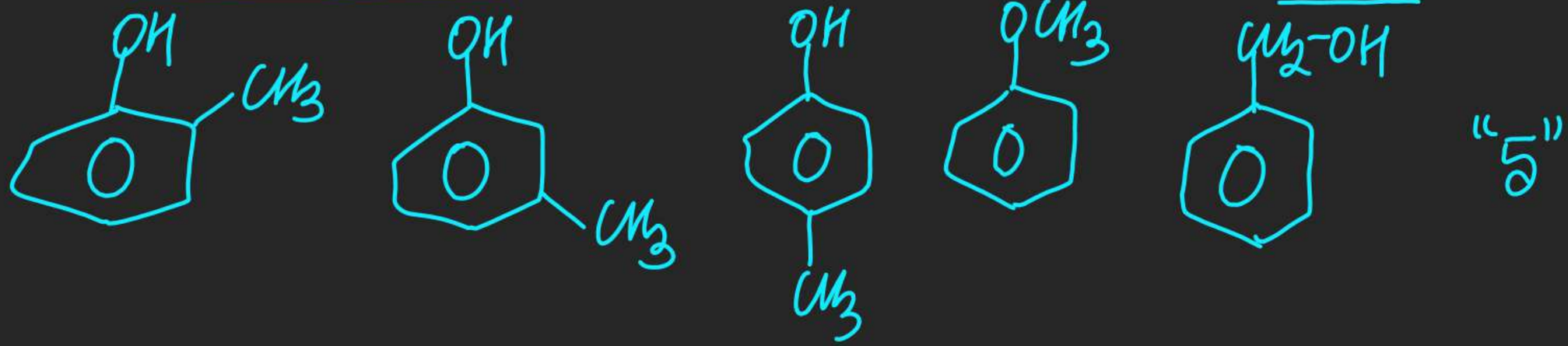
Nishant Jindal

Structural Isomerism

1. How many benzenoid isomer are possible for molecular formula of cresol?

Soln:



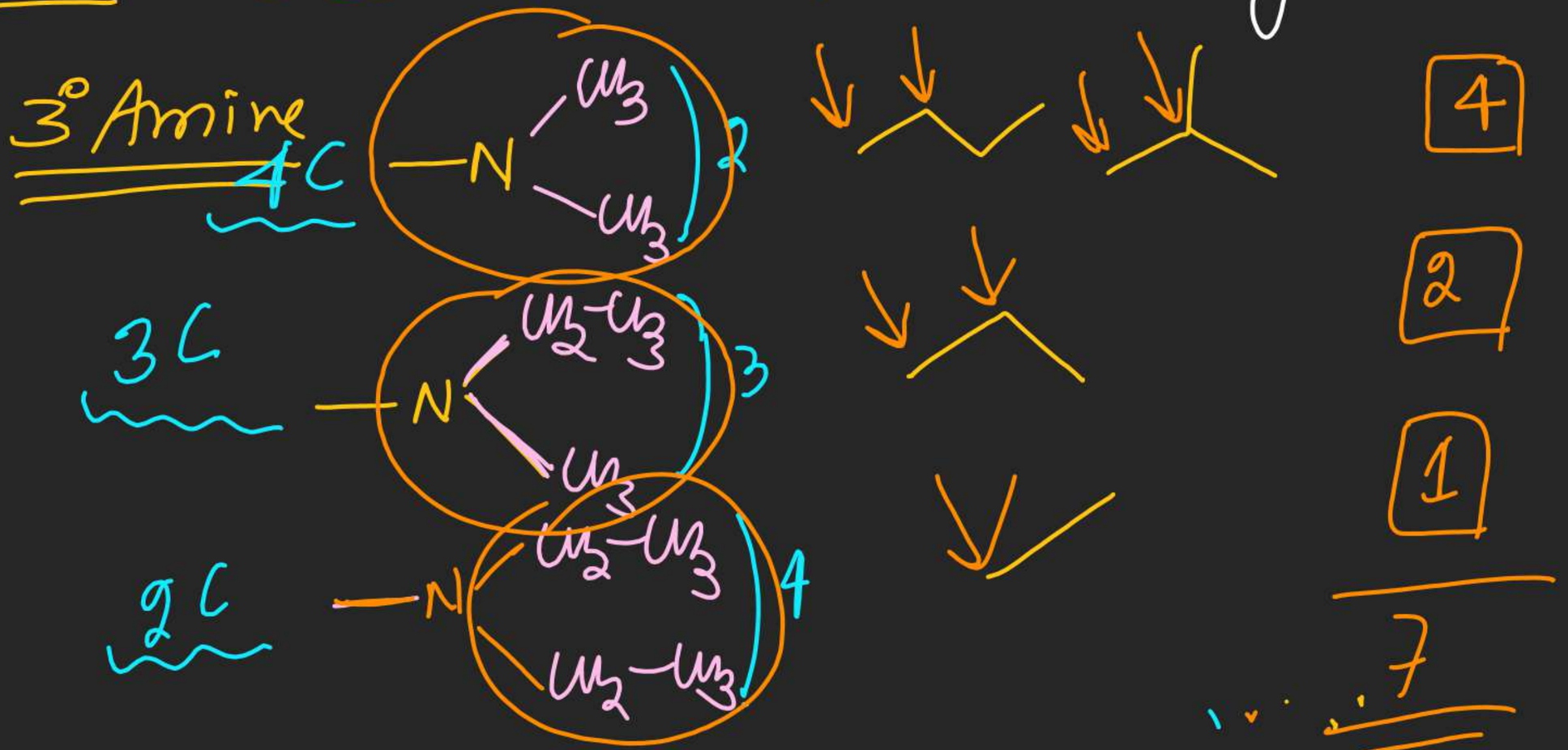
"5"

Nishant Jindal

Structural Isomerism

4. Calculate the total number of structural isomers of 3°-amines for the molecular formula $C_6H_{15}N$ are?

Soln: $C_6H_{15}N$ (DOU = 0) ⇒ सारी Single बॉन्ड है !



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Structural Isomerism

6. Mention the specific type of isomerism exhibited by each of the following pairs:

(a) 1,2-dichloro ethane and 1,1-dichloro ethane

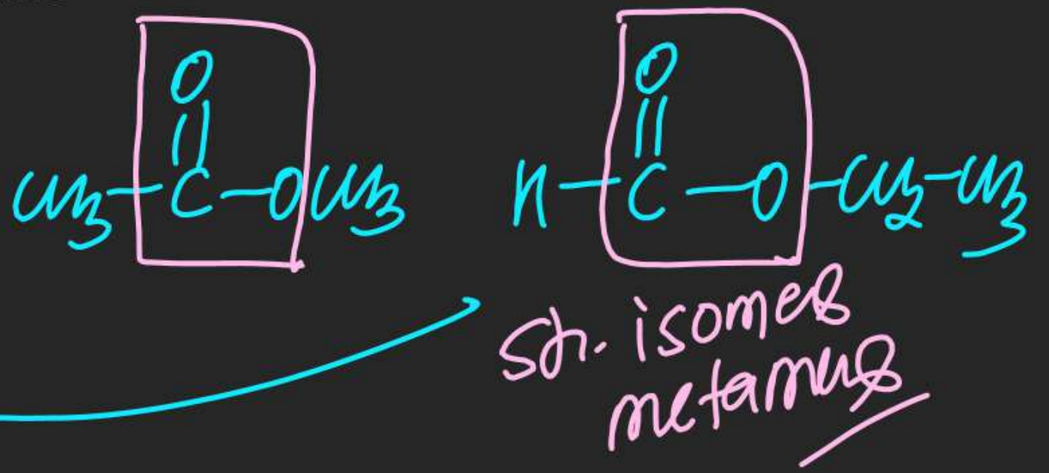
(b) Propanoic acid and methyl acetate

(c) Methyl acetate and ethyl formate

(d) o-Nitrophenol and P-nitrophenol

(e) Anisole and o-cresol

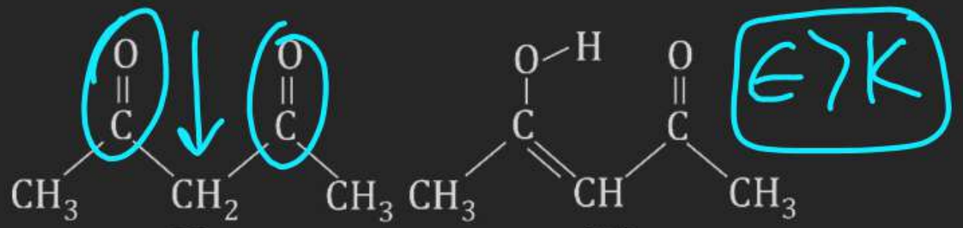
(f) Phenol and Cyclohexa-2,4-dien-1-one



Structural Isomerism

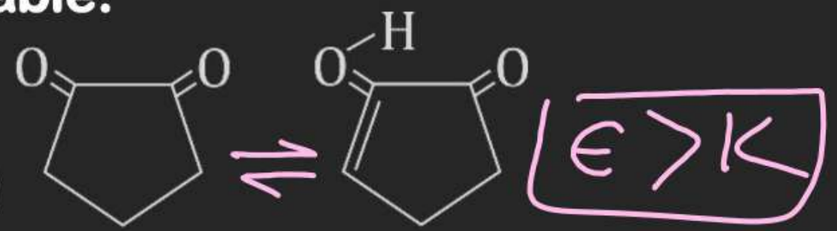
8. In each of the following pairs which is more stable:

(A)



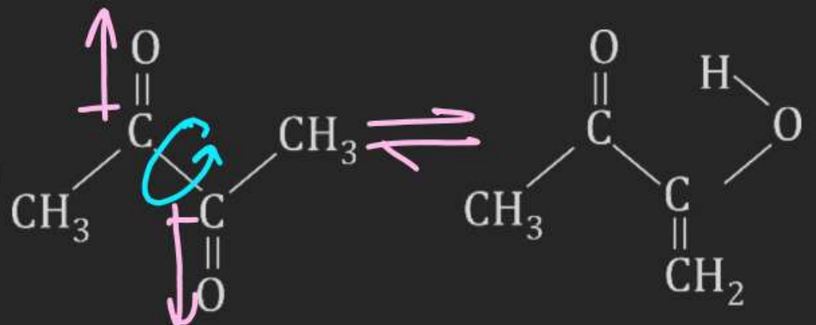
(I) (II)

(B)



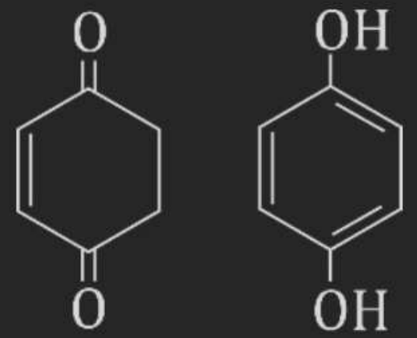
(I) (II)

(C)



(I) (II)

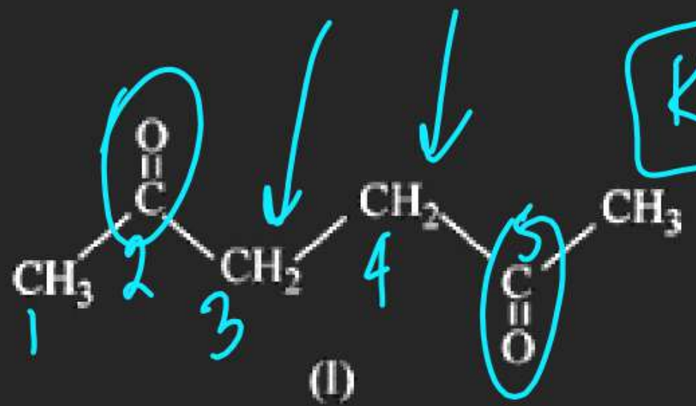
(D)



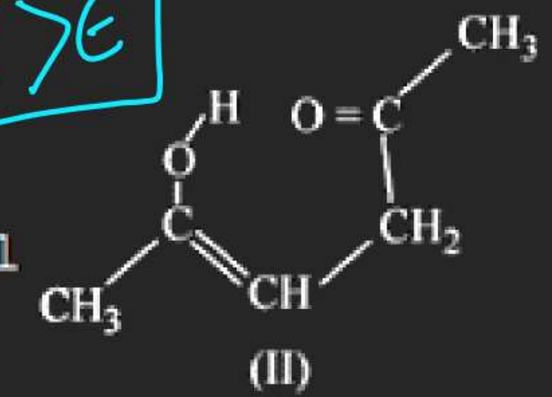
(I)

(II)

(E)



(I)



(II)

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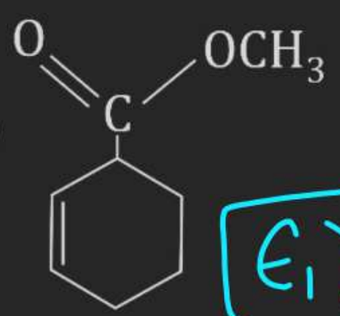
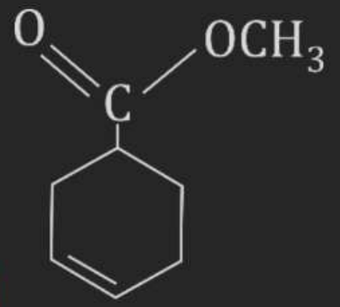
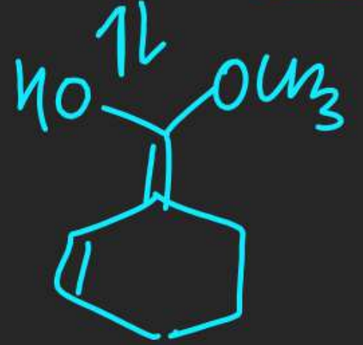
Structural Isomerism

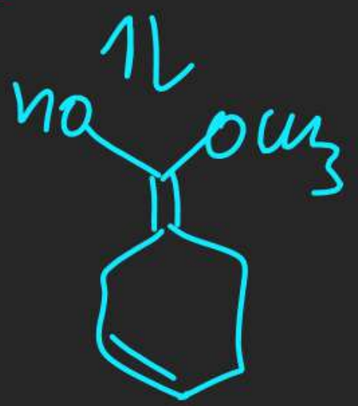
10. In each of the following pairs which will have less enol content:

(A)  **and** 

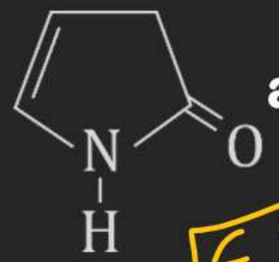
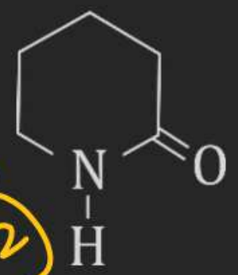
$\epsilon_1 > \epsilon_2$



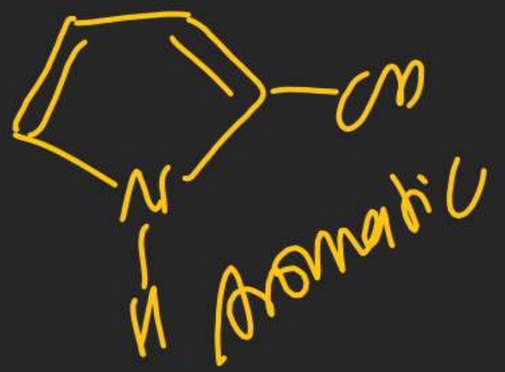
Conjugated



Not Conjugated

(B)  **and** 

$\epsilon_1 > \epsilon_2$



Aromatic

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Structural Isomerism

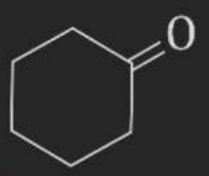
12. In each of the following sets of compounds write the decreasing order of % enol content.

IV > I > III > II

(A)

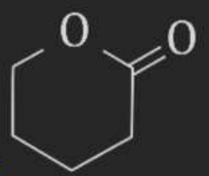
4 & 4

Ketone



(I)

Ester

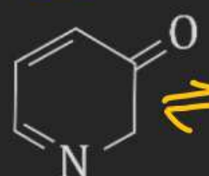


(II)

Ketone

(III)

3 & 1



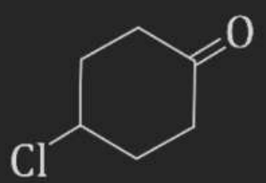
(IV)

Aromatic

(B)

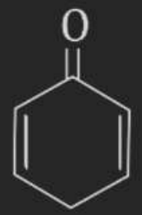
Aro

(I)

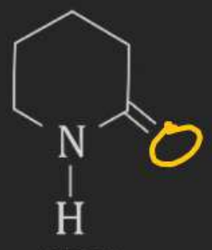


(II)

Non



(III)



(IV)

Aro, π, gr

Aromatic

Aro, π, gr

III > I > IV > II

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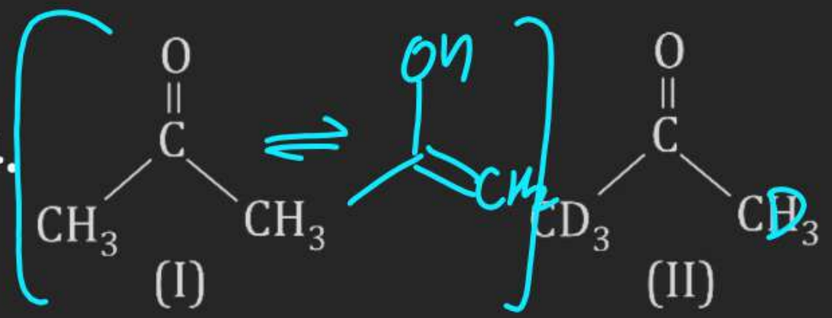
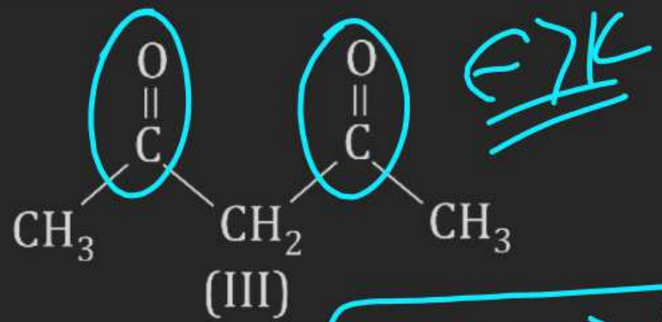
Structural Isomerism

14. 



Among these give ease of enolization.

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Structural Isomerism

15. % enol content of acetylacetone in following solvents is found as:

Solvent	% enol content
H_2O	15
Liquid state	76
hexane	92
gas phase	92

Explain the observation.

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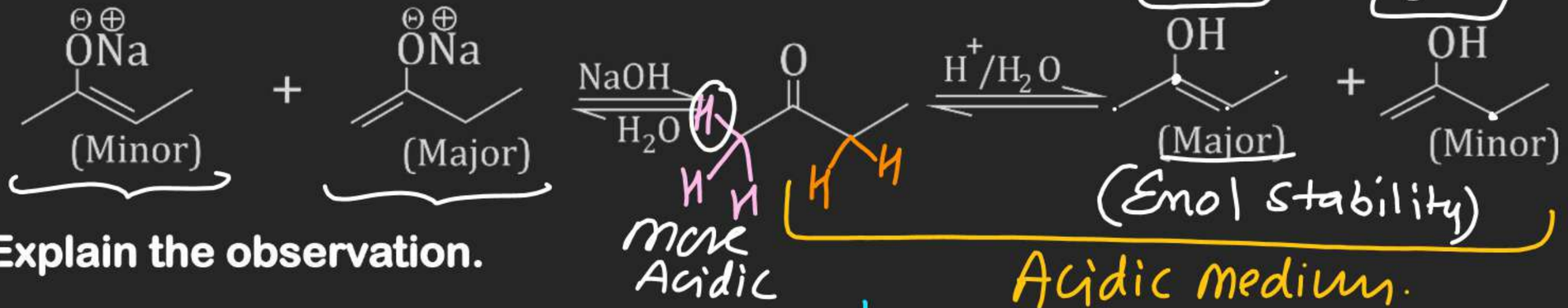
Structural Isomerism

16. 

Explain the observation.

Basic medium

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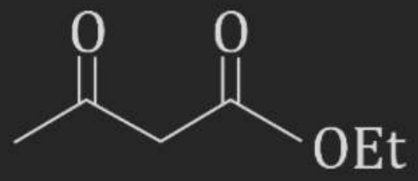
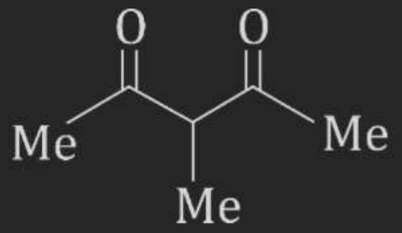
Structural Isomerism

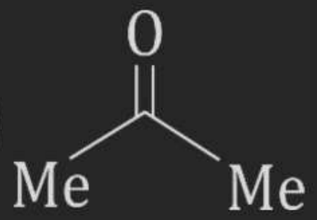
17. Decreasing order of enol content of the following. (along with proper explanation).

(A) 

(B) 

(C) 

(D) 

(E) 

C > A > D > B > E

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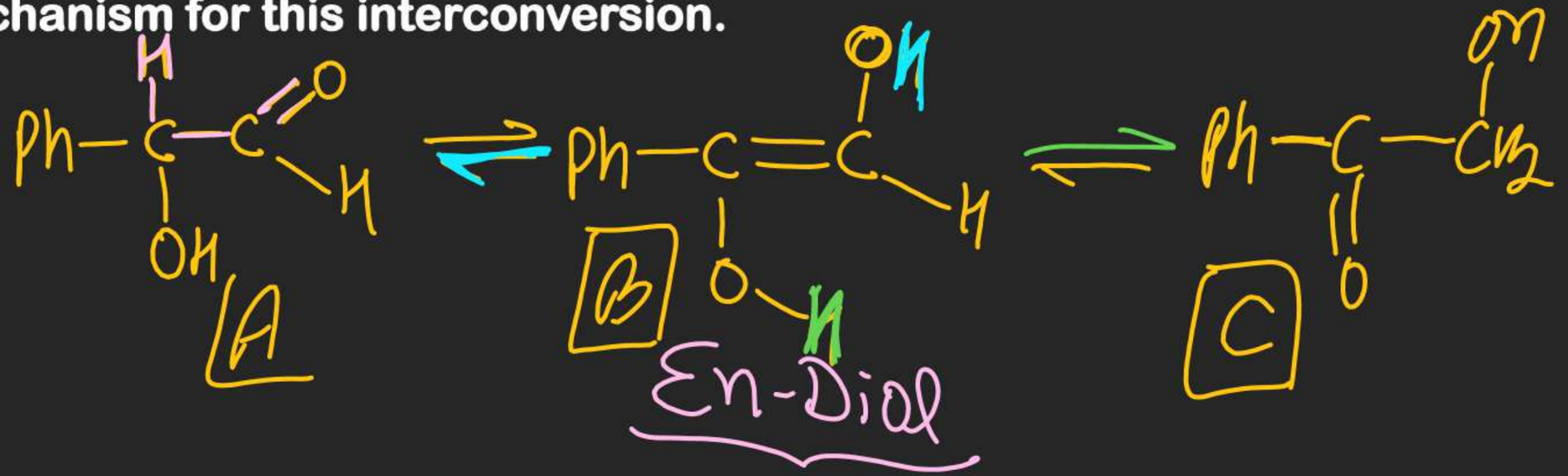
Structural Isomerism

18. $Ph-\underset{\underset{OH}{|}}{CH}-CHO \underset{H_2O}{\overset{HO^{\ominus}}{\rightleftharpoons}} (B) \underset{H_2O}{\overset{OH^{\ominus}}{\rightleftharpoons}} (C)$

(A)

(A), (B) and (C) are structural isomers and isomerization is effectively carried out by trace of base. Give structure of (B) and (C) and also write base catalysed mechanism for this interconversion.

Soln:



Nishant Jindal

Stereo Isomerism

Q.2 If ' X ' is total number of plane of symmetry, ' Y ' is total number of two fold axis of symmetry and ' Z ' is total number of four fold alternate axis of symmetry present in CH_4. Then find the value of $(X + Y - Z)$.

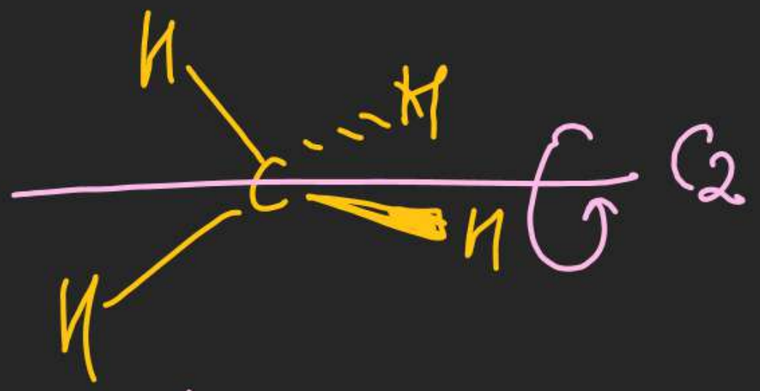
(A) 3 (B) 4 (C) 5 (D) 6

$X = POS = 6$

$Y = C_2 = 3$

$Z = S_4 = 3$

$X + Y - Z = 6 + 3 - 3$



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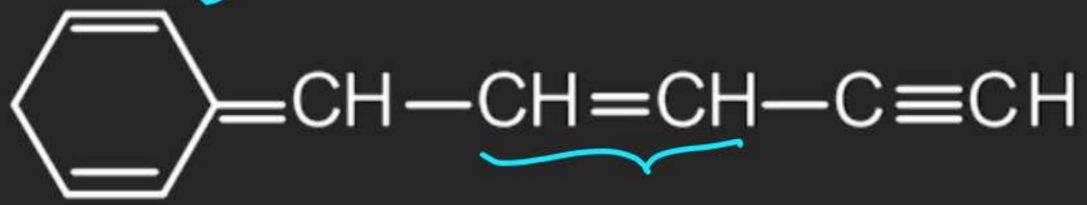
Stereo Isomerism

Q.4 The number of cis-trans isomer possible for the following compound.



(A) 2 (B) 4 (C) 6 (D) 8

Cis & Trans

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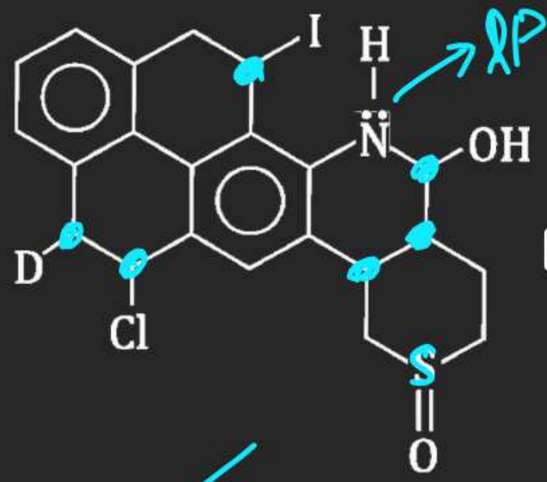
Stereo Isomerism

Q.5



LP is in Resonance

has ' x ' chiral centre then find the value of x :

(A) 7 (B) 8 (C) 6 (D) 5

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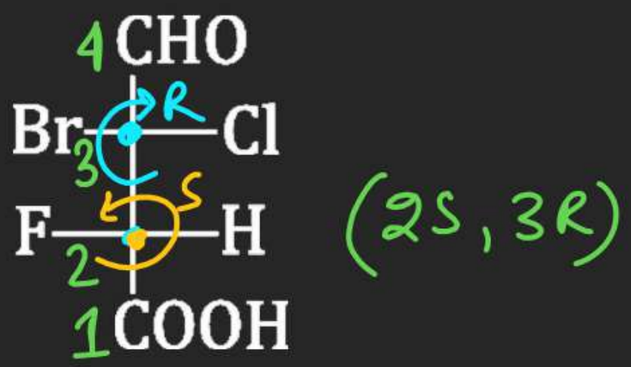
Stereo Isomerism

Q.8



(2S, 3R)

Configuration of compound is :

(A) 2 S, 3 S

(B) 2R, 3 S

(C) 2R, 3R

(D) 2 S, 3R

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Stereo Isomerism

Q.10 Minimum molecular weight of a hydrocarbon containing minimum number of C-atom to show optical isomerism.

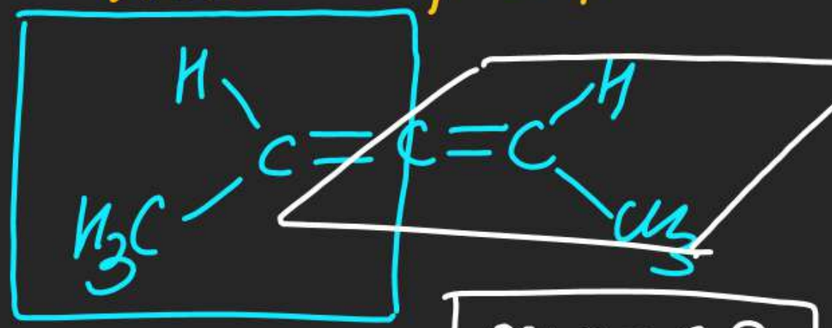
(A) 100 (B) 80

(C) 68 (D) 70

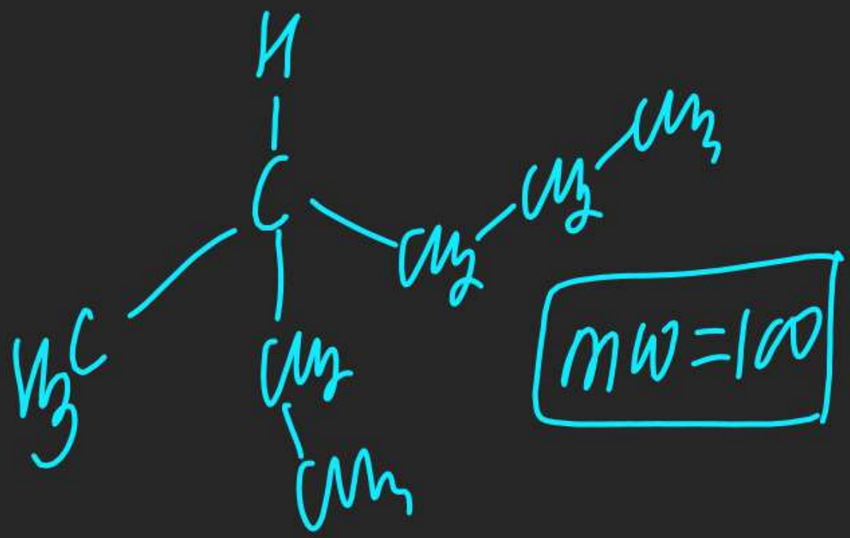
Ans

Soln: Compound must have Chiral centre

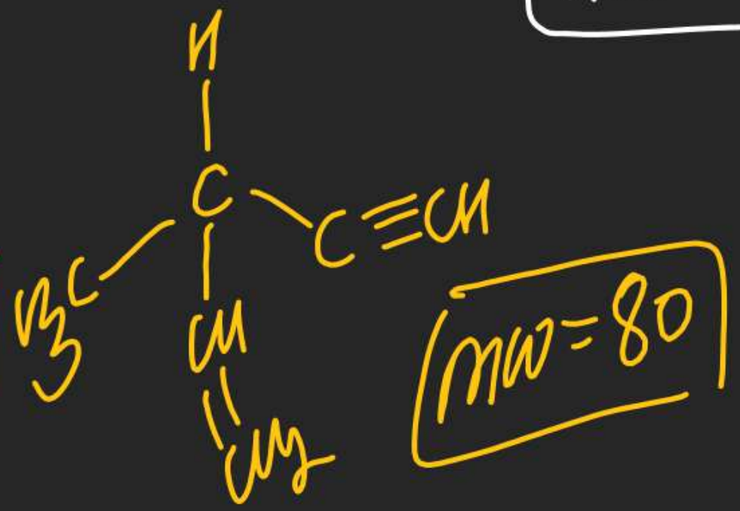
Compound may have absence of S_n



MW = 60



MW = 100



MW = 80

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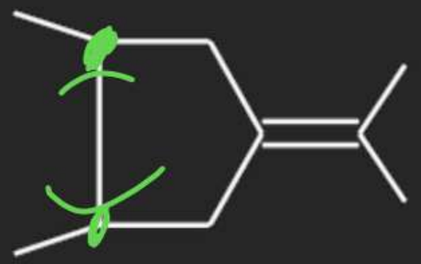
Stereo Isomerism

Q.11 Compounds which can show both optical as well as geometrical isomerism:

(A)

(B)

(C)



(D)

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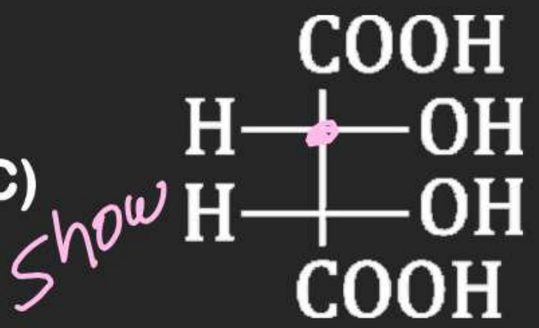
Stereo Isomerism

Q.14 Which of the following will not show optical isomerism.

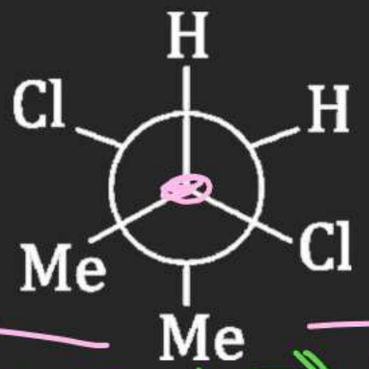
(A) $Cl - CH = C = C = CH - Cl$

(B) $Cl - CH = C = C = C = CH - Cl$

(C)



(D)



(i) Chiral centre present ⇒ wd show optical

(ii) Sm absent ⟹

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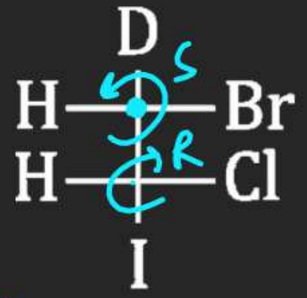
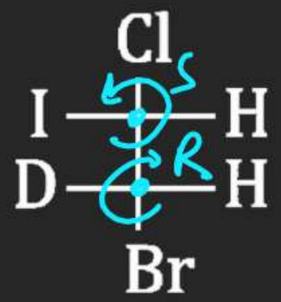
Stereo Isomerism

Q.16 The two compounds given below are :



(1S,2R)



(1R 2S)

(A) Enantiomers

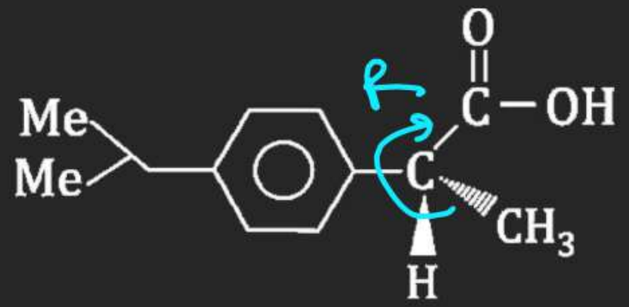
(B) Diastereomers

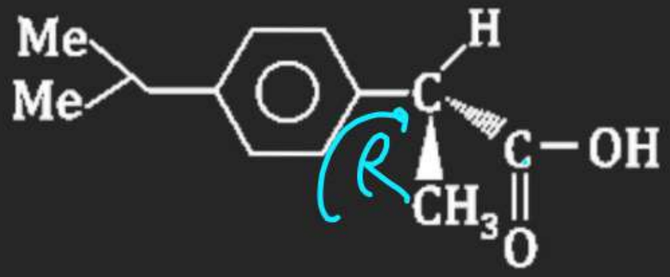
(C) Optically inactive

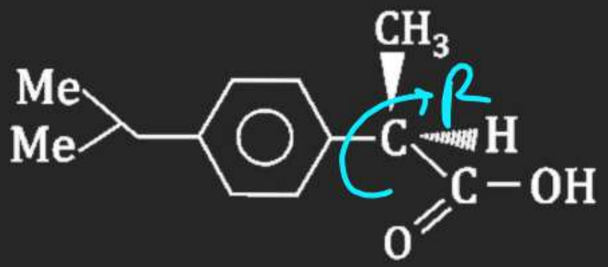
(D) Identical

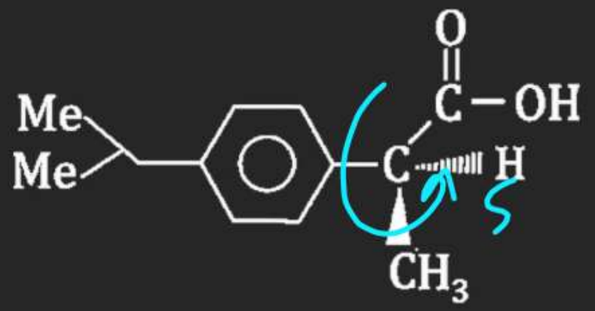
Stereo Isomerism

Q.18 The S-ibuprofen is responsible for its pain relveing property. Which one of the structure shown is S-ibuprofen :

(A) 

(B) 

(C) 

(D) 

Nishant Jindal

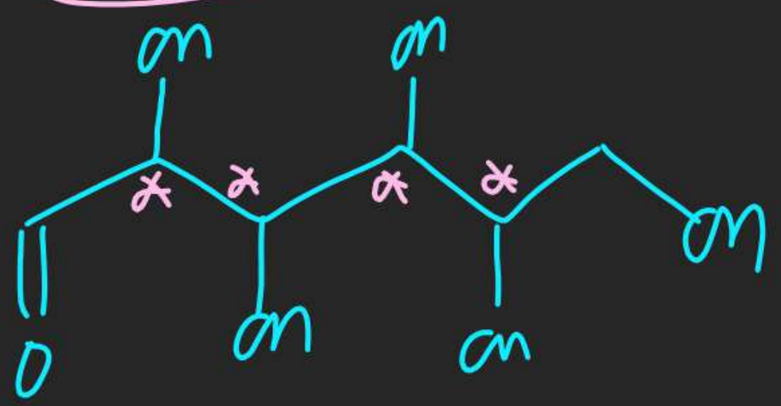
Stereo Isomerism

Q.20 Number of possible stereoisomers of glucose are:

(A) 10 (B) 8 (C) 16 (D) 20

$= 2^4$

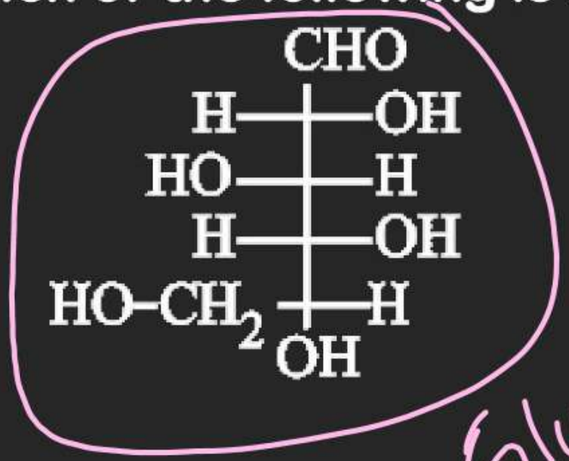
$= 16$



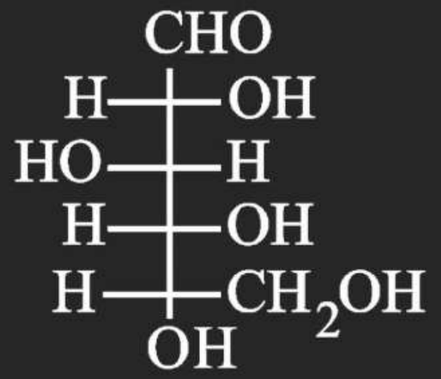
Stereo Isomerism

Q.21 Which of the following is not D sugar :

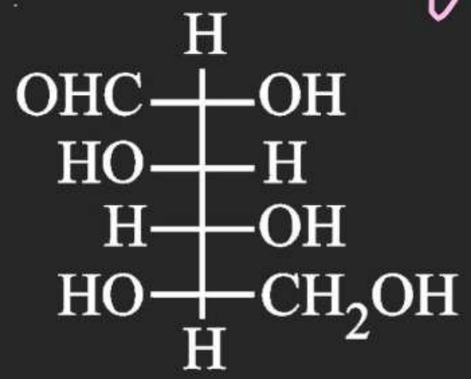
(A)



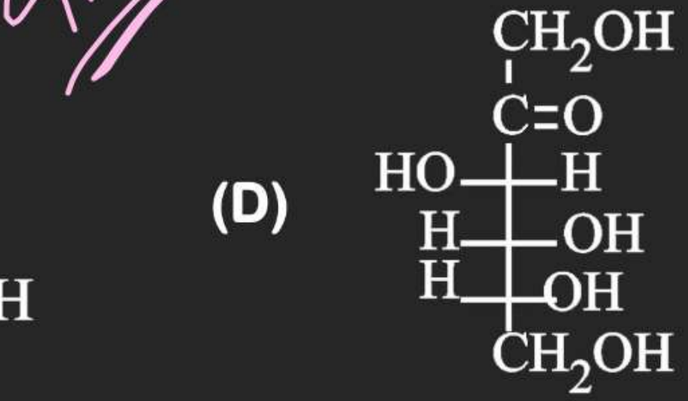
(B)



(C)



(D)



Glucose

HW

Stereo steel

Ex-1 Complete

Ex-2 Complete

Ex-3 Can