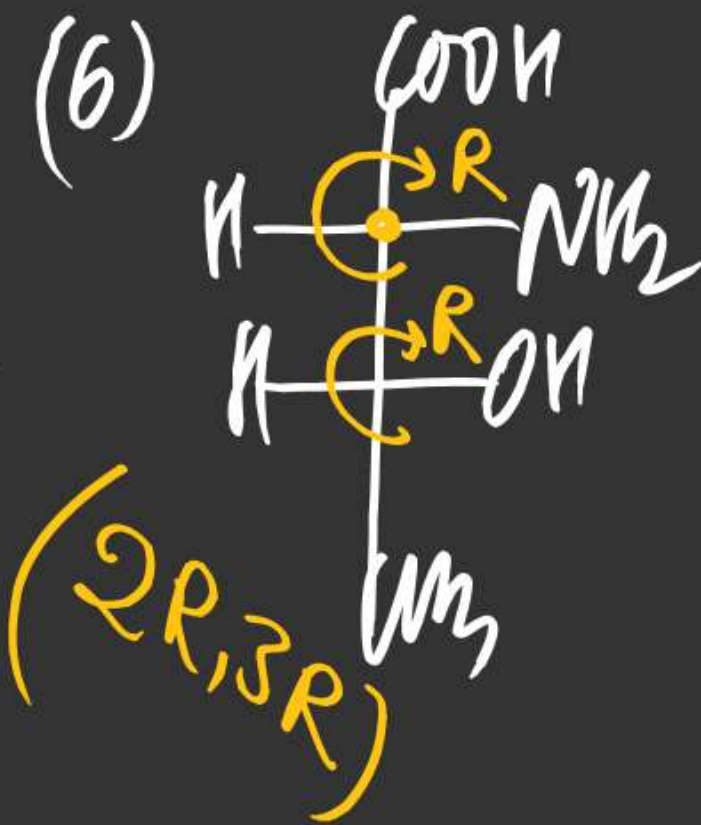
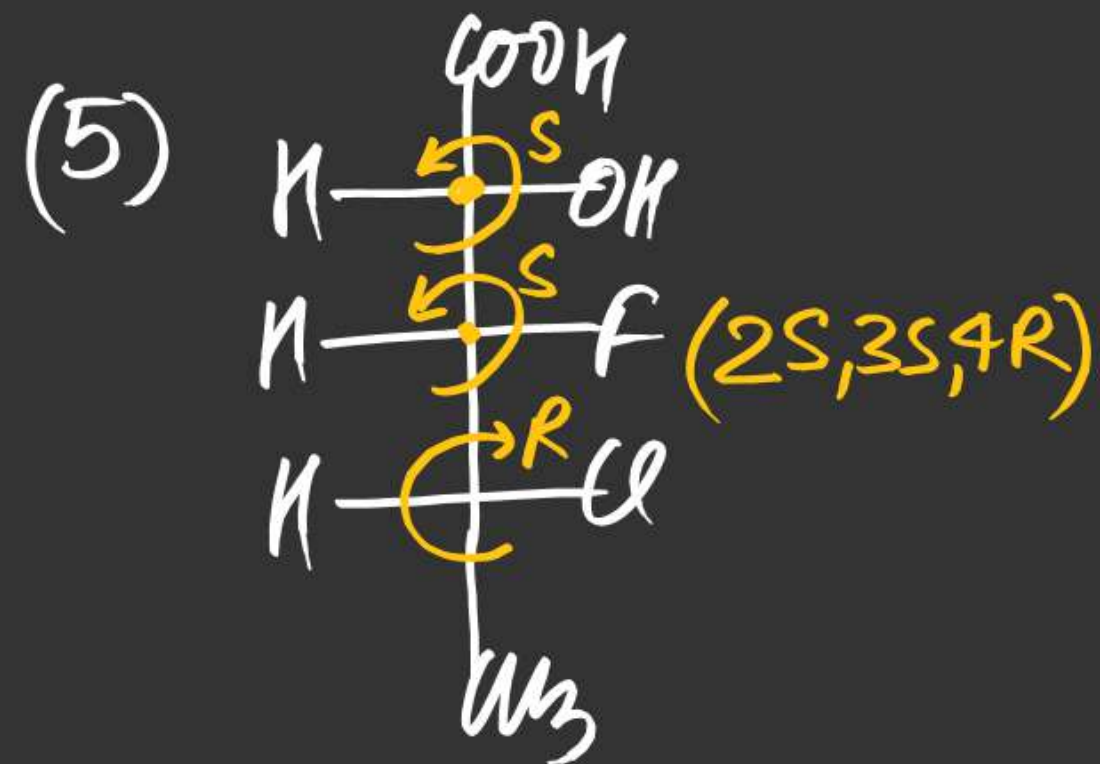
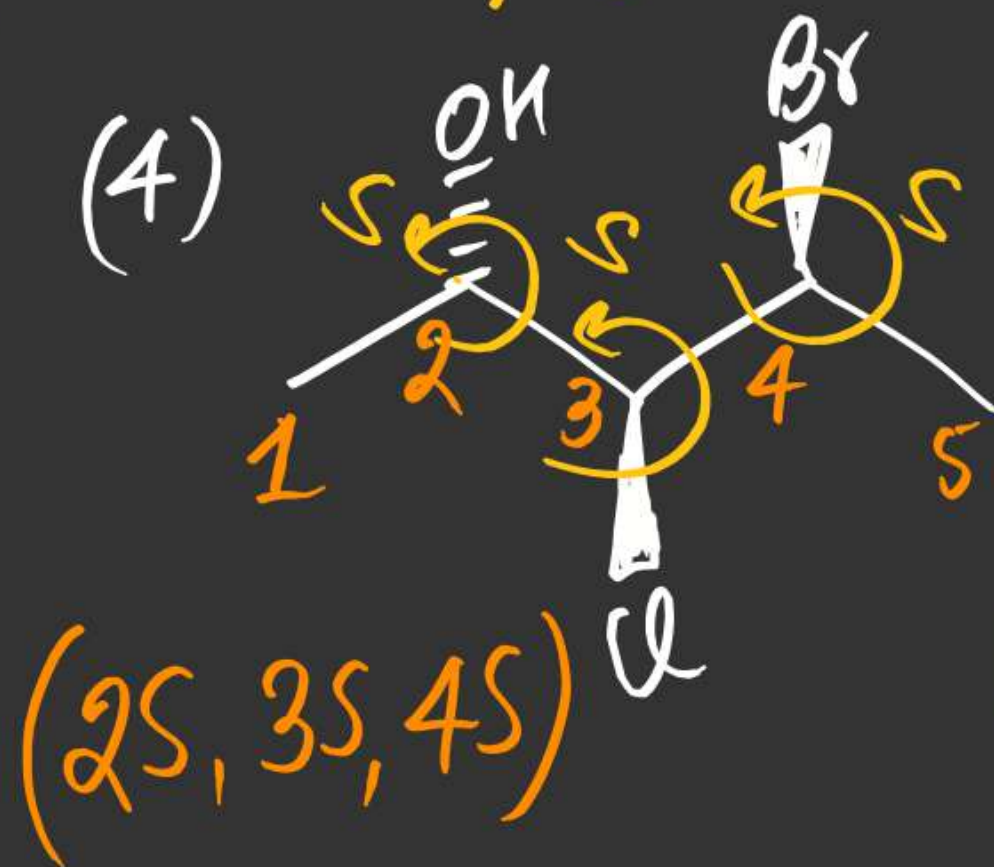
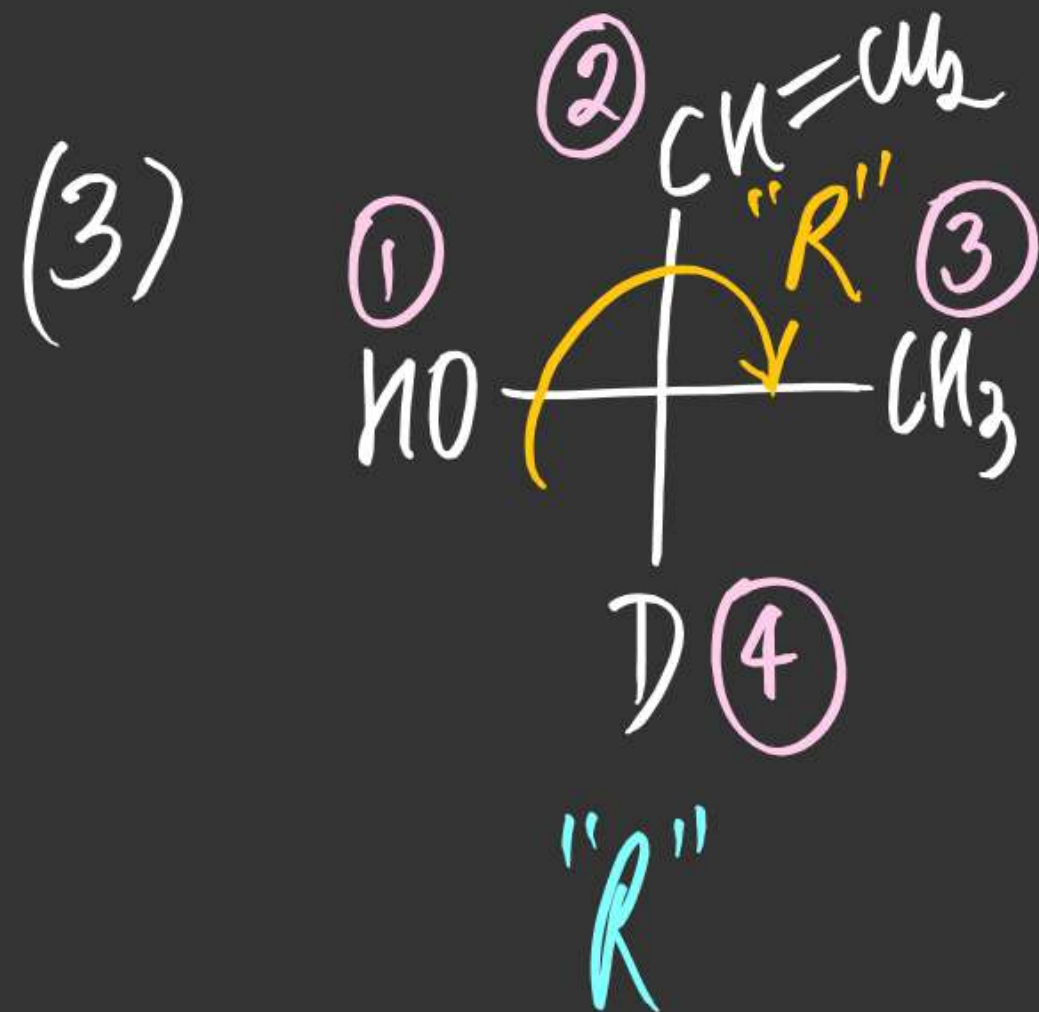


Rule-3! Neglect lowest priority (4)

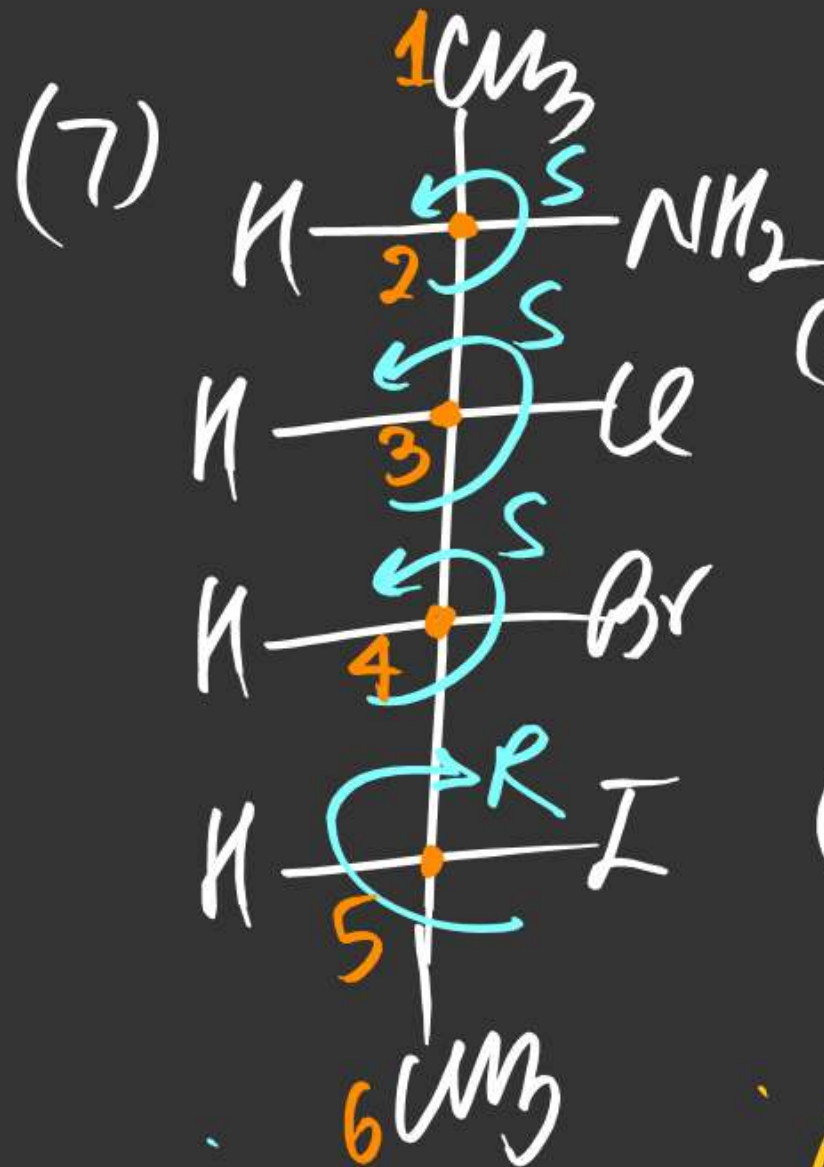
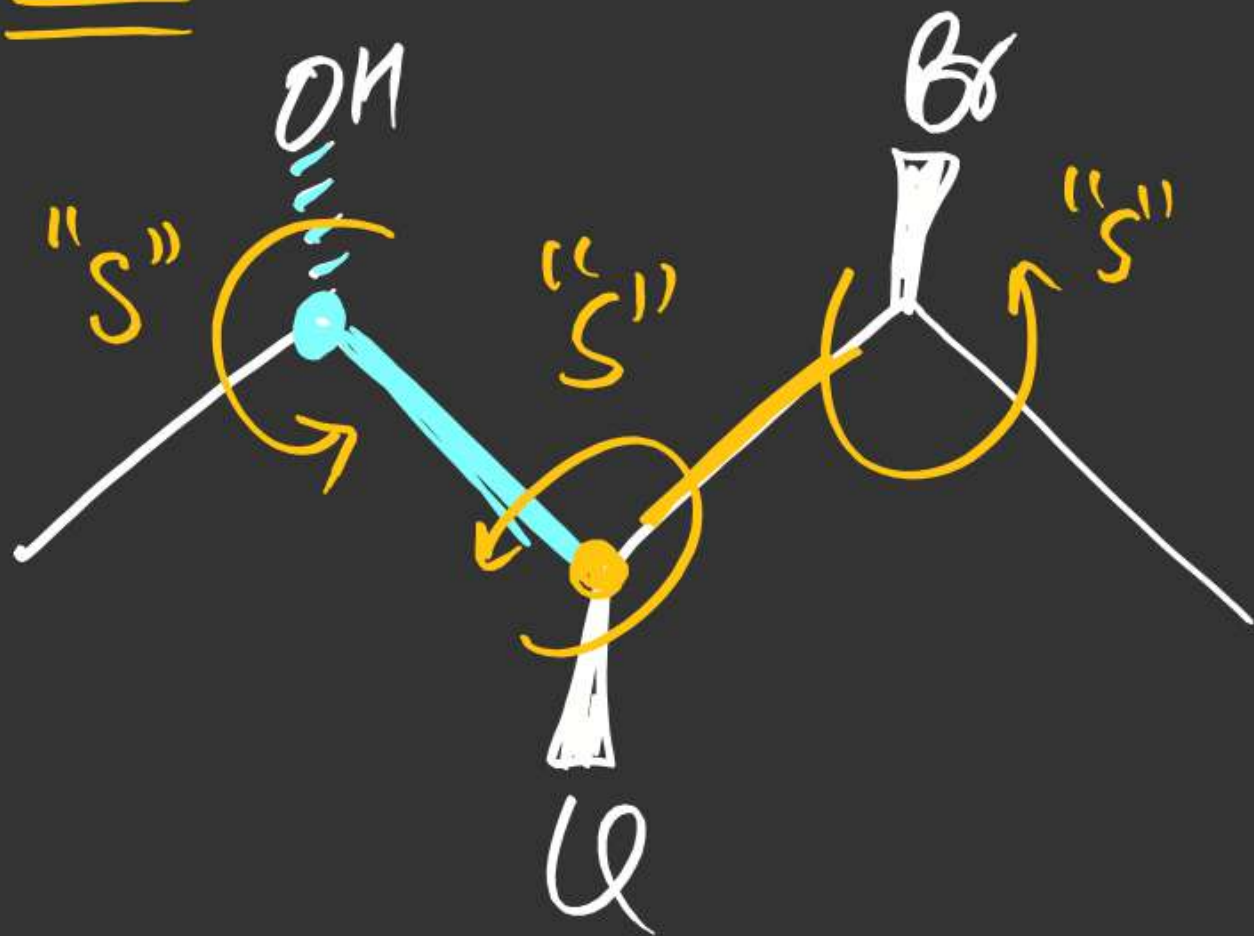
& start from $1 \rightarrow 2 \rightarrow 3$

if it is clockwise \rightarrow "R"

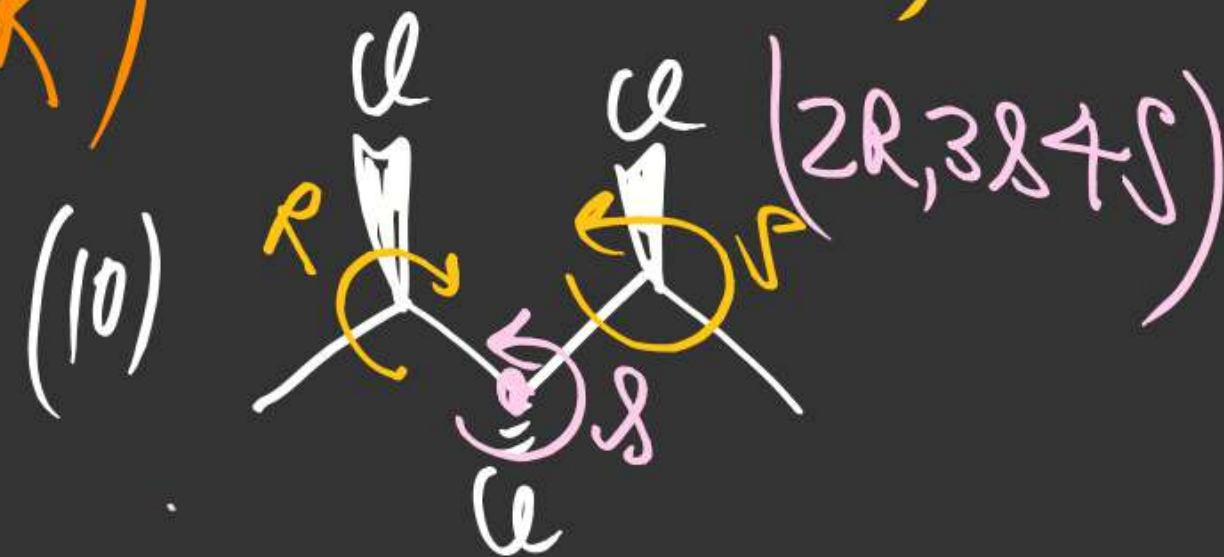
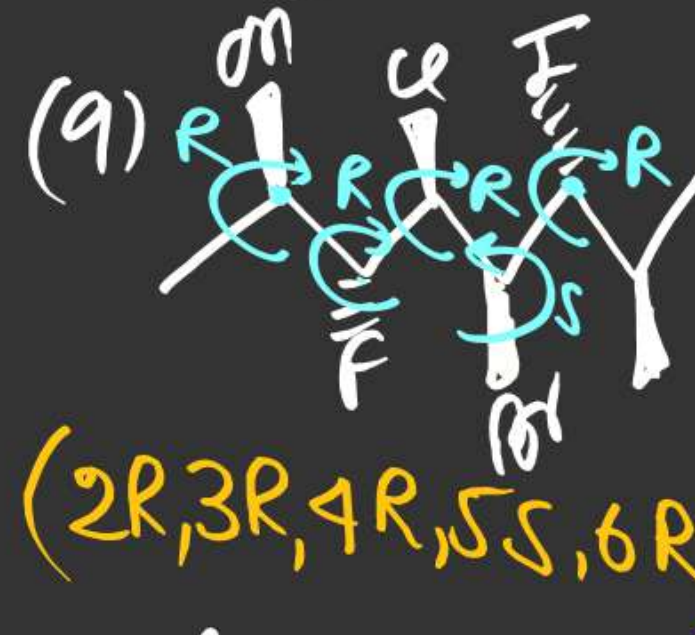
— Anticlockwise \rightarrow "S"



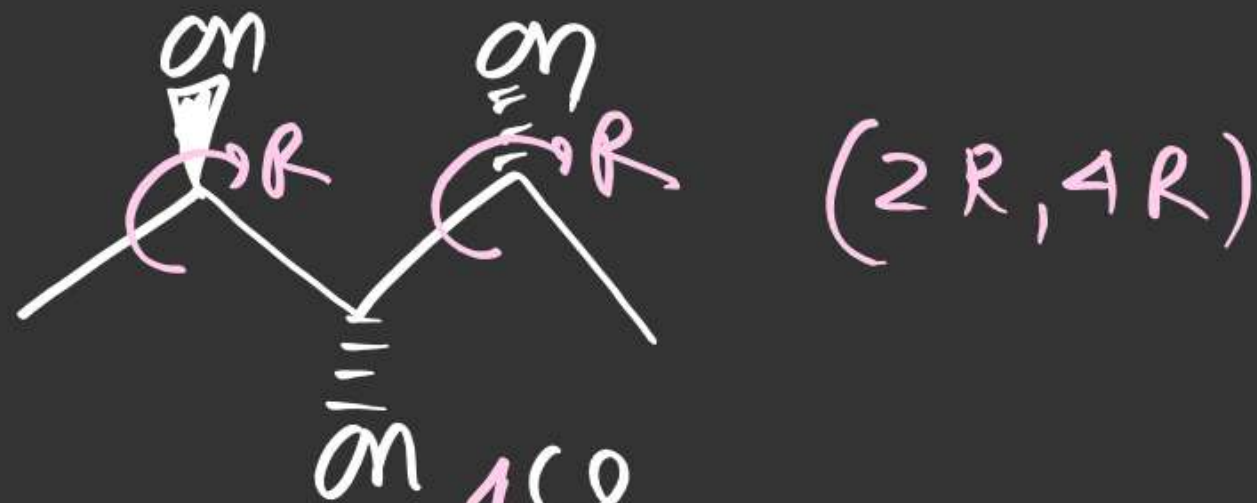
Solⁿ!



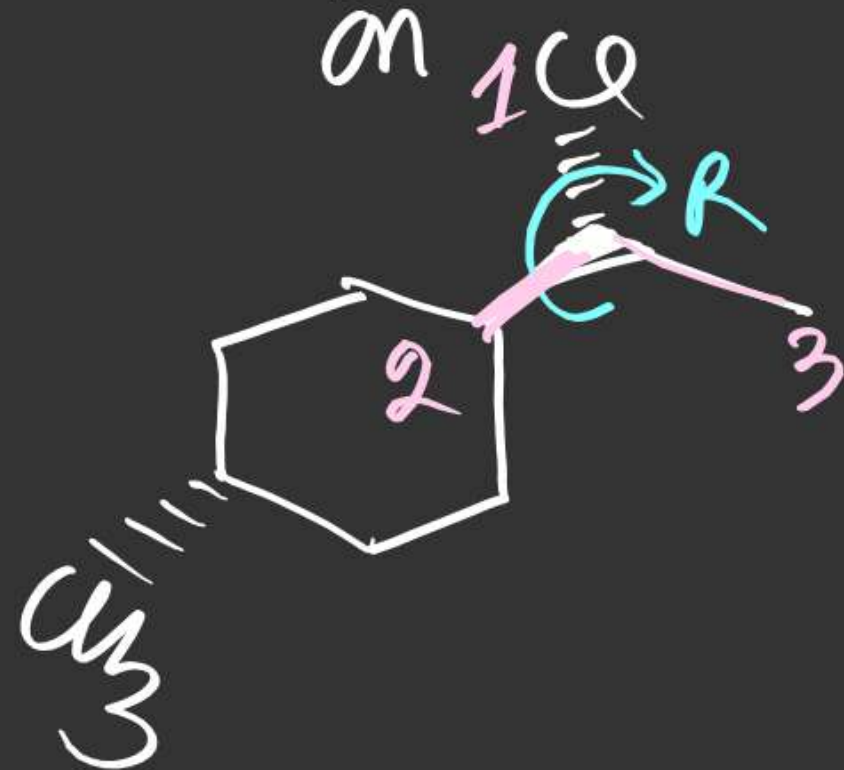
(2S, 3S, 4S, 5R)



(11)



(12)



Symmetry POS, COS AOS, AAOS

Chiral centre

P_s Chiral centre

Fischer Projection formula.

D/L

Threo & Erythro

R & S

Relationship b/w Stereoisomers

Enantiomers

Compounds which are

- (i) Non Superimposable (NO POS, NO COS, NO AAOS)
- (ii) & Mirror images of each other
known as Enantiomers.

Note (i) Enantiomers are always optically

Diastereomer

Compounds which are

- (i) Stereoisomer of each other $\left(\begin{smallmatrix} GI \\ or \\ OI \end{smallmatrix} \right)$
- (ii) & Non mirror images of each other.

known as Diastereomers.

(or)
Stereoisomers which are not Enantiomers
are known as Diastereomers

Active.

(ii) Enantiomers Rotate PPL
By same magnitude But
opposite sense of direction.

(iii) Enantiomers contain same
physical properties like

(BP, MP, Solubility, Refractive
index, dissociation constant etc)

(iv) Enantiomeric mixture can't be
separated by fractional Distillation
method.

Note (i) Diastereomers may

Be

Both Active

Both inactive

& One Active & one inactive

(ii) Diastereomers contain diff.
physical properties like

(BP, MP, solubility, Refractive
index, dissociation constant etc).

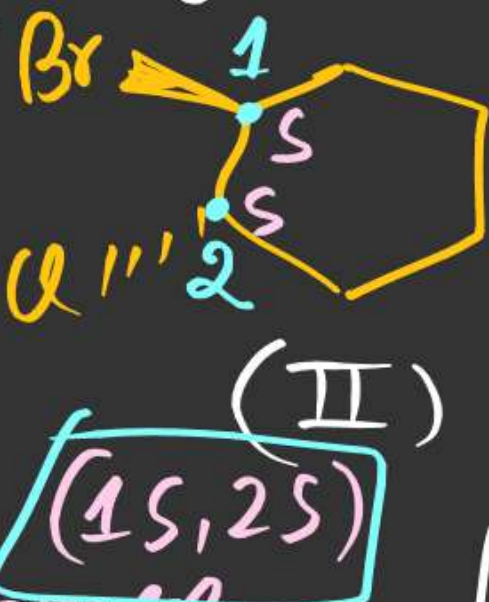
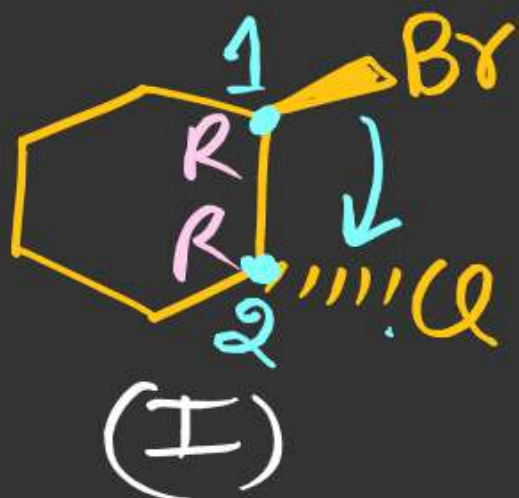
(iii) Diastereomeric mixture can be
separated by fractional Distillation
method.

Find Relationship :-

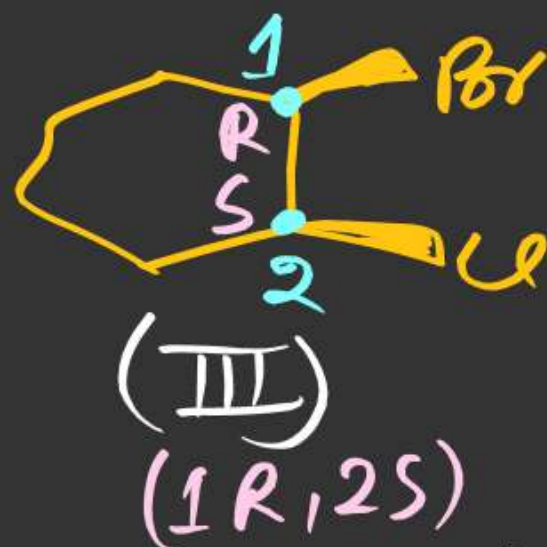
(*) Same MF
 (*) Same Str. Formula

(1)

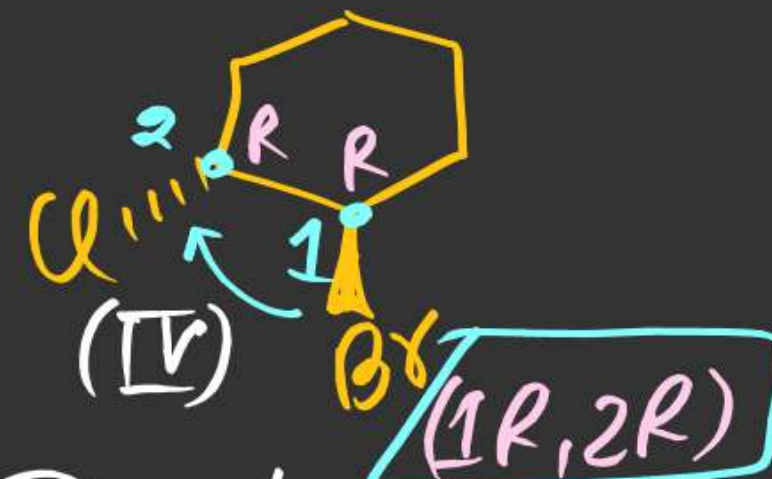
(1R, 2R)



(1S, 2S)



(1R, 2S)



(1R, 2R)

I & II \Rightarrow Enantiomers

Sn absent (R/S, C/S absent)
mirror image

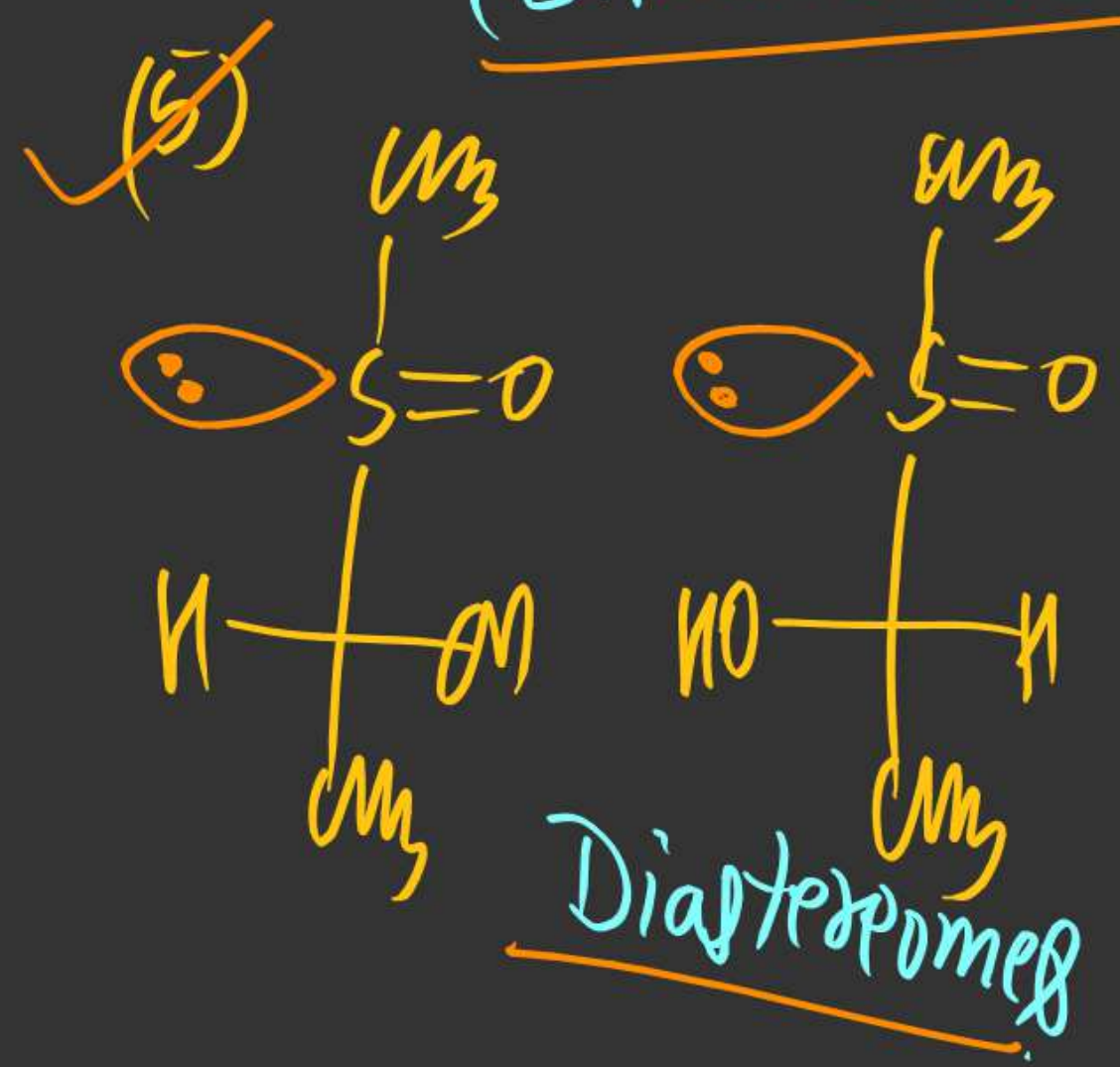
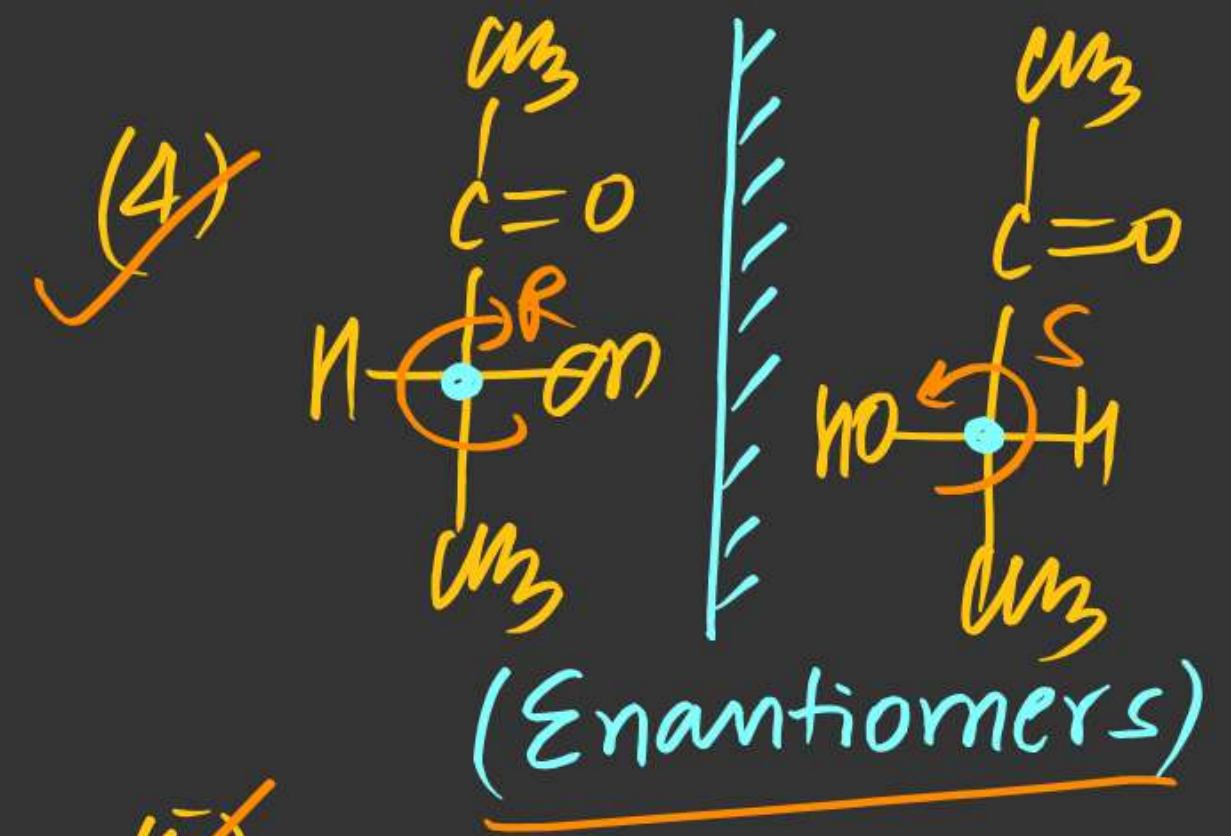
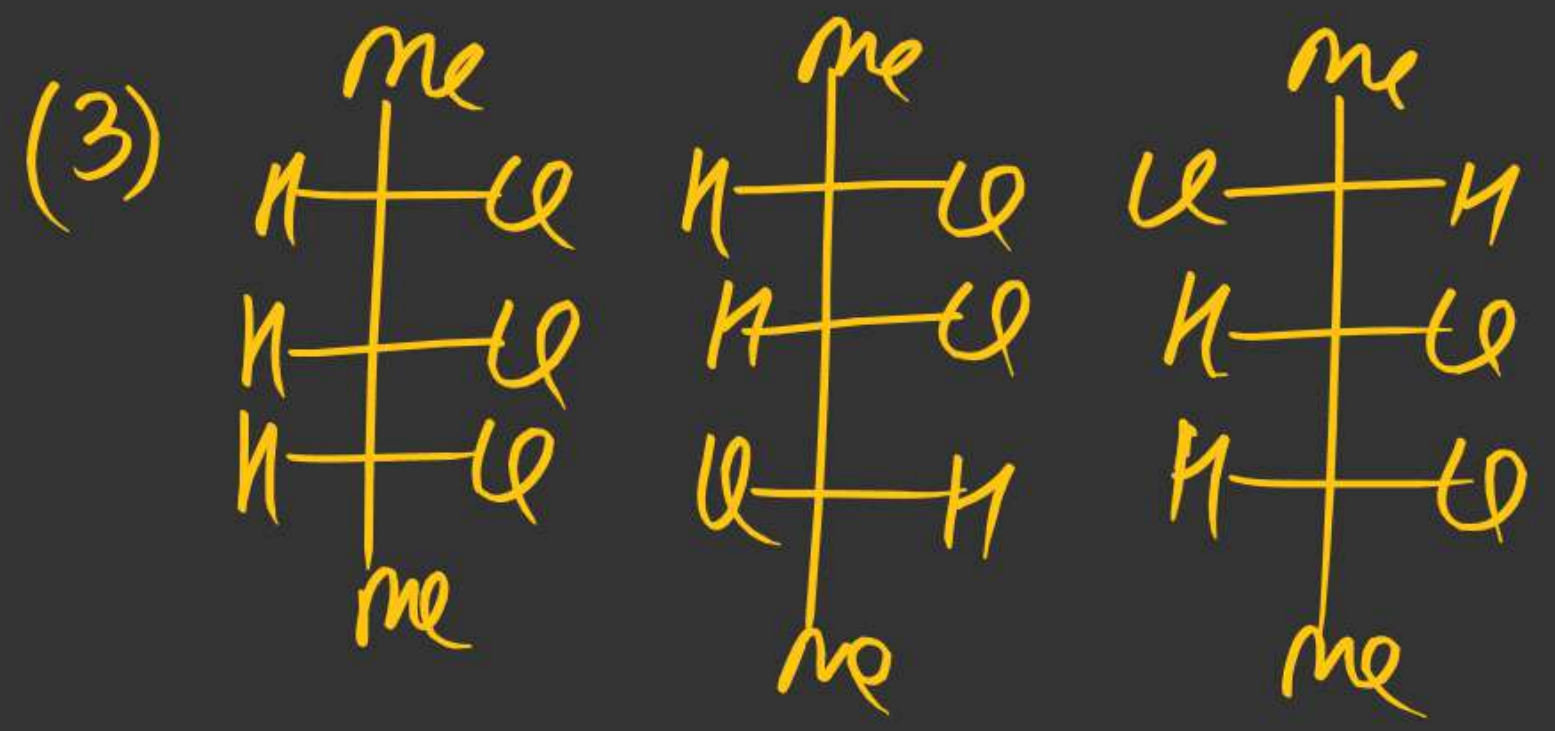
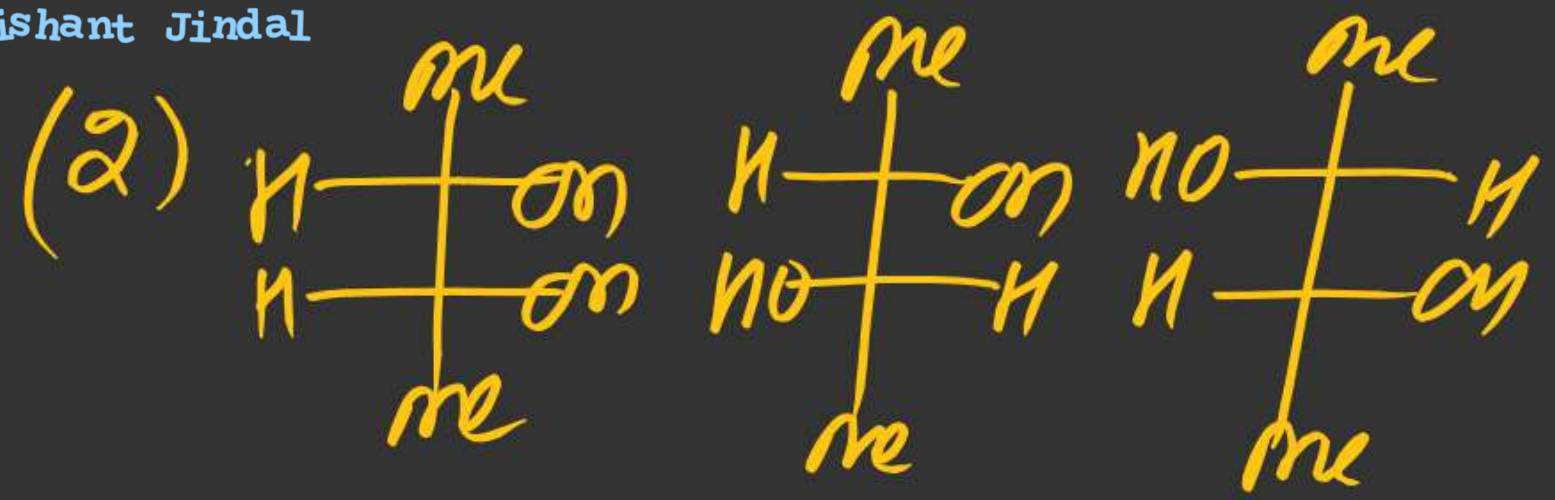
I & III \Rightarrow Diastereomers

Non mirror image

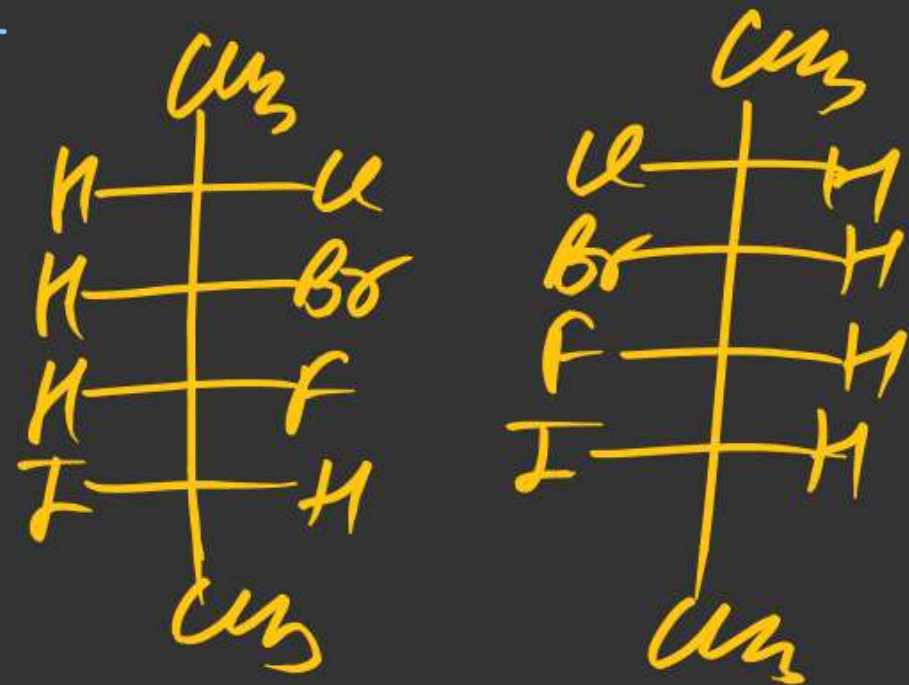
II & III \Rightarrow Diastereomers

Non mirror image

I & IV \Rightarrow identical



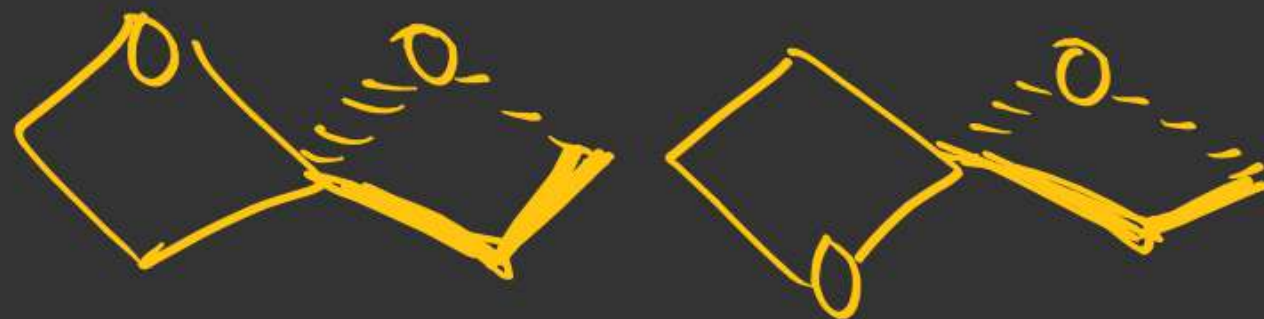
(12)



(13)



(14)



(15)

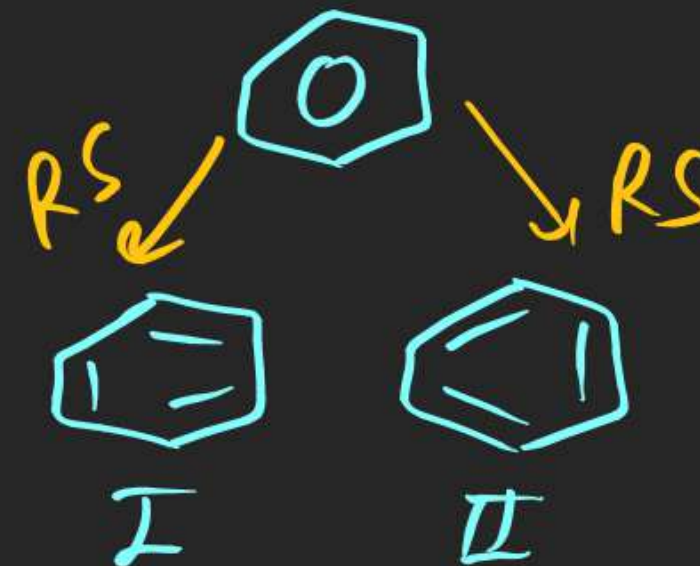
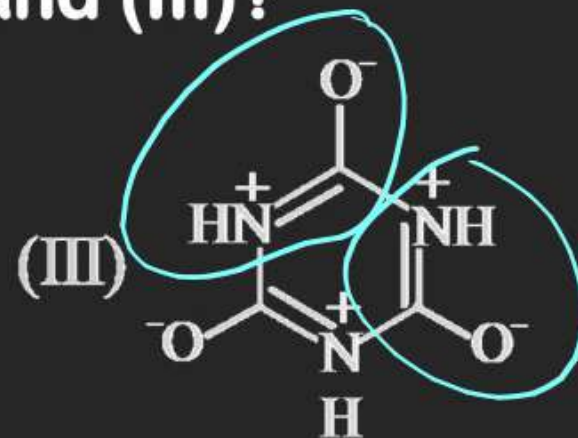
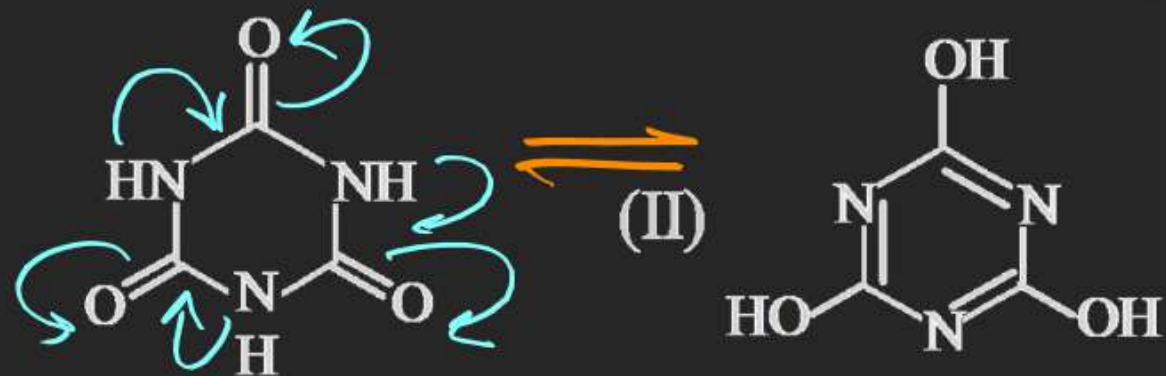


(16)



Structural Isomerism

11. What is relation between (I), (II) and (III)?

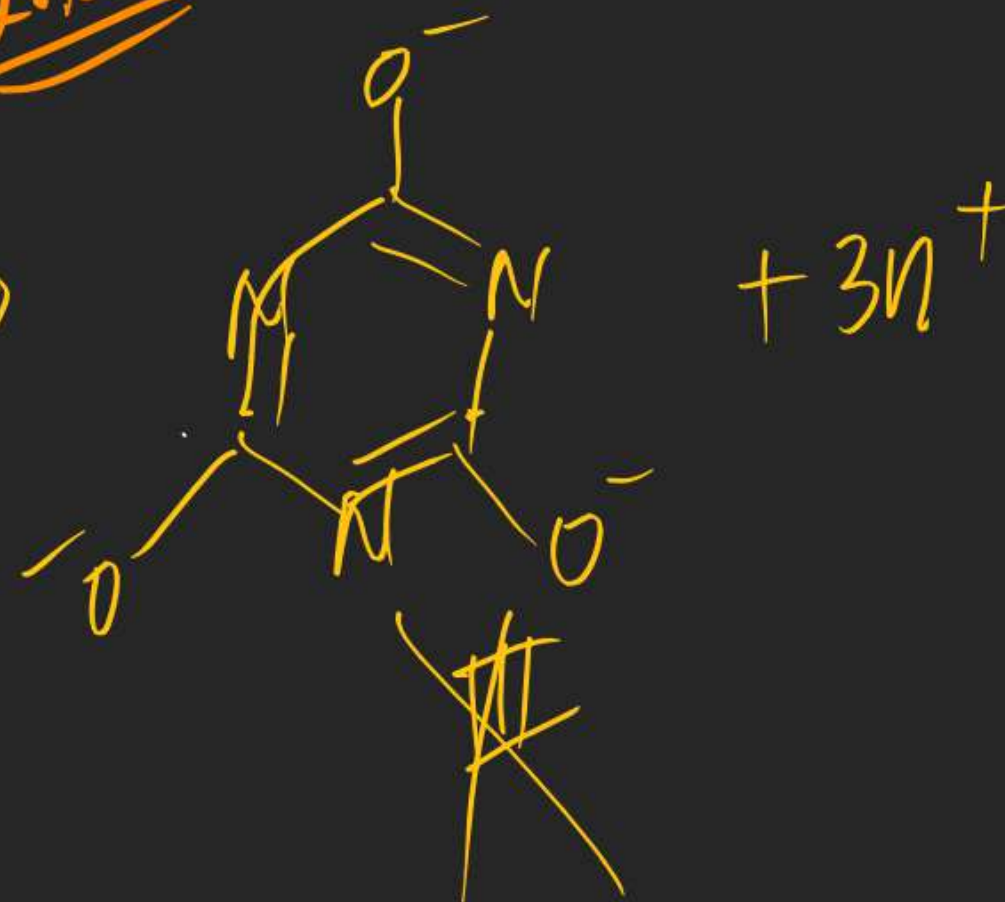
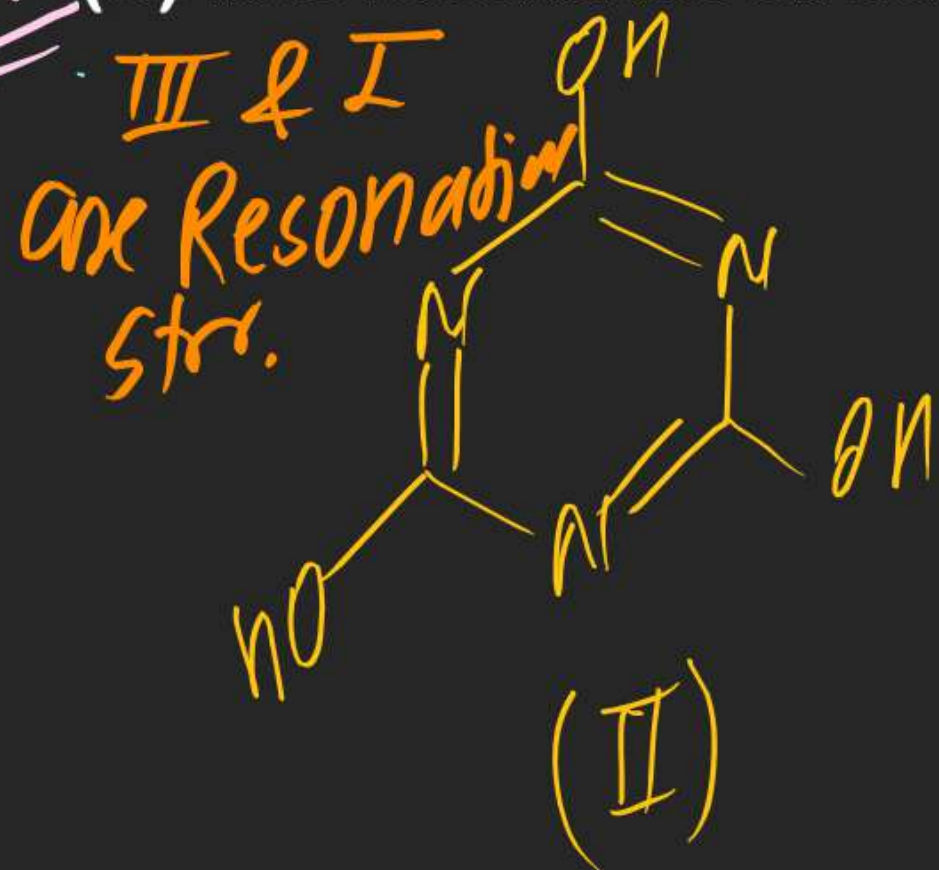


Correct (A) I and II are tautomers

Incorrect (C) III is resonance structure of I

Incorrect (B) III is conjugate base of II

Incorrect (D) no relation exists



Structural Isomerism

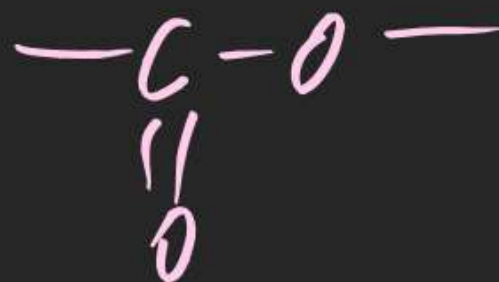
12. The isomerism observed in cyclo alkanes is(are):

(A) metamerism

(B) chain isomerism

(C) position isomerism

(D) Both B and C



Structural Isomerism

13. Only two isomeric monochloro derivatives structure are possible for:

Ans

(A) n-butane

(B) 2, 4-dimethyl pentane

(C) benzene

Ans

(D) 2-methyl propane

Excluding Stereo
~~In Stereo~~

Solⁿ:

(A)



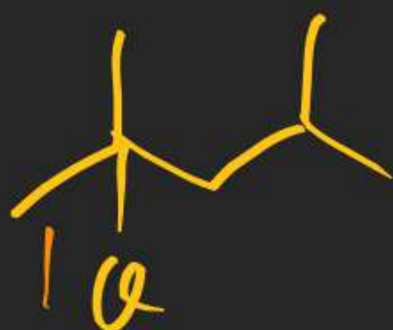
2

3

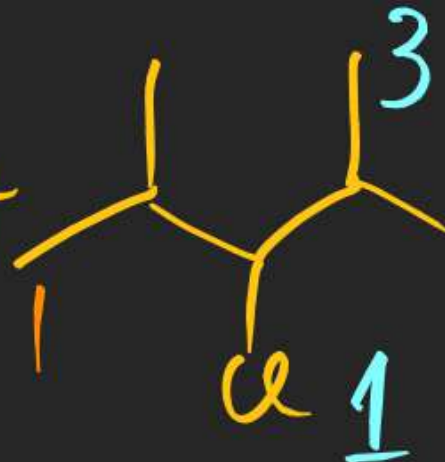
(B)



+



+



3

4

(C)



1

1

(D)



+



2

2

Structural Isomerism

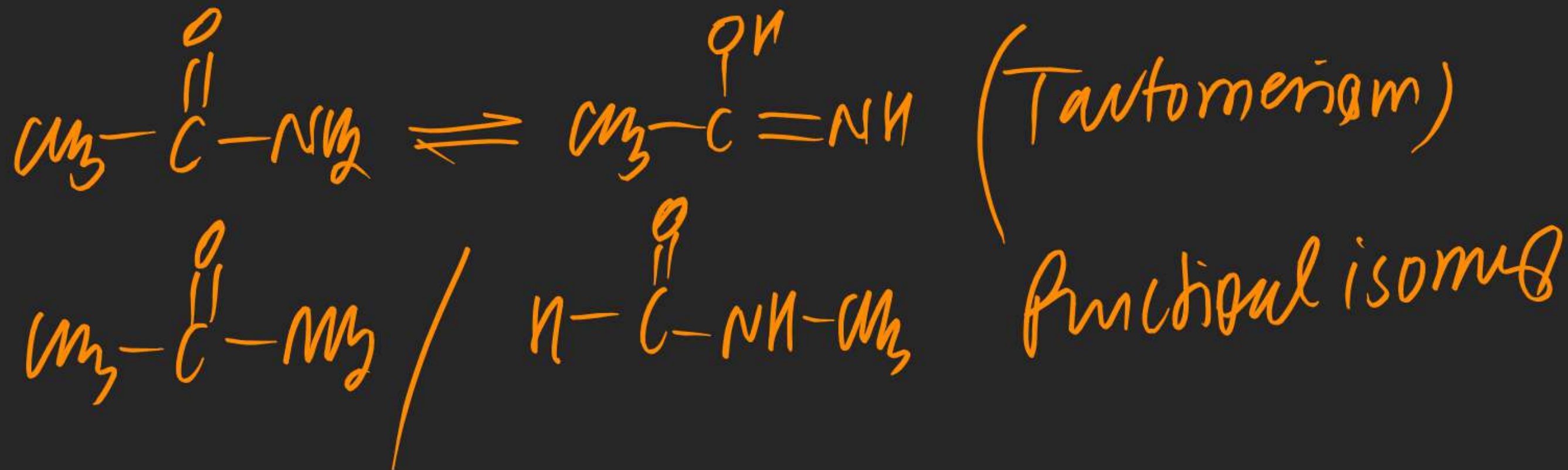
14. An organic compound with molecular formula C_2H_5NO contains doubly linked atoms. It can show:

(A) chain isomerism

(B) Functional Isomerism

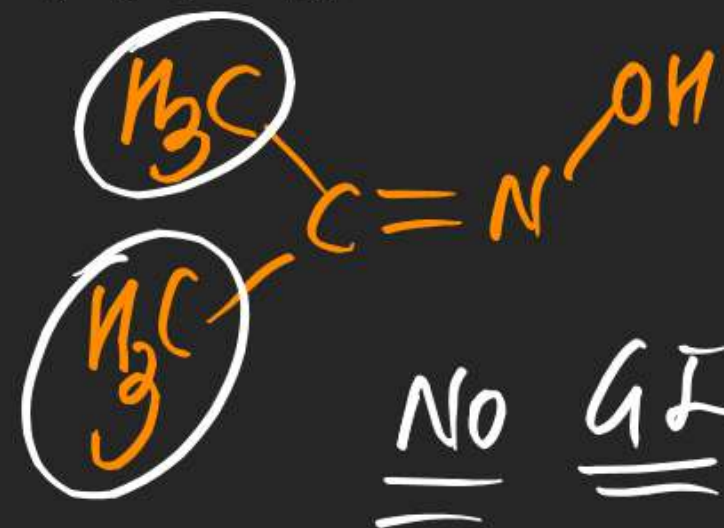
(C) tautomerism

(D) positional isomerism



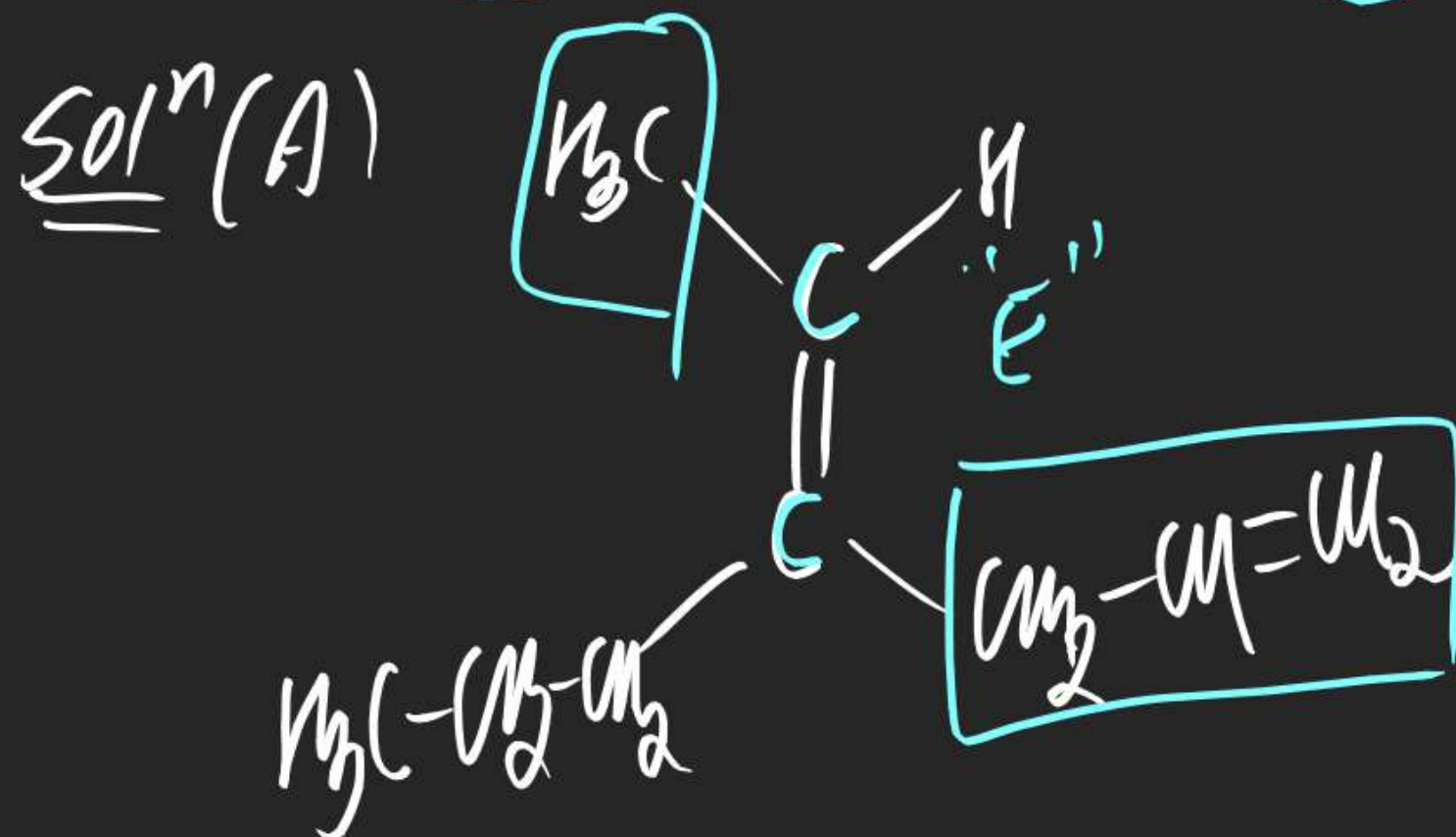
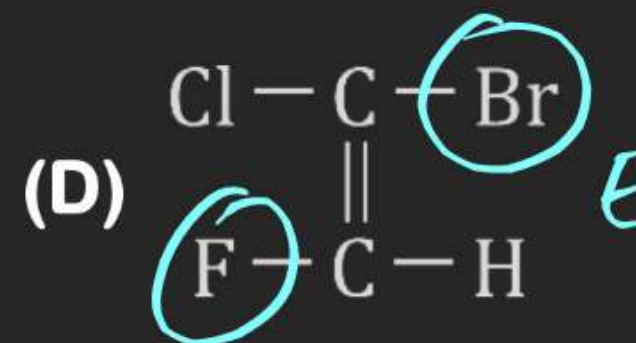
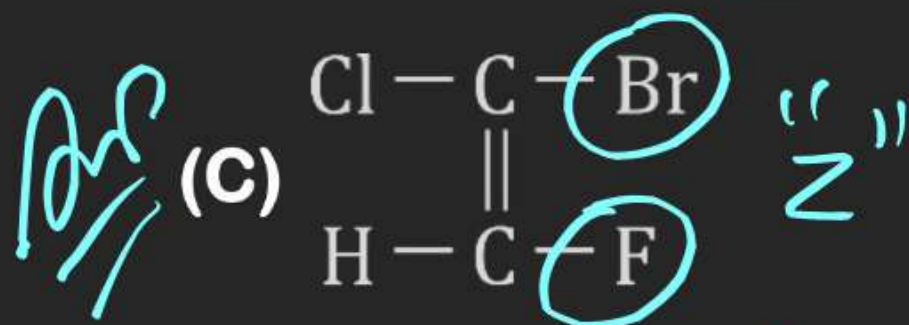
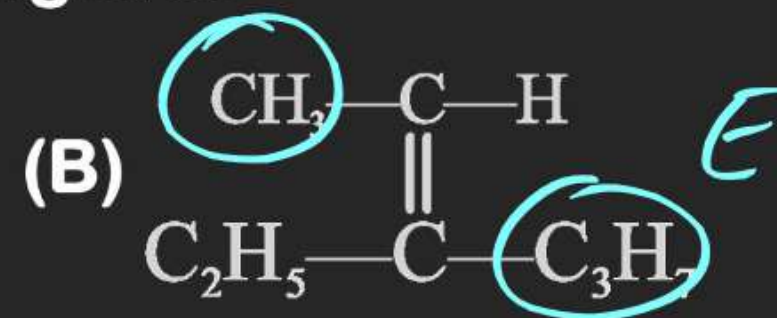
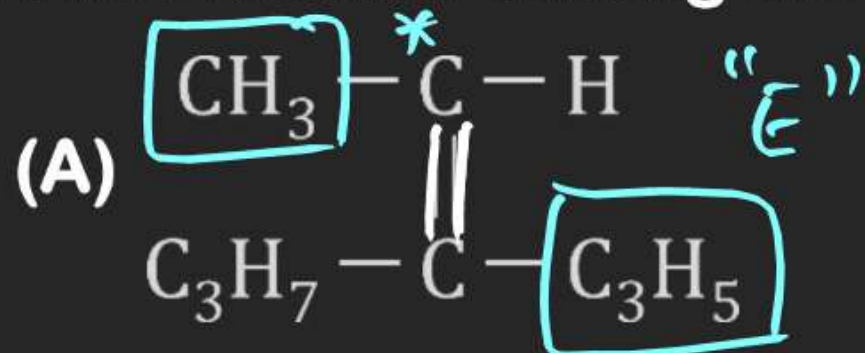
Structural Isomerism

15. Which of the following can exist in 'syn' and 'anti' form?



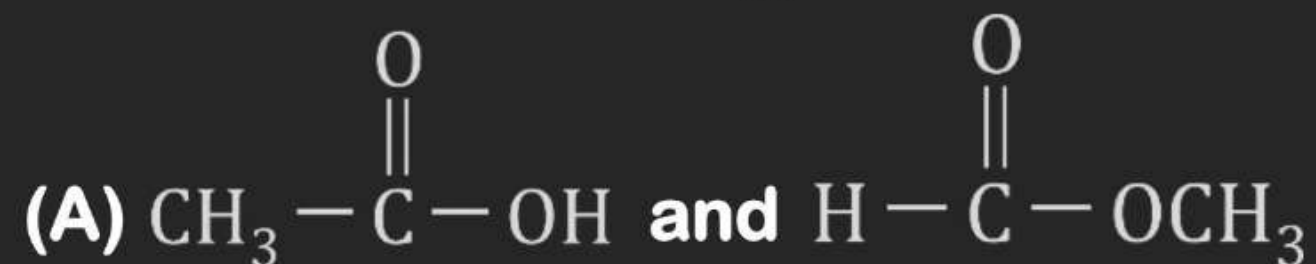
Structural Isomerism

16. The Z-isomer among the following are:



Structural Isomerism

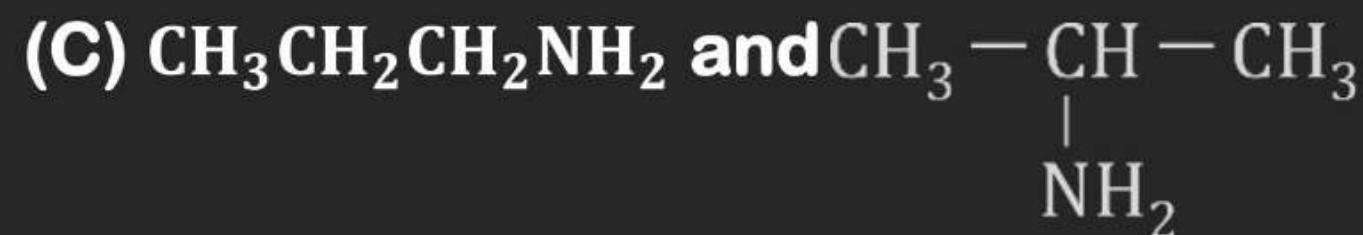
17. Which of the following is/are correct matchings?



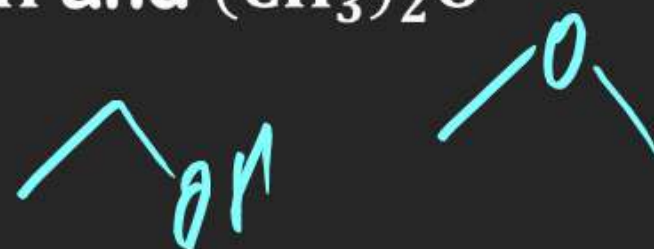
– Metamers



– Position iso



– Tautomers



– Functional isomer

Structural Isomerism

?

19. Which of the following has (have) more number of stable conformations than ethyl chloride?

(A) Butane

(B) Isopropanol

(C) n-pentane

(D) Neohehexane

Structural Isomerism

20. Statement-1 : E-cyclodecene is having more ΔH_c (Heat of combustion) than Z isomer. *Correct*

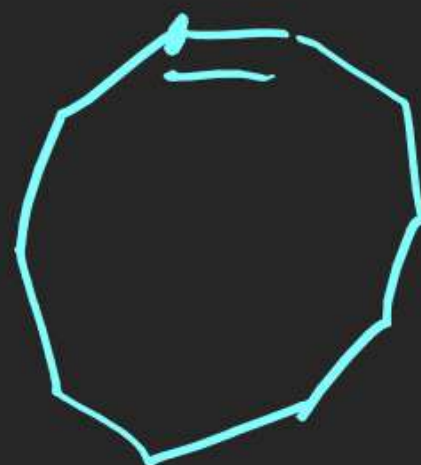
Statement-2 : E-cyclodecene is more stable than Z isomer. *Incorrect*

(A) Statement- 1 is true, statement- 2 is true and statement- 2 is correct explanation for statement- 1 .

(B) Statement- 1 is true, statement- 2 is true and statement- 2 is NOT the correct explanation for statement-1.

Ans (C) Statement- 1 is true, statement- 2 is false.

(D) Statement- 1 is false, statement- 2 is true.



Cyclodecene show

$HOC \propto \text{No. of Carbon atom}$
 $\propto \text{stability}$

stability

$C_{10}H_{18} > C_{10}H_{18}$

$Z > E$

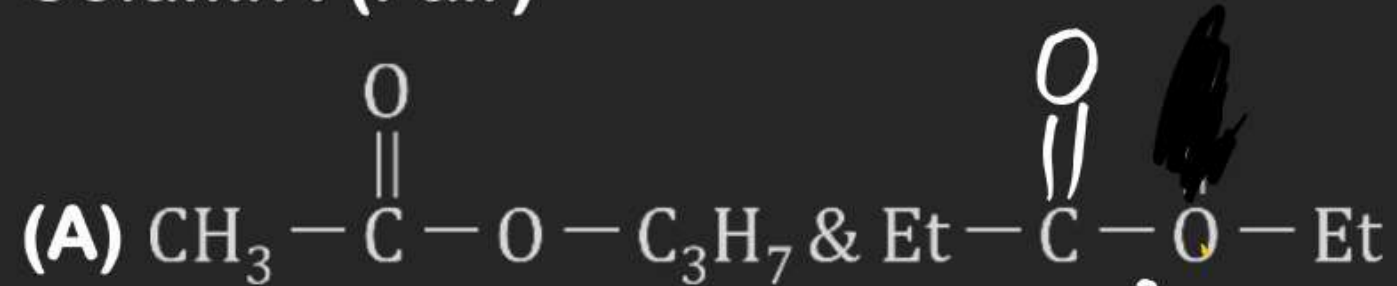
Structural Isomerism

Structural
Geometrical

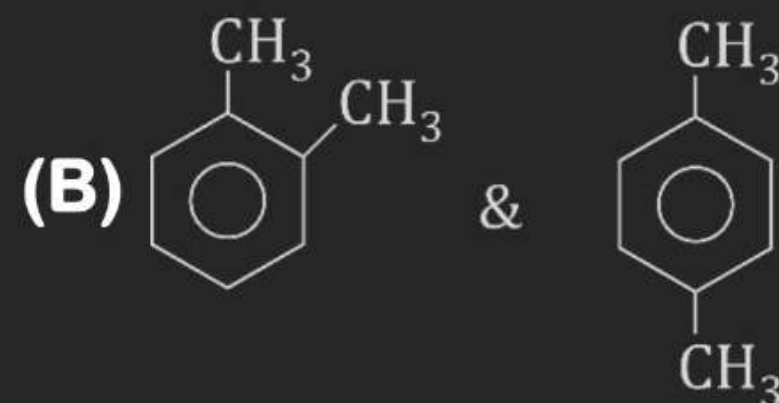
21. Match the Column I with Column II:

Column I (Pair)

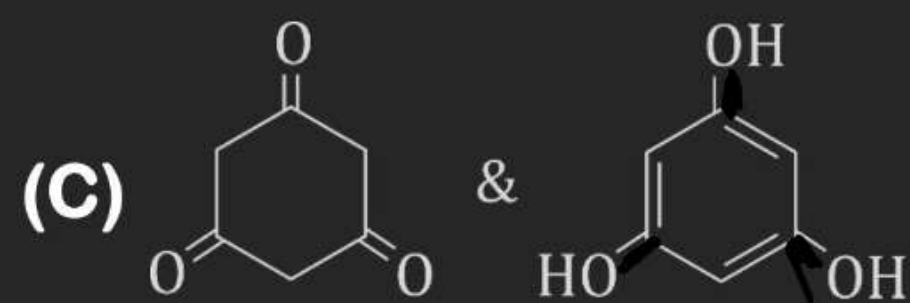
Column II (Relation)



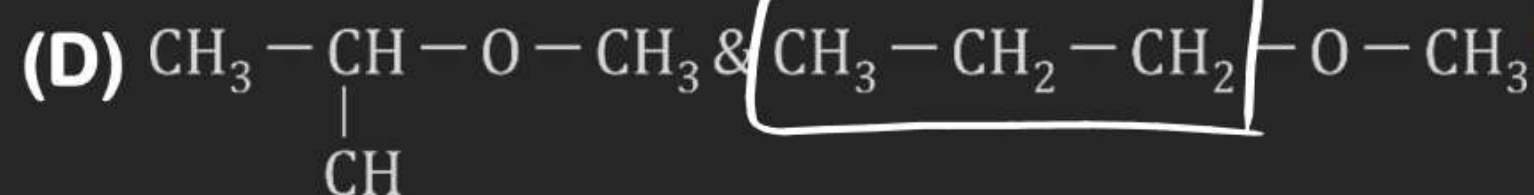
(P) Chain isomer



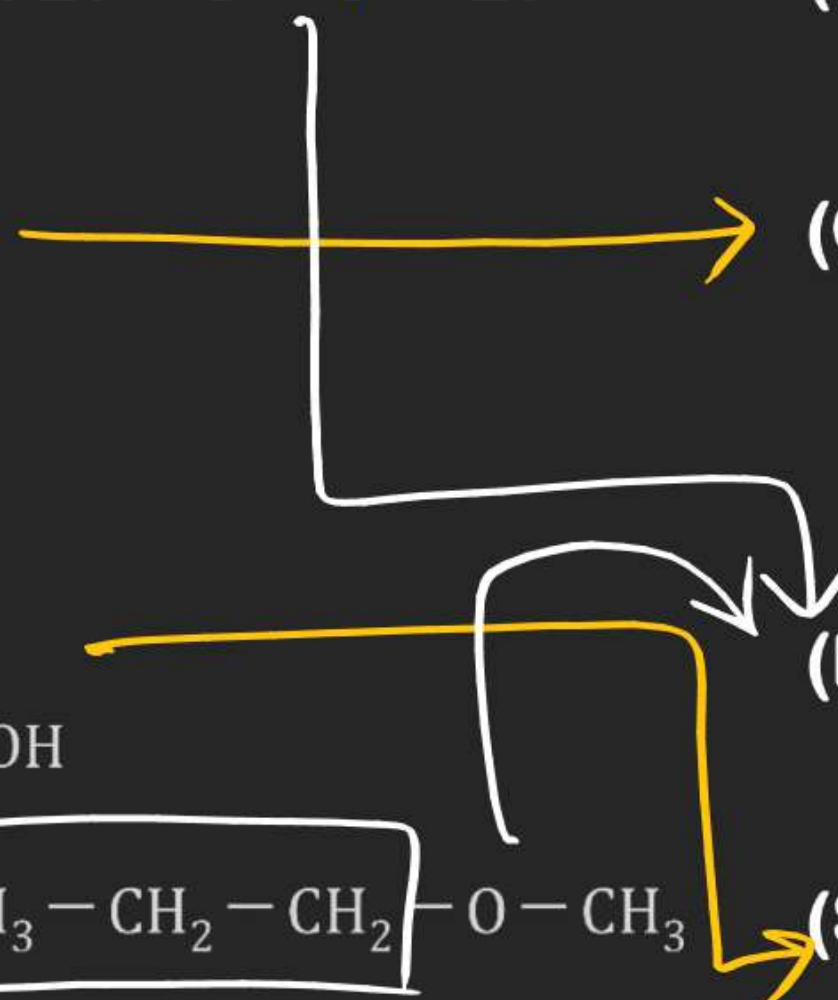
(Q) Positional isomer



(R) Metamers

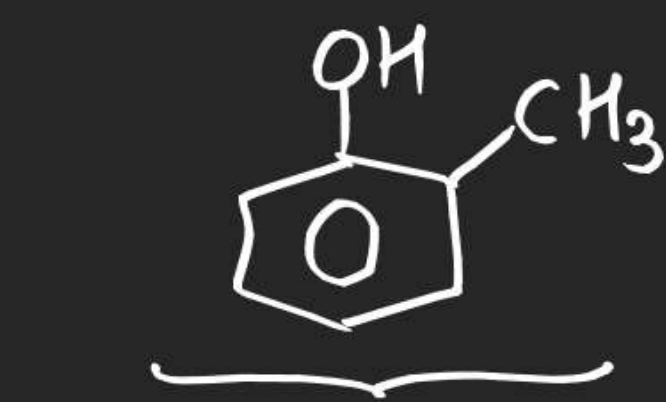


(S) Tautomers

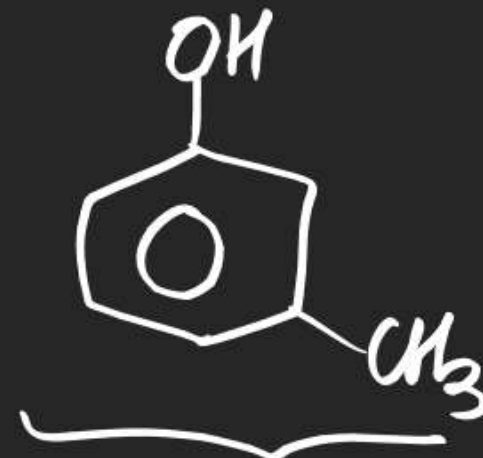


Structural Isomerism

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



o-Cresol



m-Cresol



p-Cresol



Anisole

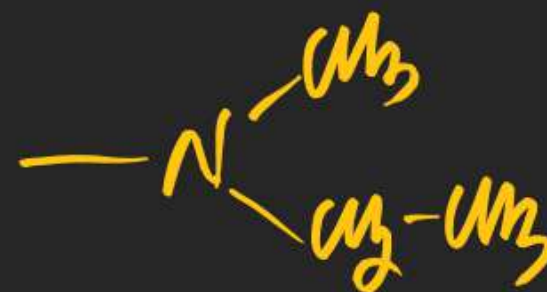
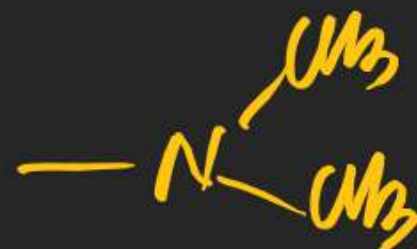


Benzyl
Alcohol

Structural Isomerism

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

$$DBE = 0$$



6

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

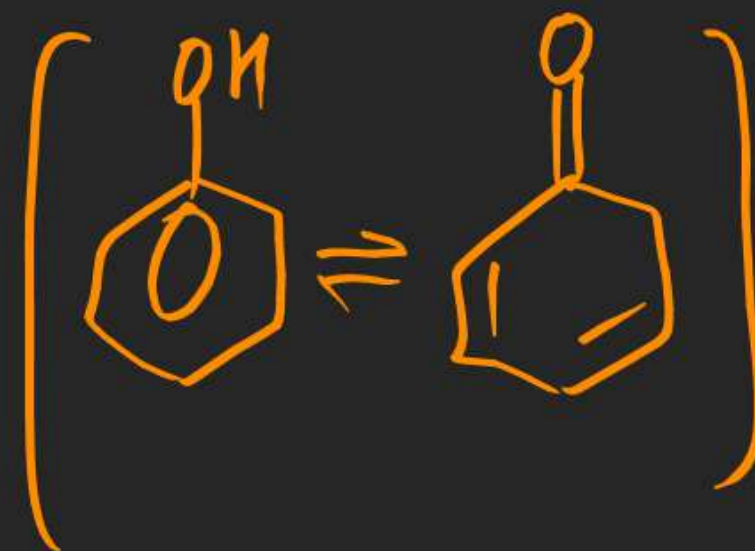
(b) Propanoic acid and methyl acetate

(c) Methyl acetate and ethyl formate

(d) o-Nitrophenol and P-nitrophenol

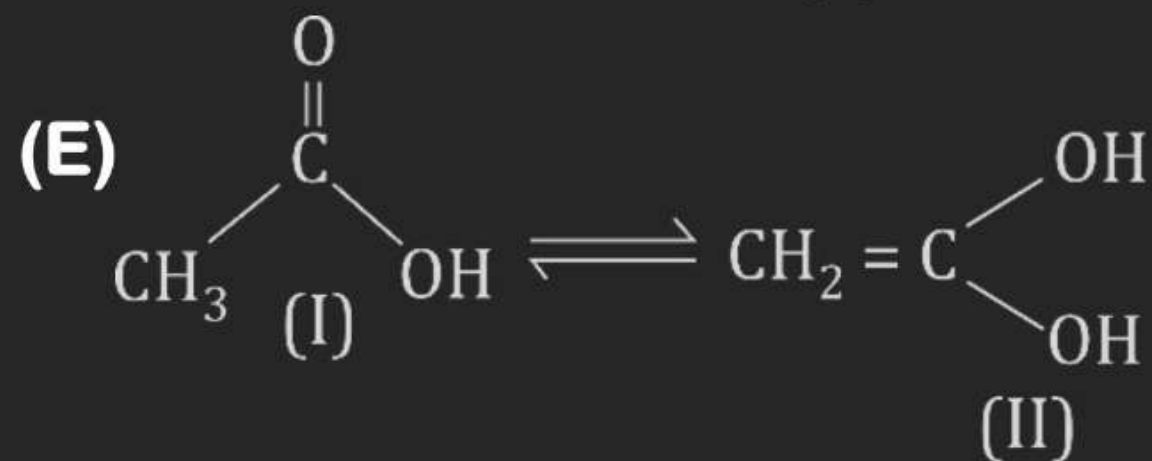
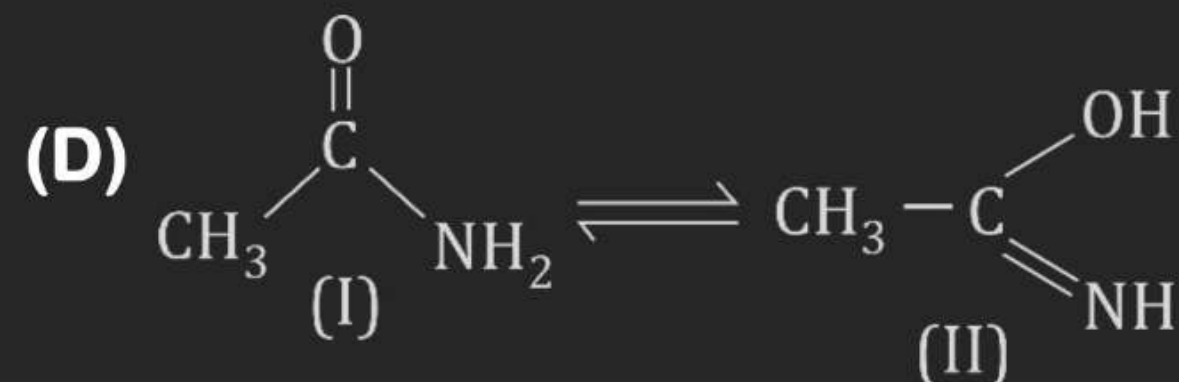
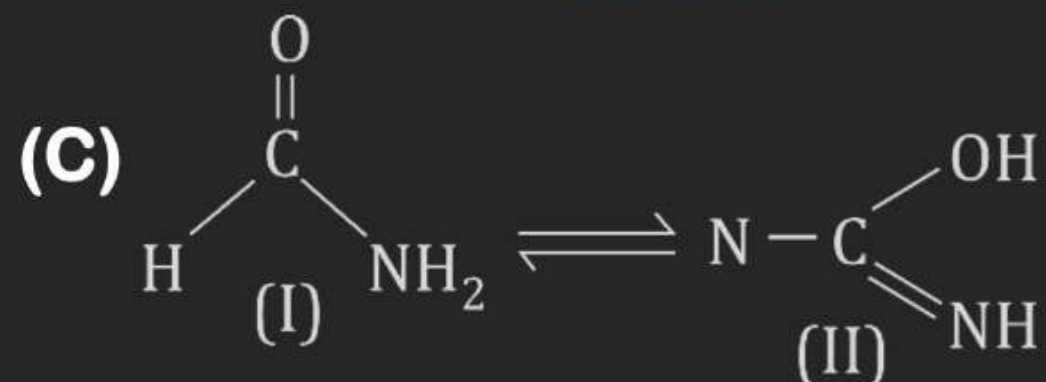
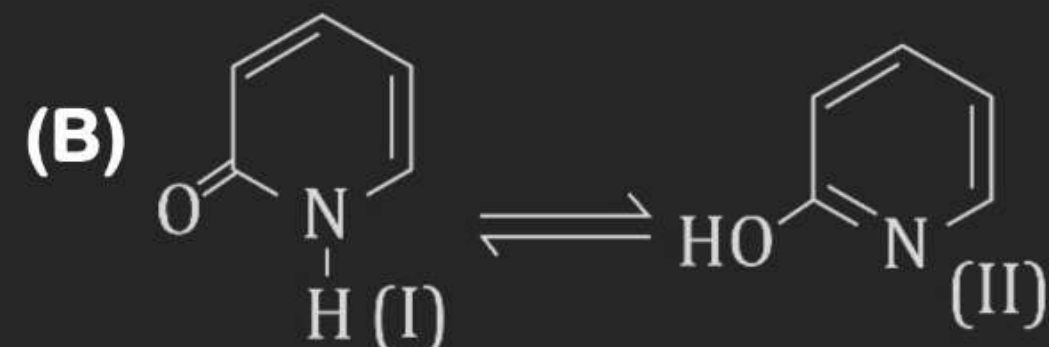
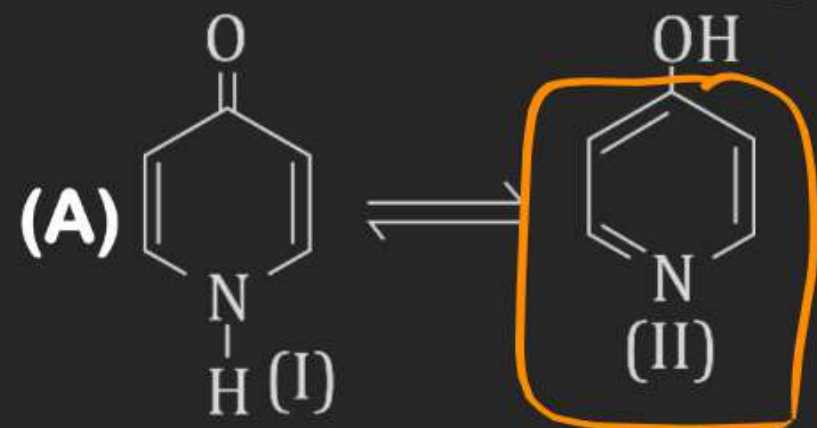
(e) Anisole and o-cresol

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



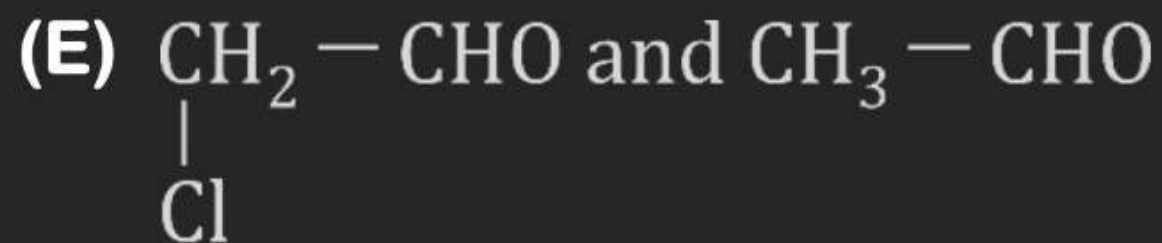
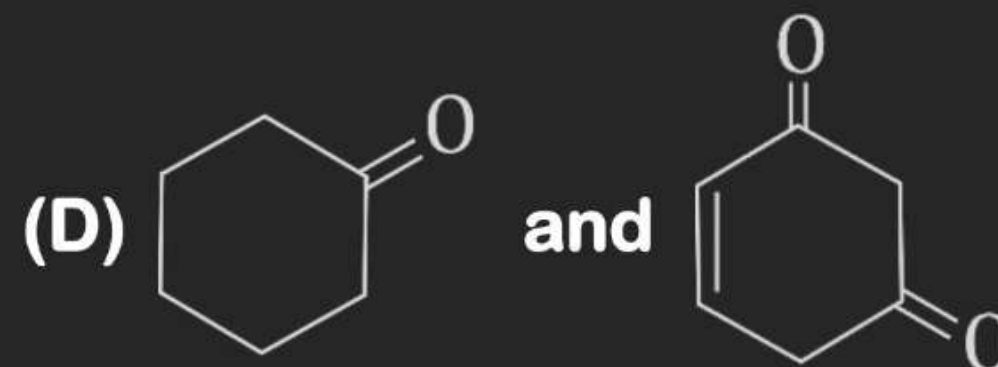
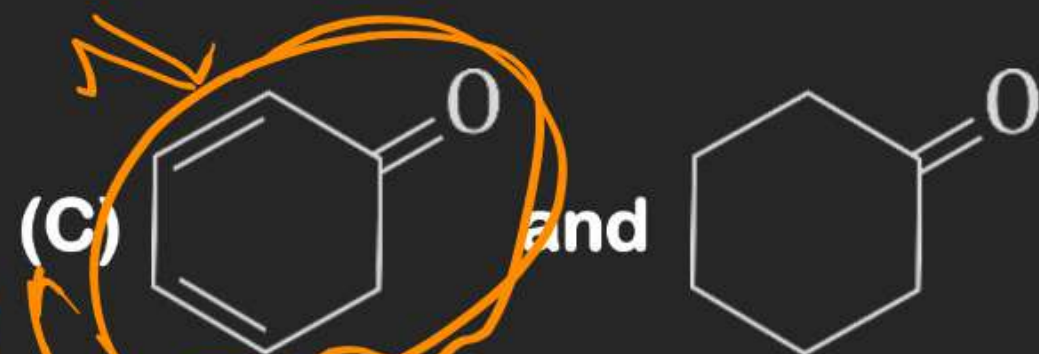
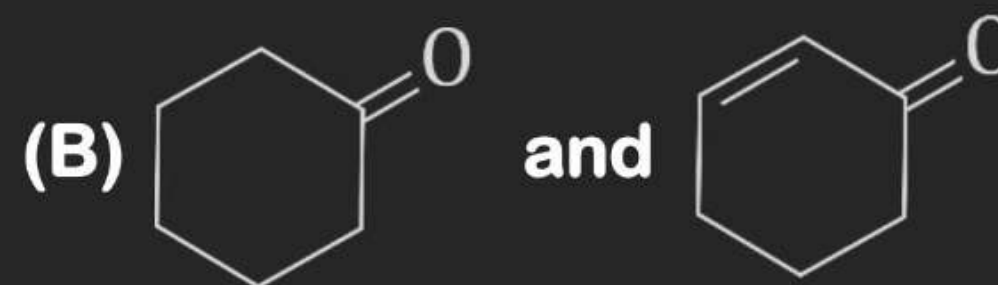
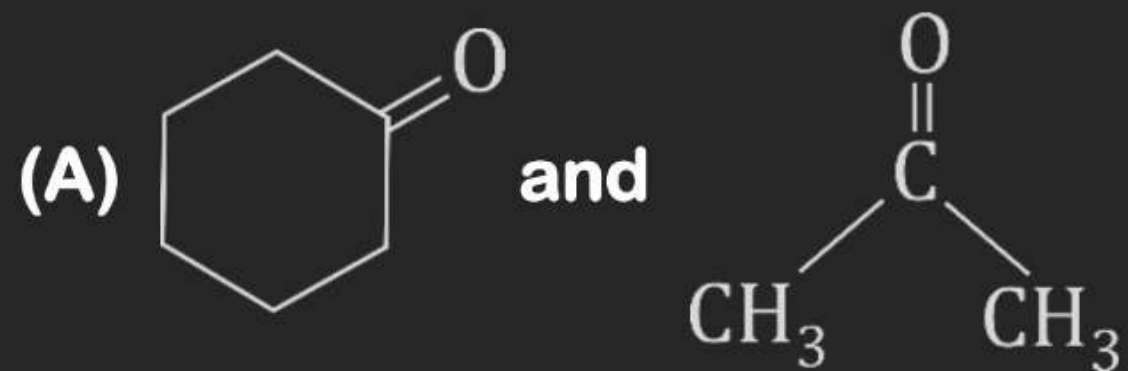
Structural Isomerism

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



Structural Isomerism

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



Handwritten orange scribble.