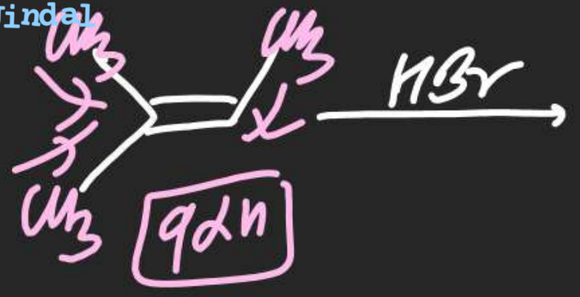
(7) 

(8) 

γ7 γ8

rate of E addn ∝ Nucleophilicity of alkene

Compare Br rate

(9) 

(10) 

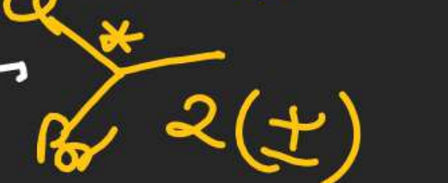
$\gamma_{10} > \gamma_{14} > \gamma_{15} > \gamma_{17} > \gamma_{16}$

(11) 

(12) 

(13) 

(14) $CH_2=CH_2$ 

(15) $Cl-CH=CH_2$ (−I > +R) 

(16) $O_2N-CH=CH_2$ (−I & −R) 

(17) $Me_3N-CH=CH_2$ (−I ⊕) 

(18) $MeO-CH=CH_2$ (+R) 

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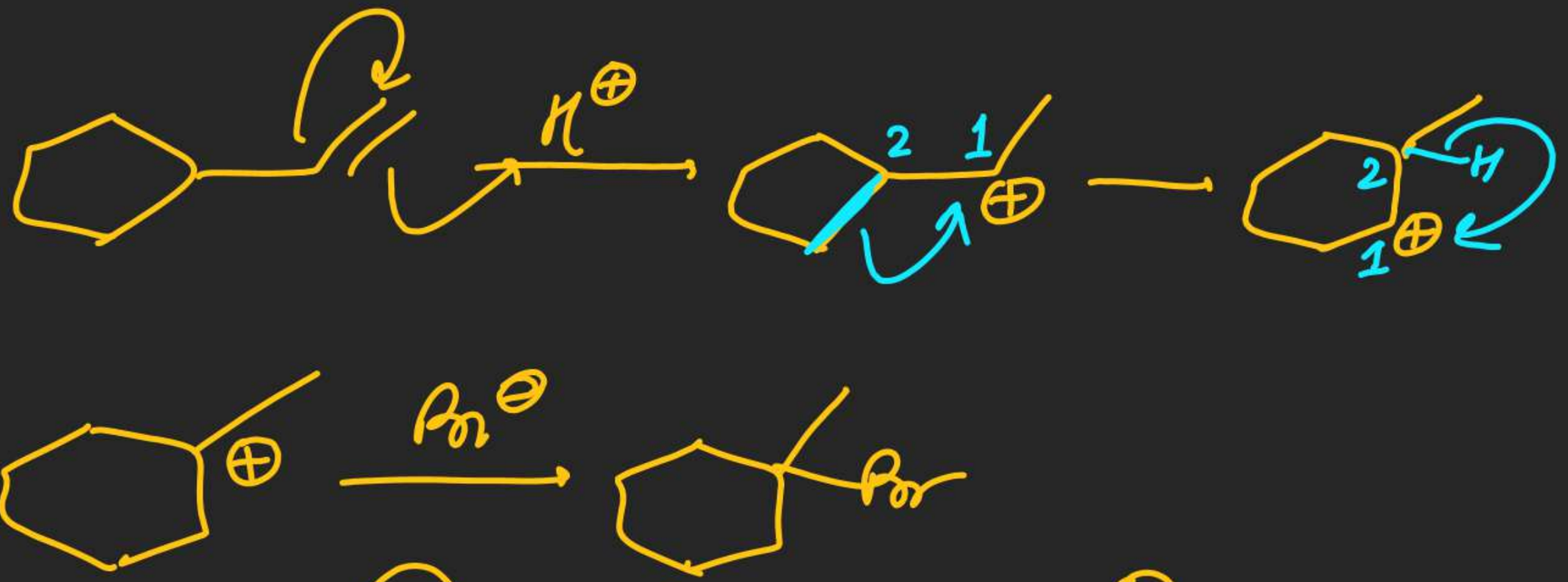
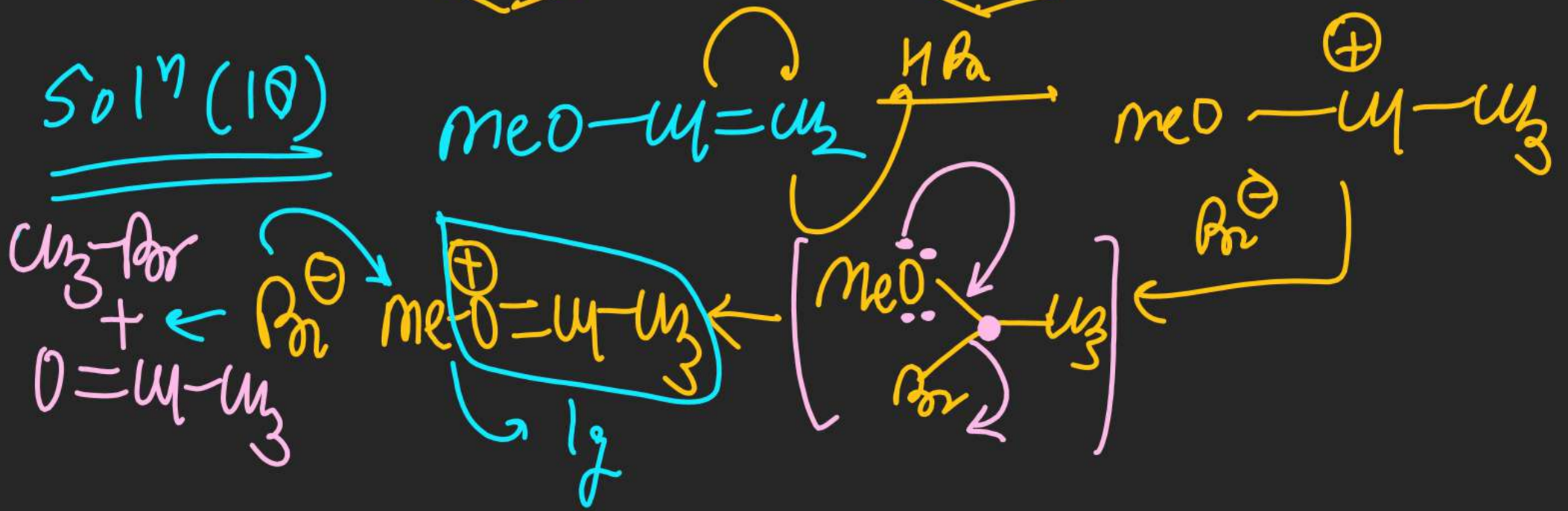
Soln (11)



Soln (10)



$\gamma_{14} > \gamma_{19}$

(19) $HC \equiv CH \xrightarrow[\text{(Excess)}]{HBr}$

Sol^n: $HC \equiv CH \xrightarrow{HBr} CH_2=CH^{\oplus} \xrightarrow{Br^{\ominus}} Br-CH=CH_2 \xrightarrow{HBr} Br-CH_2-CH_2^{\oplus} \xleftarrow{Br^{\ominus}} \underset{Br}{Br-CH_2-CH_3}$

(20) $HC \equiv CH \xrightarrow{DCl} P \xrightarrow{DBr} Q$

(21) $\overset{+H}{CH_3}-\underset{\delta+}{C} \equiv \underset{\delta-}{CH} \xrightarrow{H-Br} P' \xrightarrow[\delta+\ \delta-]{D-Cl} Q$

P': $Cl-CH=\underset{D}{CH}$ and $Cl-\overset{*}{CH}(Br)-CH_2-D$, 2(±)

$CH_3-\underset{Br}{C}=CH_2$

(22) $CH_2=CH-CH_2 \xrightarrow{HBr}$ $CH_3-\overset{*}{\underset{Br}{\underset{Cl}{C}}}-CH_2-D$, 2(±)

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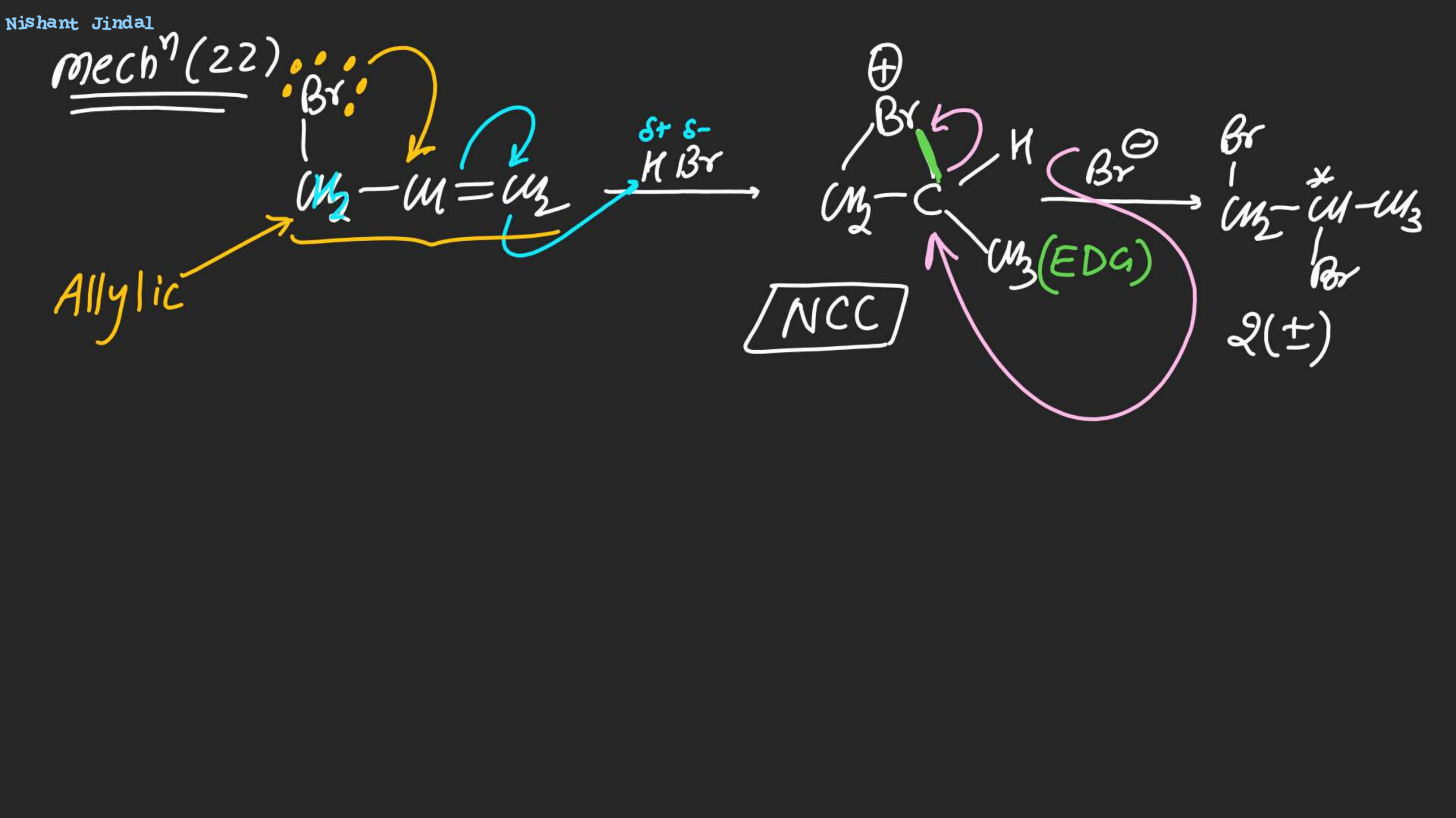

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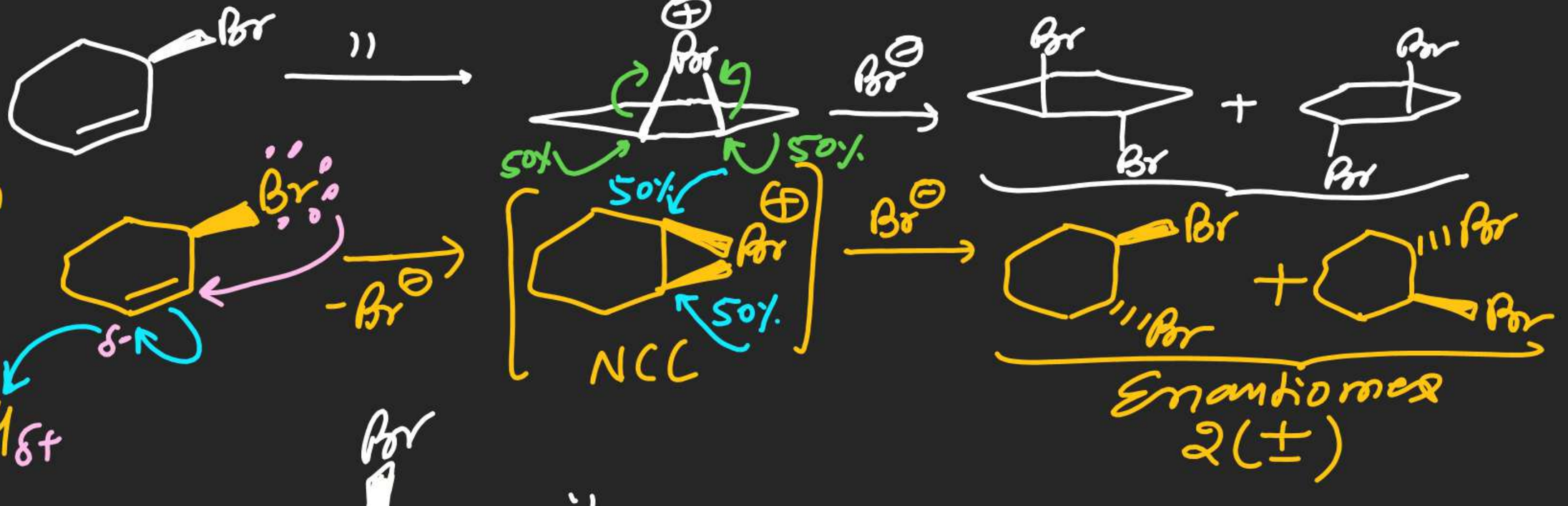
(23)



(24)

(25)

Schedule!-

Sheet ✓ 40 Question at least (EX-3)

Copy ✓ no. discussion

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Stereo Isomerism

EXERSICE - 2

Q.1 Molecular formula $C_5H_{10}O$ can have :

(A) 6-Aldehyde, 4-Ketone

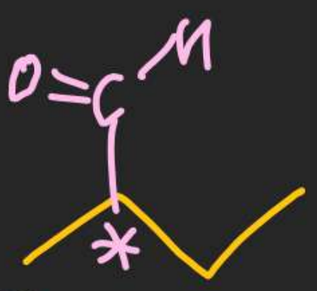
(B) 5-Aldehyde, 3-Ketone

(C) 4-Aldehyde, 3-Ketone

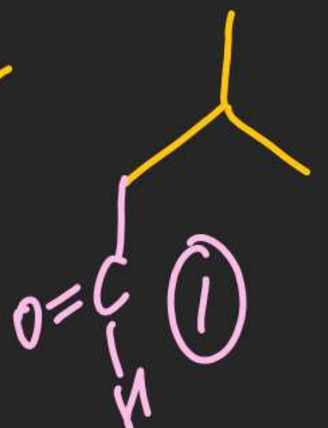
(D) 5-Aldehyde, 2 -Ketone

Soln: $C_5H_{10}O$ (DOU = 1)

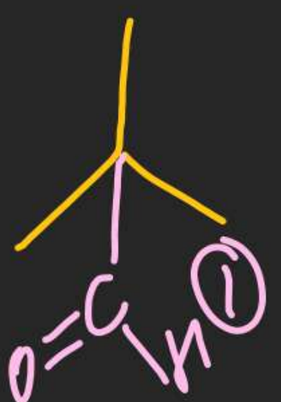
Aldehyde $\left(-\overset{\overset{O}{\|}}{C}-H\right)$

① 

② (d+l)



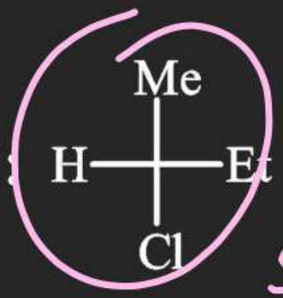
①



①

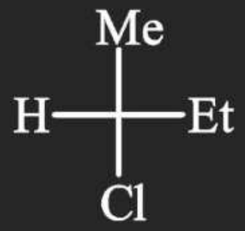
∴ ⑤

Stereo Isomerism

Q.2 Statement 1: 

is a chiral resolvable molecule.

Sn absent (True)

Statement 2: 

is non-superimposable on its mirror image. (True)

(A) Statement- -1 is true, Statement- 2 is true; Statement -2 is not the correct explanation of Statement -1

(B) Statement-1 is true, Statement-2 is true ; Statement-2 is the correct explanation of Statement-1

(C) Statement-1 is true, Statement-2 is false

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

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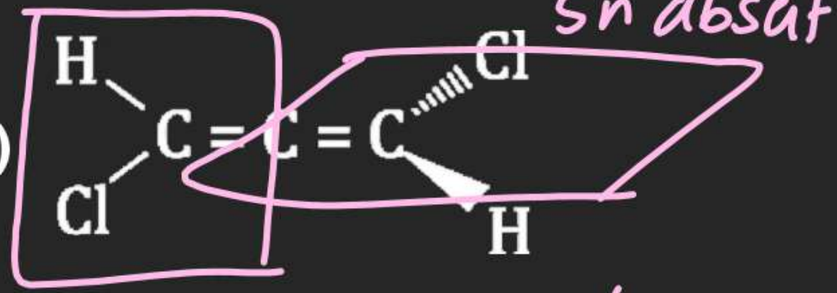
Stereo Isomerism

Q.4 Which of the following compounds are optically active?

(A) $CH_3 - \overset{*}{C}H(OH) - CH_2 - CH_3$

(B) $H_2C = CH - CH_2 - CH = CH_2$ Sn present

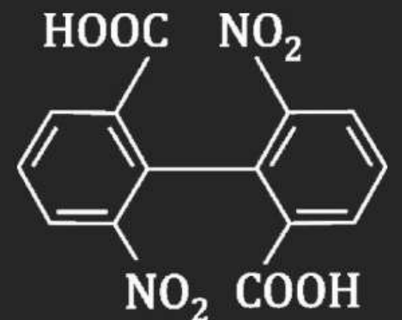
(C)



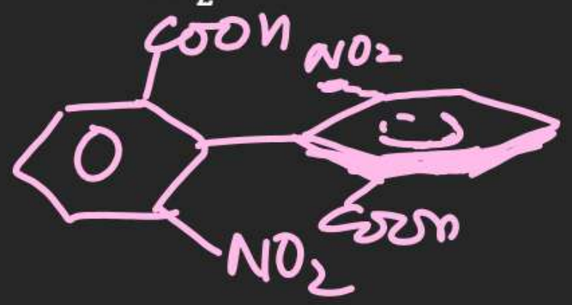
Sn absent

Sn absent

(D)



Sn absent



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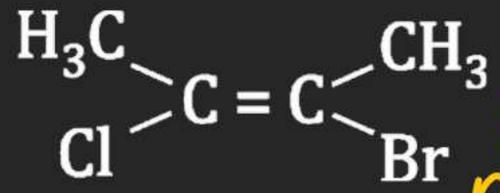
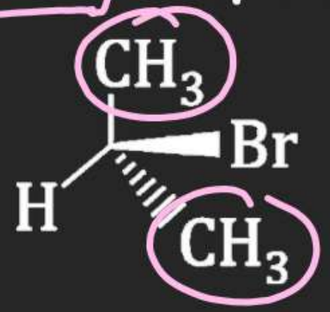
Stereo Isomerism

Q.10 Among the following the non- resolvable compound is/are :

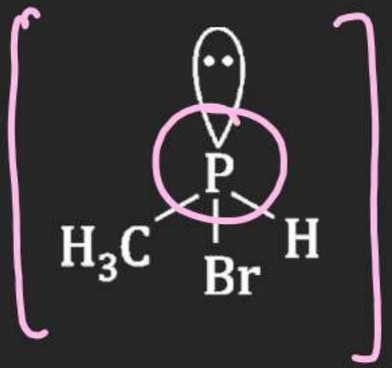
(A) 

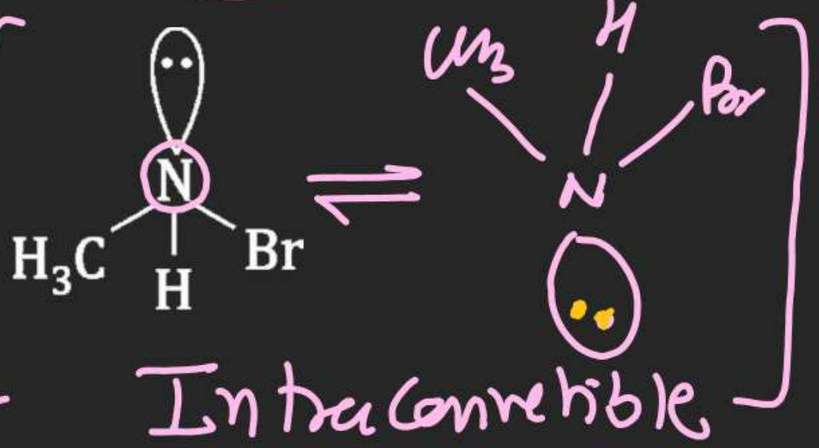
POS present

(B) 

POS present

Sn present
POS/COS

(C) 

(D) 

Interconvertible
Non Resolvable
(Amine inversion)

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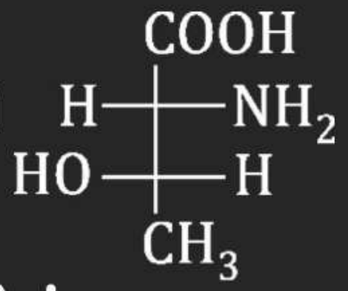
Stereo Isomerism

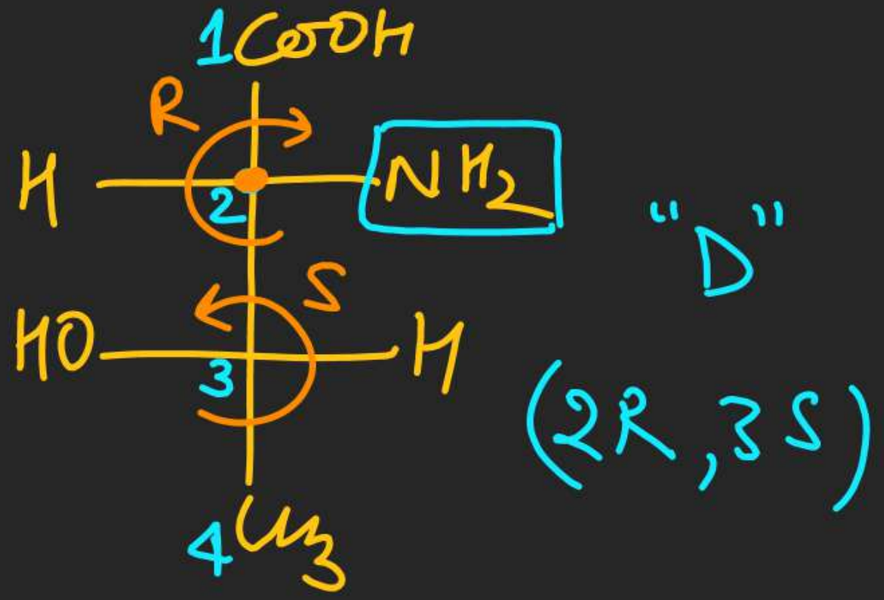
Q.11 Compound  is/are ?

(A) (2R, 3S), L

(B) L, Erythreo

(C) Threo , D

(D) (2R, 3S), D



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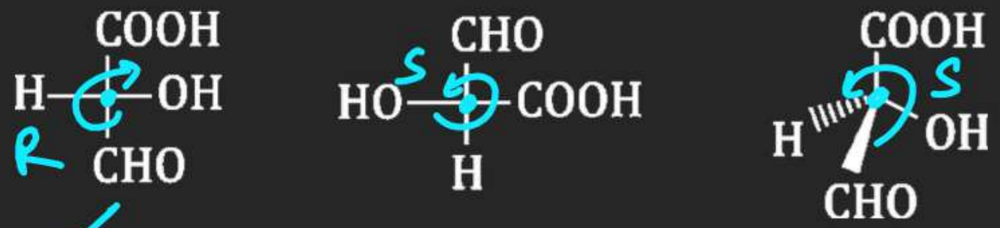
Stereo Isomerism

Q.12 Relation between compounds are :



(A) I & II = Enantiomers

(B) II & III = Enantiomers

(C) I & II = Identical

(D) II & III = Identical

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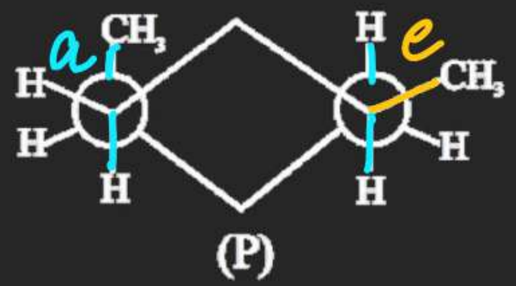
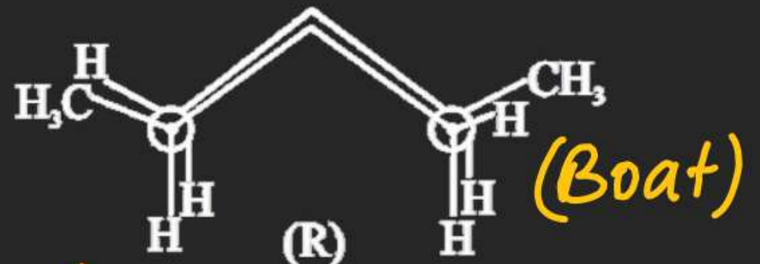
Stereo Isomerism

Q.13 Compare the stability of following conformations of 1,4-Dimethyl cyclohexane :



(P)

(Q)



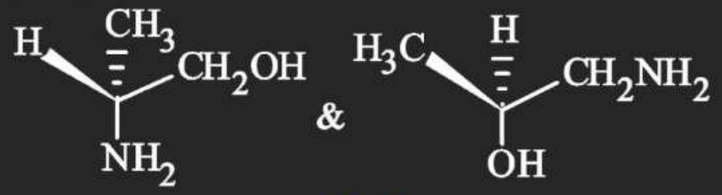
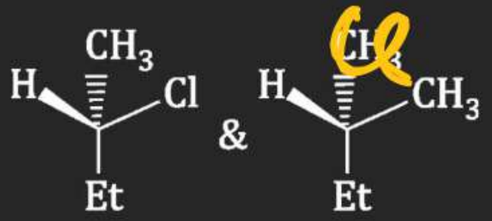
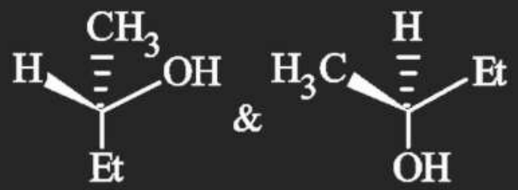
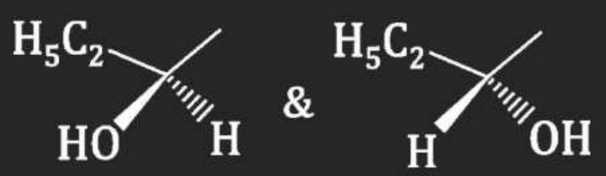
(R) (Boat)

(A) P = Q > R (B) P > Q > R (C) Q > P > R (D) R > P = Q

(ae) < (ee)

Stereo Isomerism

Q.15

Column-I	Column-II
(A) 	(P) Structural
(B) 	(Q) Identical
(C) 	(R) Enantiomers
(D) 	(S) Diastereomers

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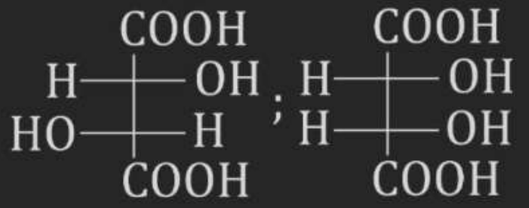
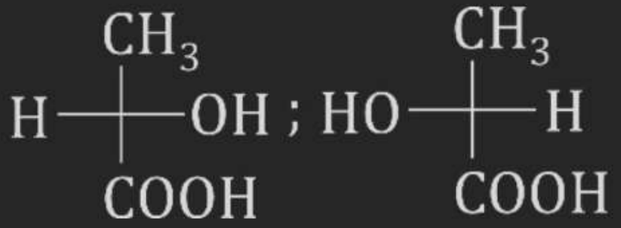
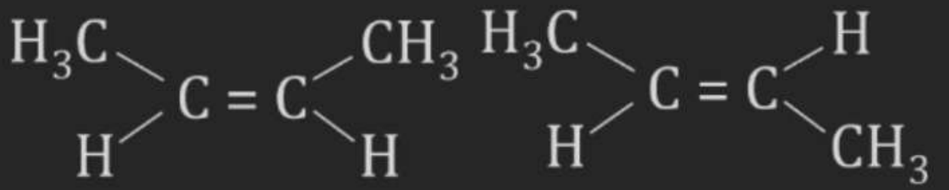
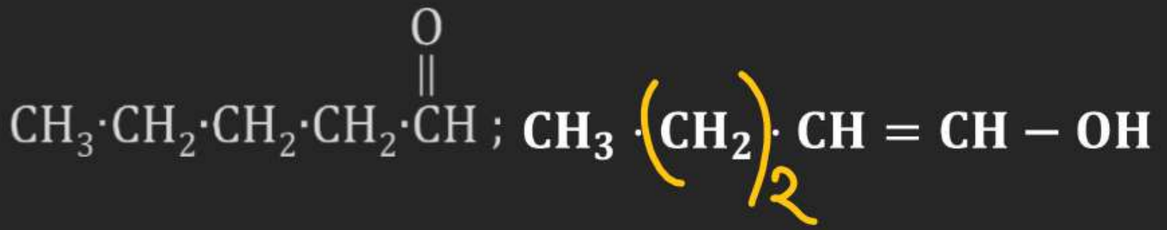
Stereo Isomerism

Q.17

Column-I	Column-II
(A) A pair of metamer	(P) 
(B) Tautomerism	(Q) $CH_3OC_3H_7$; $C_2H_5OC_2H_5$
(C) A pair of geometrical isomer	(R) 
(D) A pair of diastereomers	(S) 
(E) A pair of optical isomer	(T)  $CH_3 \cdot (CH_2)_2 \cdot CH = CH - OH$

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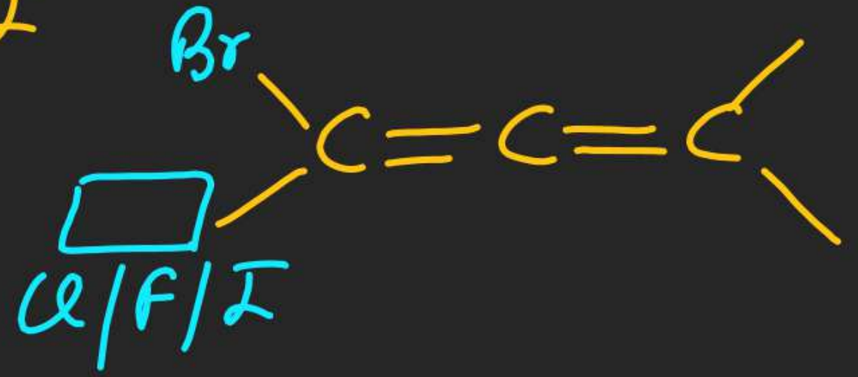
Stereo Isomerism

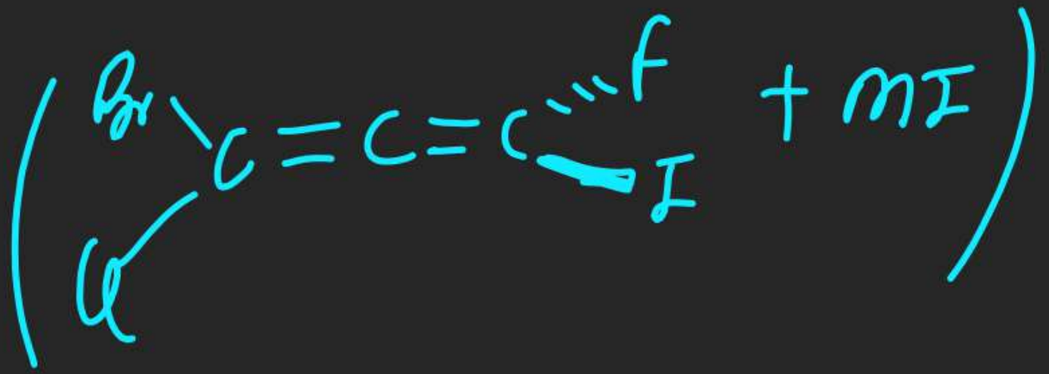
Q.20 Total number of isomers of bromochlorofluoroiodo propadiene is ?

Br, Cl, F, I



(optically Active)

3 + 3 = 6



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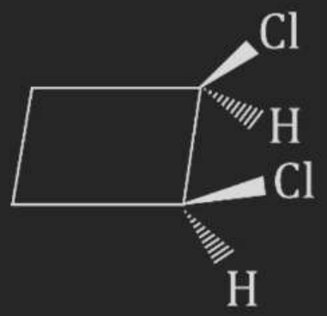
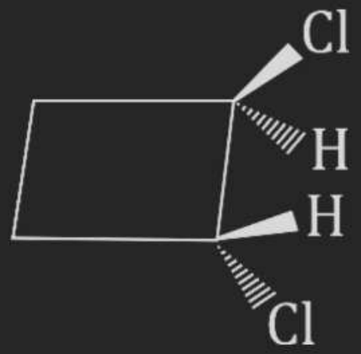
Stereo Isomerism

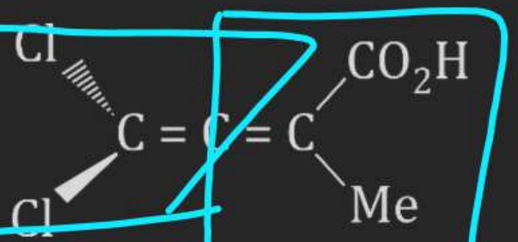
Q.23 With reasons, state whether each of the following compounds I to VIII is chiral

(i) 

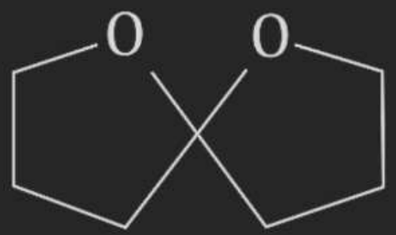
(ii) 

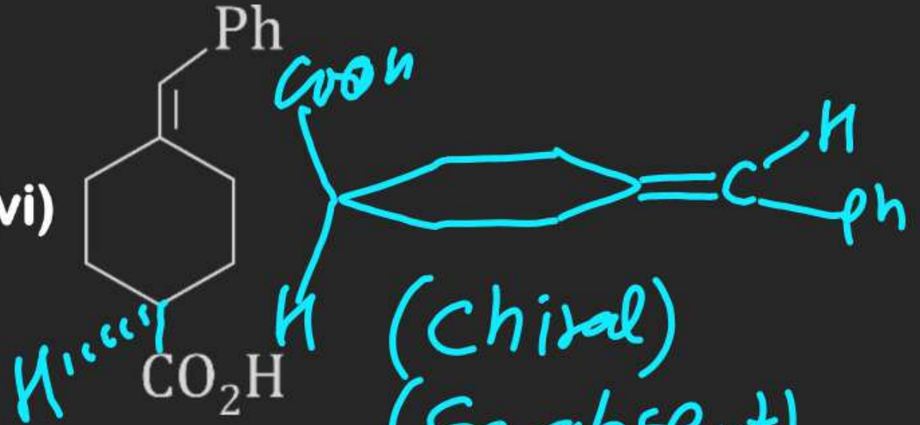
(iii) 

POS

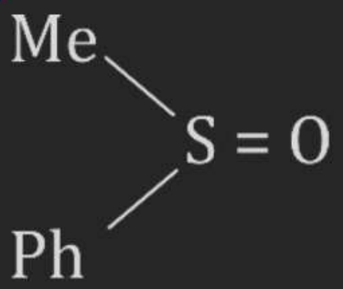
(iv) 

Achiral

(v) 

(vi) 

(Chiral)
(Sn absent)

(vii) 

Chiral
(Sn absent)

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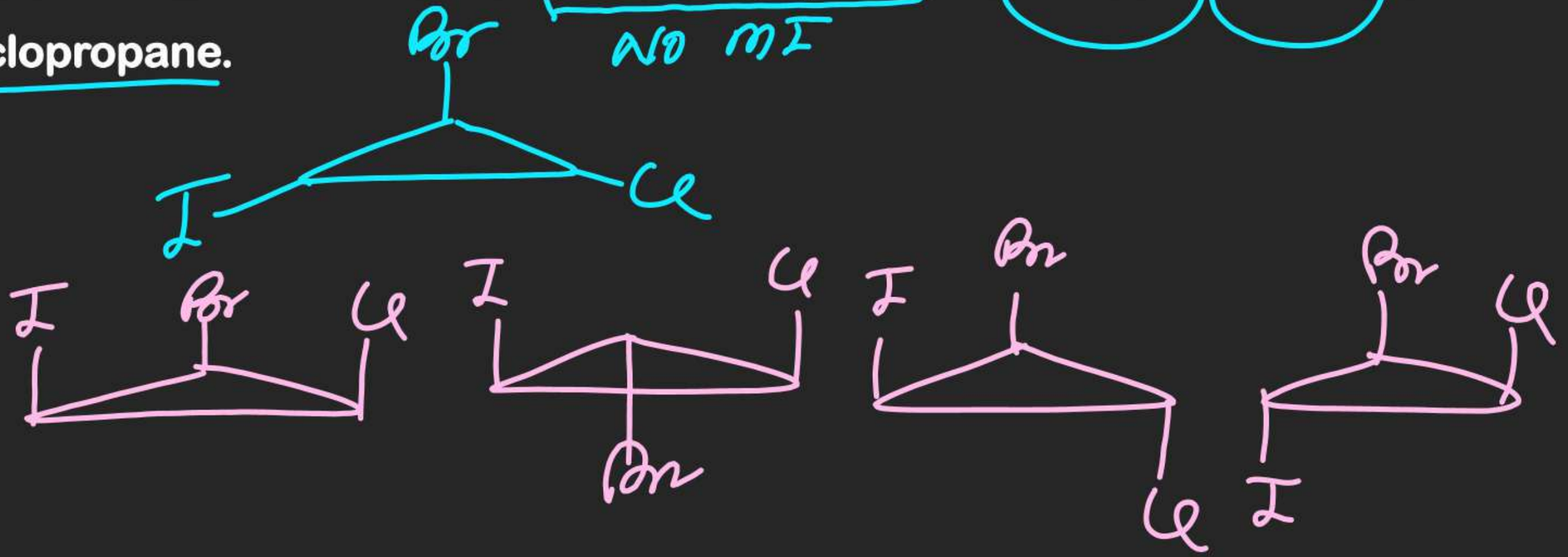
Stereo Isomerism

Q.25 The number of diastereoisomers (excluding optical) for 1-bromo-2-chloro-3-iodocyclopropane.



4

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Stereo Isomerism

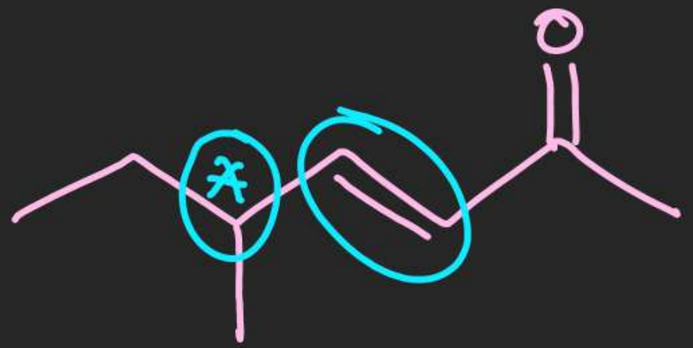
Q.28 For the compound '5-Methyl hept-3-en-2-one' if :

(i) Total number of stereoisomers possible is ' x '

(ii) Total number of enantiomeric pairs possible is ' y ' Then represent your answer as 'xyx'

[For example $x = 1, y = 2$ then answer is 121]

Soln:



$x = 2^2 = 4$

$y = 2$

$xyx \Rightarrow \boxed{424}$

Stereo Isomerism

Q.29 How many of following has same number of stable conformation?

(1) Ethane 1

(2) Propane 1

(3) Butane 3

(4) Isobutane 1

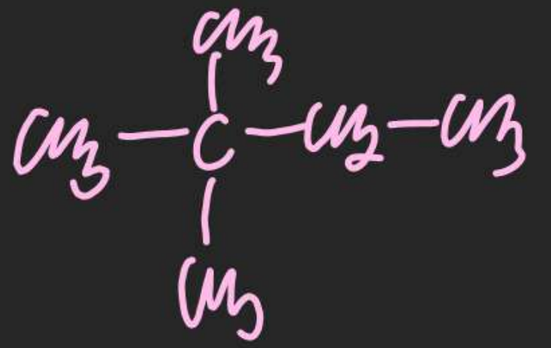
(5) Neopentane 1

(6) Neohexane 1

(7) Methanol 1

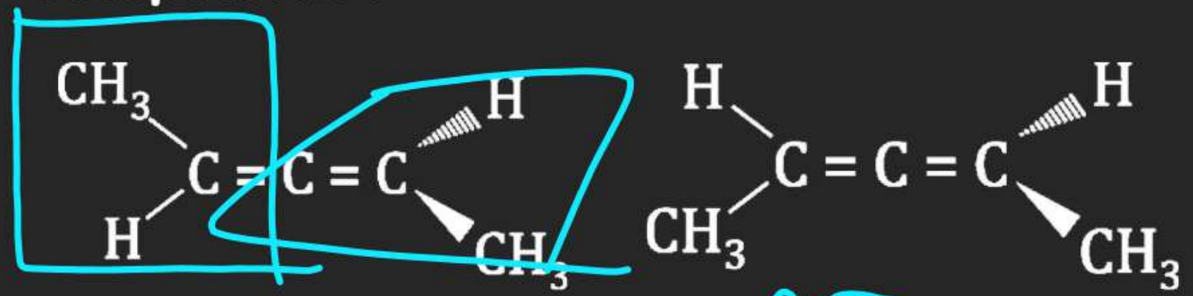
(8) Dimethylether 1

(9) Ethyl Chloride 1



Stereo Isomerism

Q.2 Which of the following option is correct regarding the given compounds :



MI

(A) Both are identical

(B) Both are optically inactive

(C) Both are optically active

(D) Geometrical isomer

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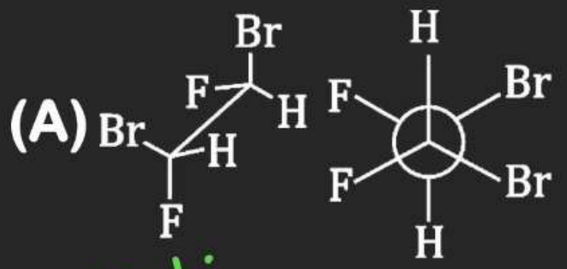
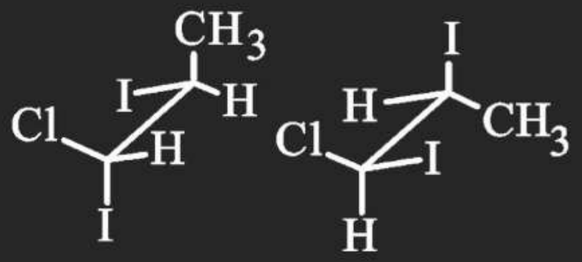
Stereo Isomerism

Q.3 Which of the following pairs of compound is/are identical ?

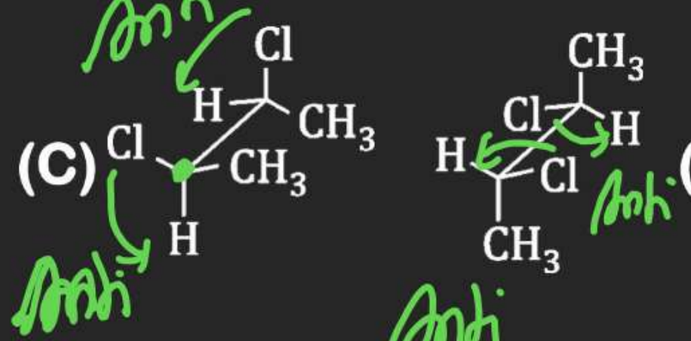
(A)



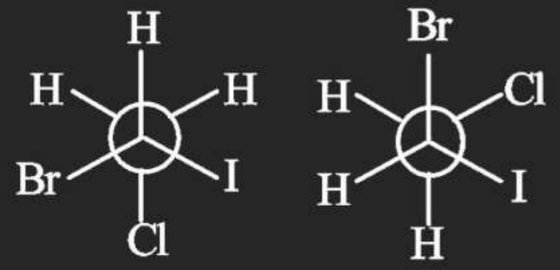
(B)



(C)



(D)

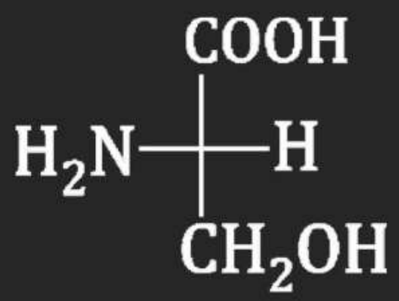


(identical)

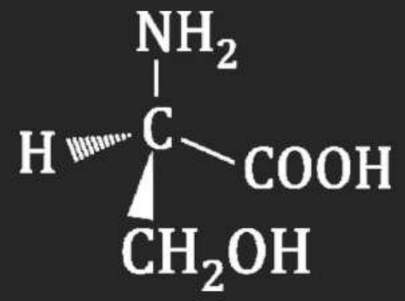
Stereo Isomerism

Q5. Which of the following are correct representation of L-amino acids :

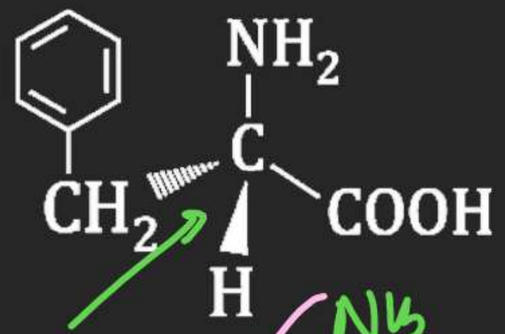
(A)



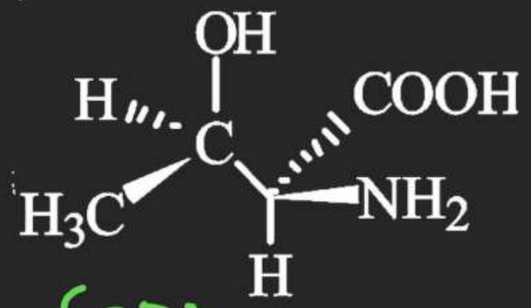
(B)

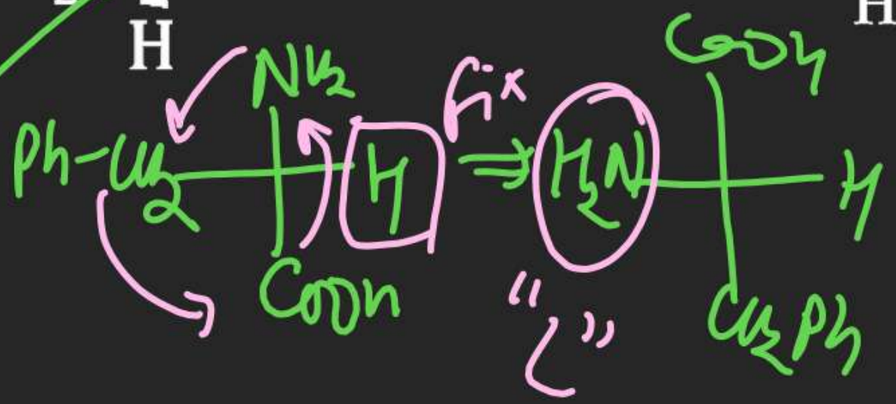


(C)



(D)

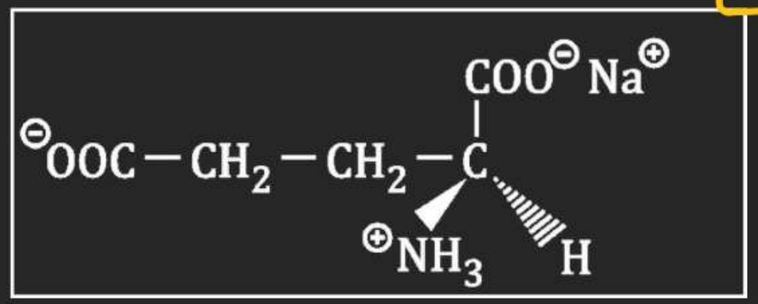




Stereo Isomerism

Paragraph for Q. No. 9 to 11

$S(+)$ Mono sodium Glutamate (MSG) is a flavour enhancer used in many foods. Fast foods often contain substantial amount of MSG and is widely used in Chinese food. If one mole of above MSG was placed in $845ml$ solution and passed through $200\ mm$ tube, the observed rotation was found to be $+9.6°$



$[\alpha]_x^{t°C} = \frac{\alpha_{obs}}{\ell \times C} = \frac{-9.6}{\ell \times C}$

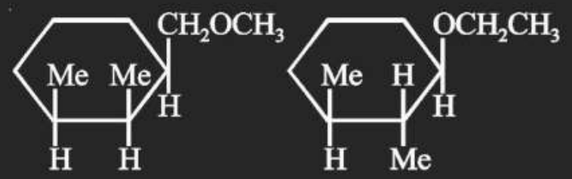
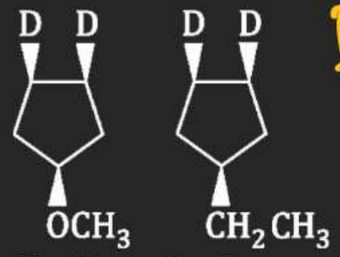
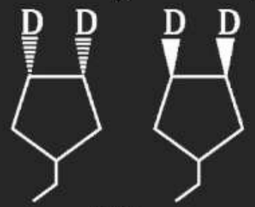
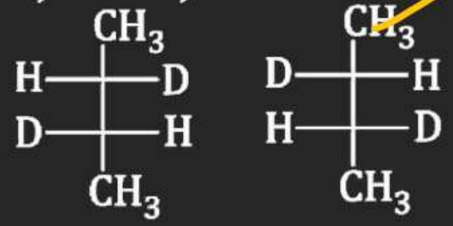
$= -24°$

Q9. Find out the specific rotation of (–) MSG: $= -24°$

(A) + 24° (B) +56.8° (C) –48° (D) None of these

Stereo Isomerism

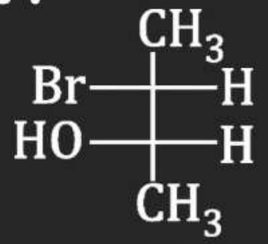
Q14. Matrix Match Typed

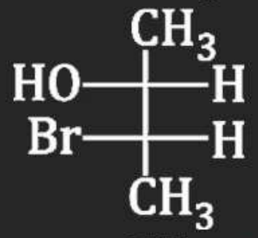
Column-I (Compounds)	Column-II (Relation)
(A) 	(P) Metamers
(B) 	(Q) Functional Isomer
(C) 	(R) Geometrical isomer
(D) 	(S) Enantiomer (T) Diastereomer

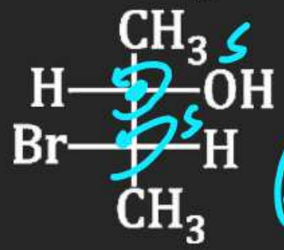
Stereo Isomerism

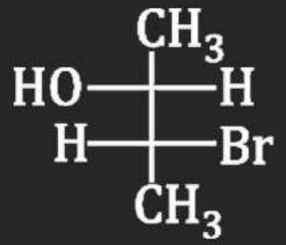
Q15. Match List-I, II, III with each other :

List-I

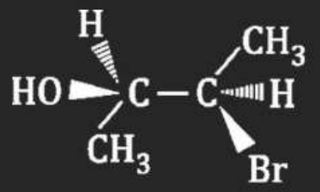
(A) 

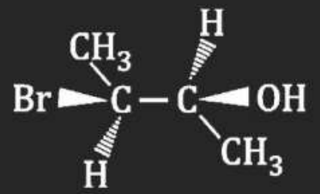
(B) 

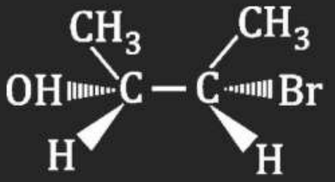
(C) 

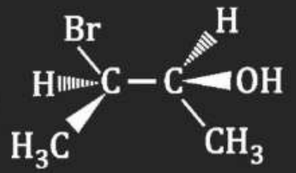
(D) 

List-II

(1) 

(2) 

(3) 

(4) 

List-III

(i) (2R, 3R)

(ii) (2S,3S)

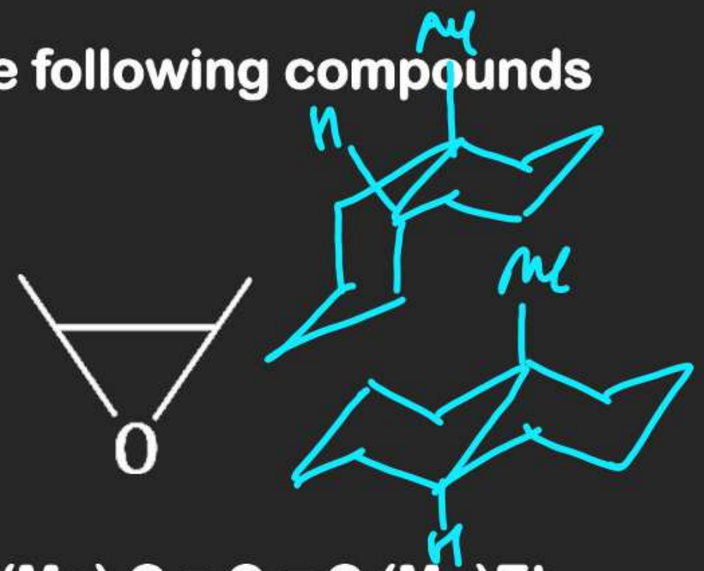
(iii) (2S,3R)

(iv) (2R,3S)

Stereo Isomerism

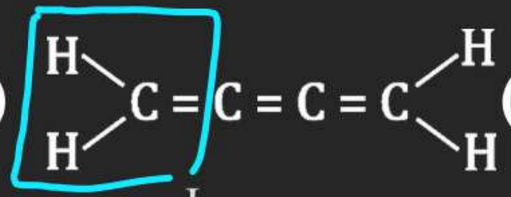
Q16. In what stereoisomeric forms would you expect the following compounds to exist ?

(A) $EtCH(CO_2H)Me$ (B) $MeCH(CO_2Et)CO_2H$ (C)



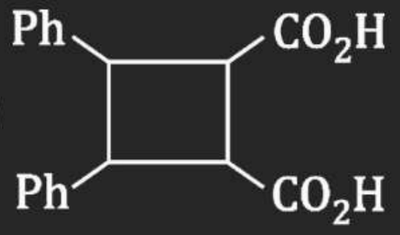
(D)

(E)

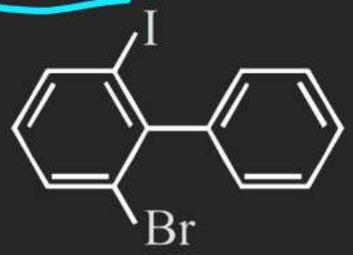


(F) Et (Me) C = C = C (Me)Et

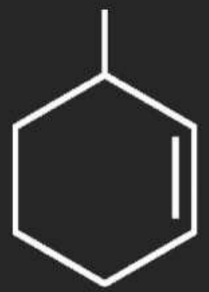
(G)



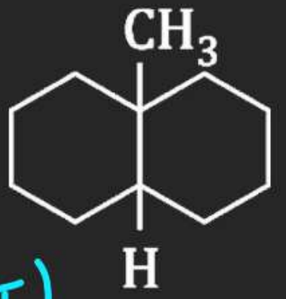
(H)



(I)

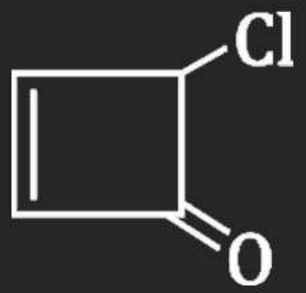


(J)



(GI)

(K)



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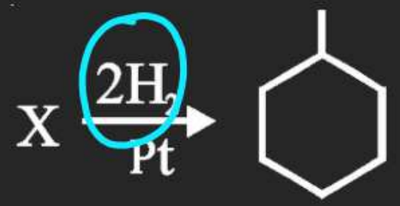
Stereo Isomerism

Q19.



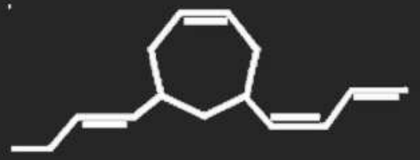
Find out total number of structures of X.

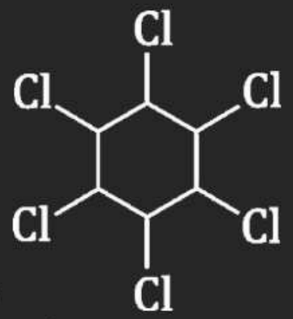
$\Rightarrow$ X contains 2π Bond { 1 Triple Bond C≡C
2 double Bond C=C & C=C)

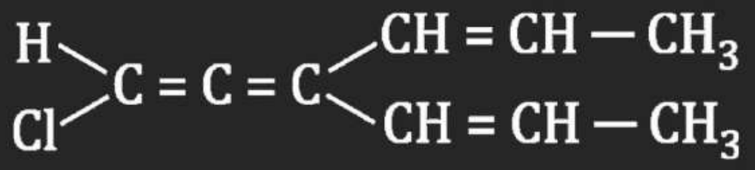
$\Rightarrow$ sp hybridisation is not possible in Rings smaller than 8 Carbon atom

Stereo Isomerism

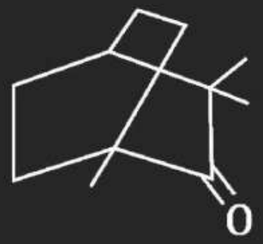
Q21. Calculate the total number of stereoisomers possible for

(i) 

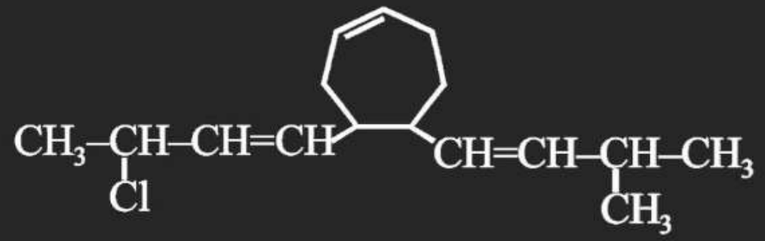
(ii) 

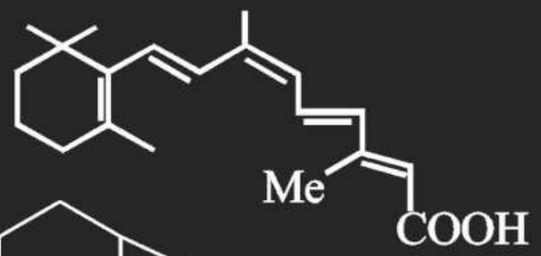
(iii) 

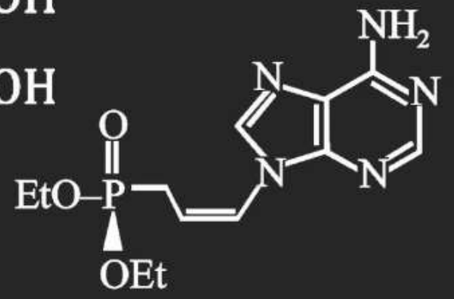
(iv) 

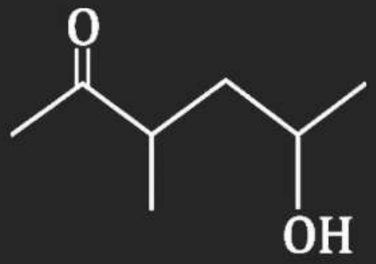
(v) 

(vi) 

(vii) 

(viii) 

(ix) 

(x) 

(xi) 

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Stereo Isomerism

Q22. Find the total number of stable conformation having non zero dipole moment for meso-2,3-dichloro butane