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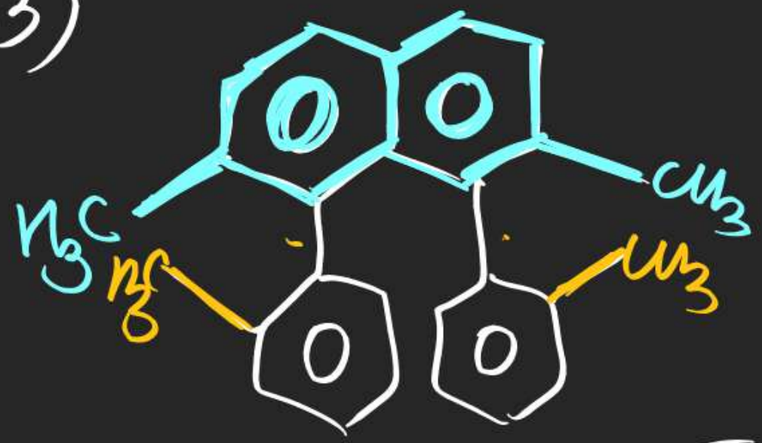
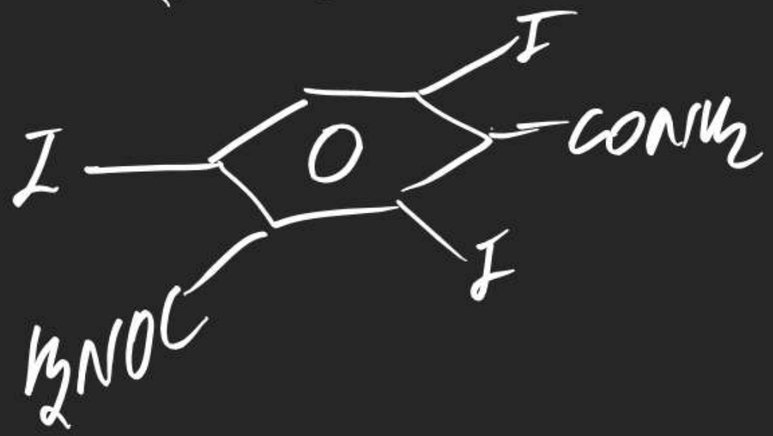
HW (Discussion) Theory Copy

(83)

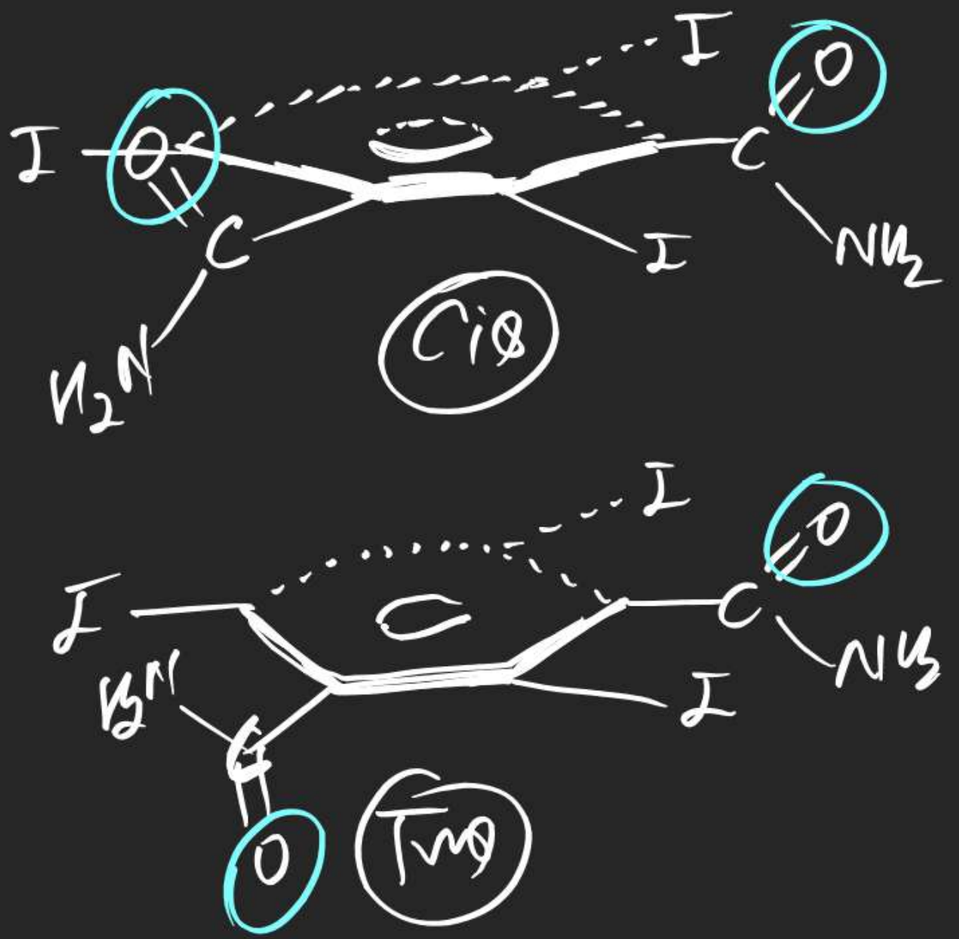


(yes GI)

(84)



(yes GI)



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STEREOISOMERISM

R-1

R-2

R-3

R-4

Priority ∝ at. no

Priority ∝ at. wt

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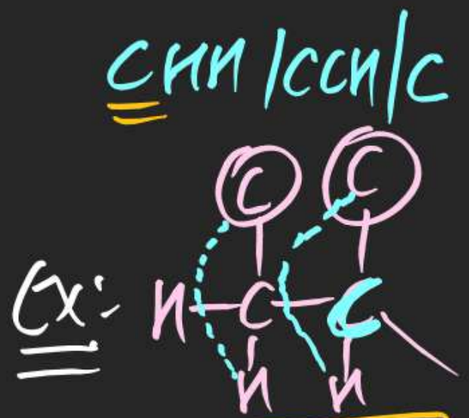
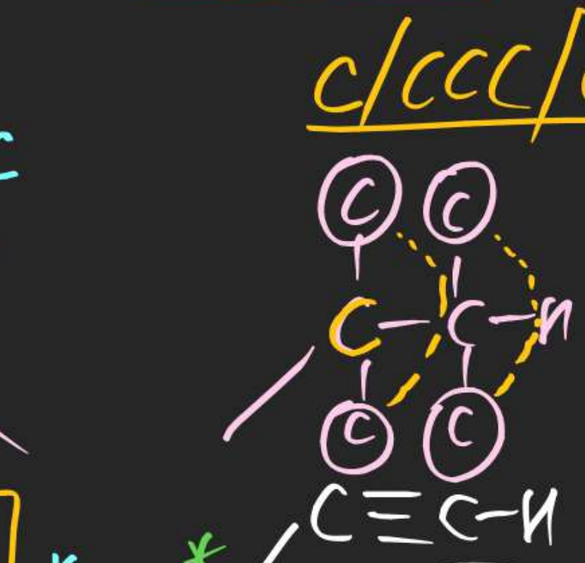
Rule-5 : If R-1 to 4 is failed then select group which is least duplicated get to higher prority

Ex:



$H_2C=HC$



CH_3 CH_3

$C/CCC/CHC$

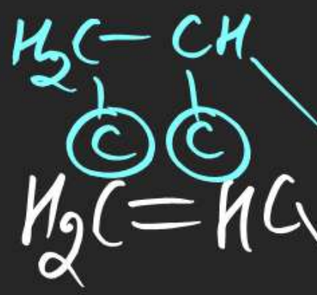
"E"

$HHH/CCH/C$

(Rule-4)

$C/CCC/CHC$

Ex:



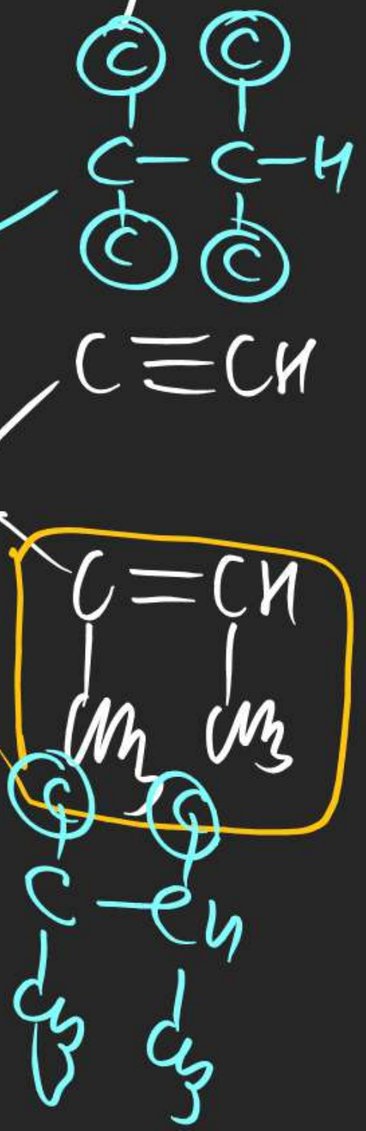
H_2C-CH

H_2C-CH

H_3C CH_3

"Z"

$C\equiv CH$



$C=CH$

CH_3 CH_3

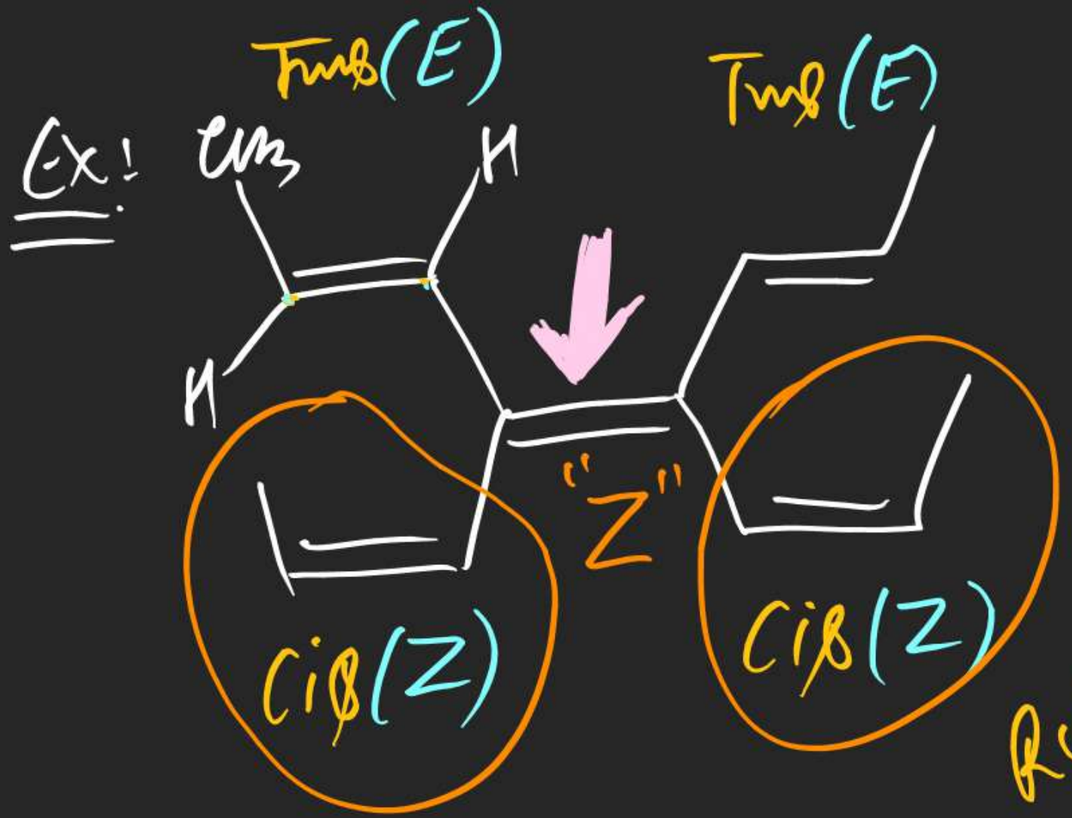
Rule-6 : when Rule 1 → 5 all are failed Then Priority goes to

Cis, Trans ⇒ Cis

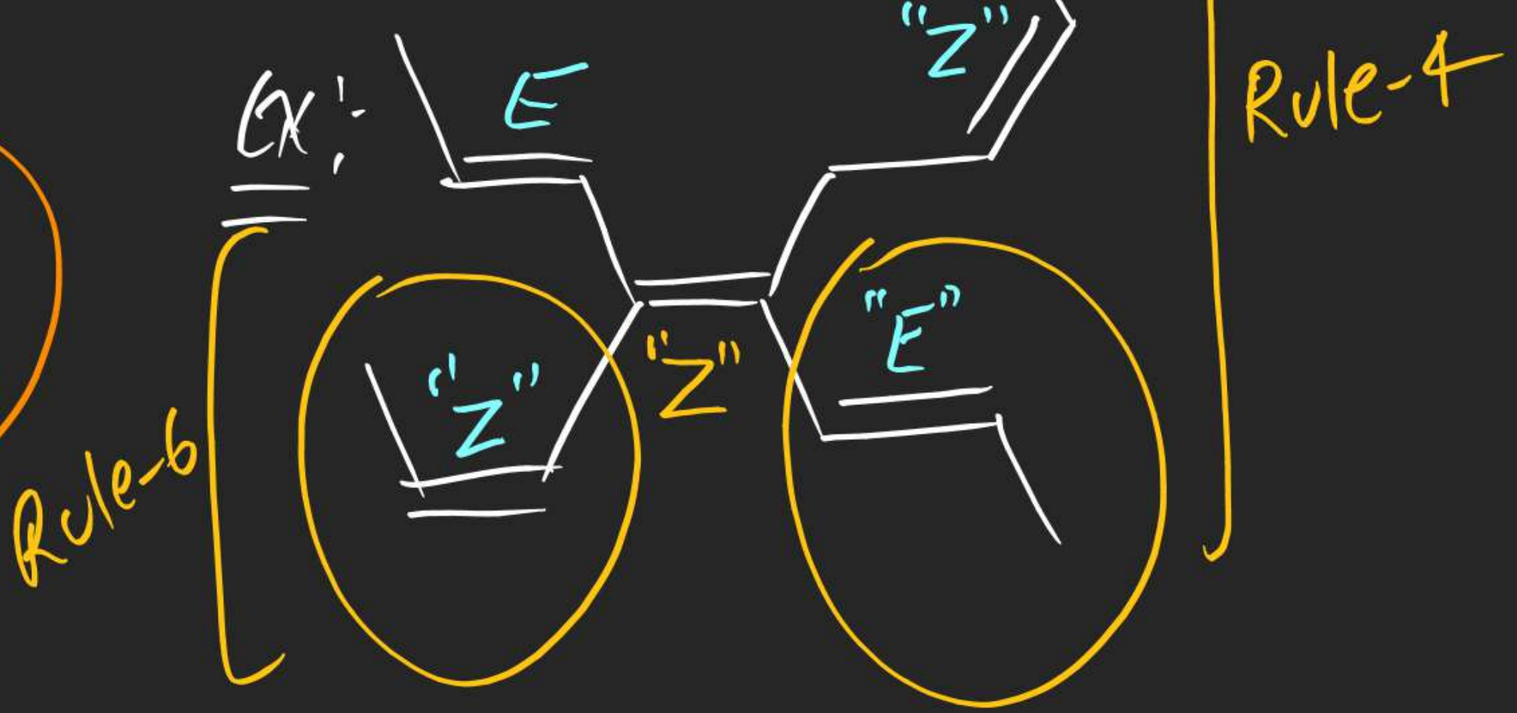
Z, E ⇒ Z

R, S ⇒ R

Ex :



Ex :



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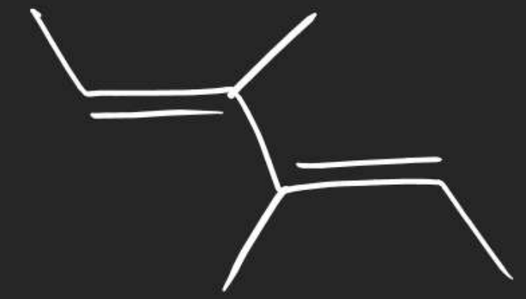
STEREOISOMERISM

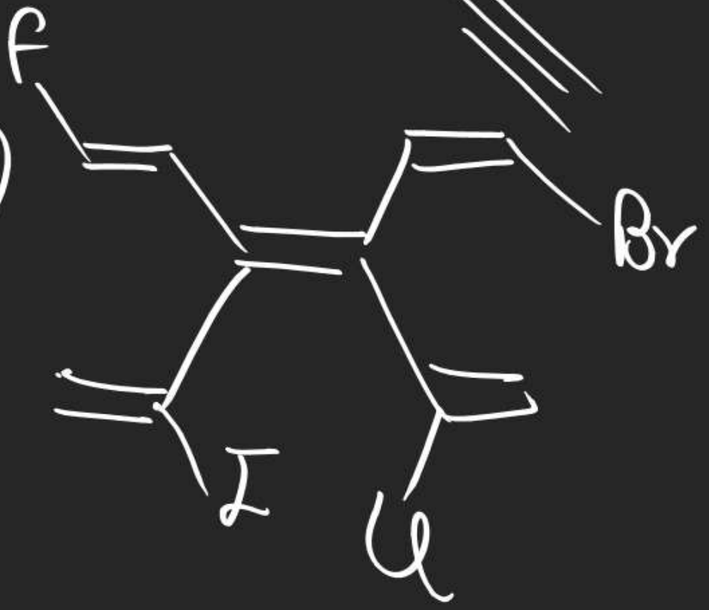
HW

(1)



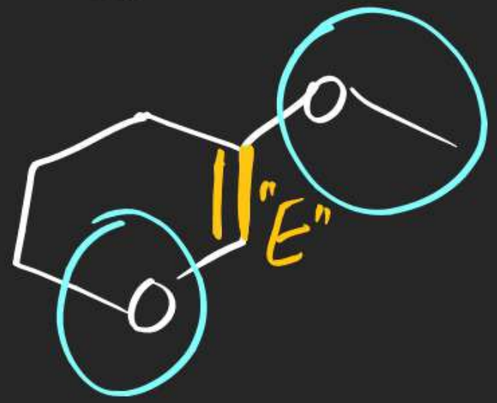
(2)

(3)



(4)

(5)

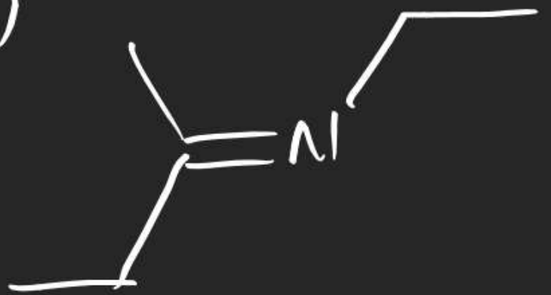


(6)

(7)

(8)

(9)



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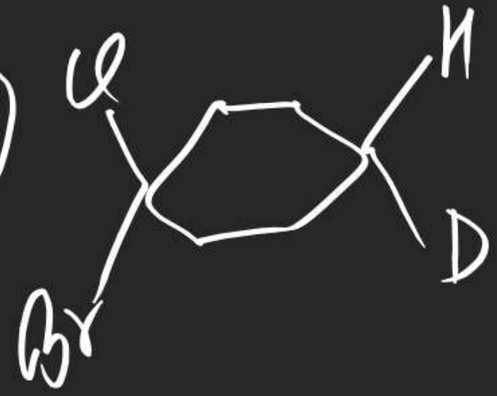

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STEREOISOMERISM

Calculation of Geometrical Isomers

$n \rightarrow$ No. of sites which can show G.I

Case(i): If Compound is not symmetrical

Total Geometrical isomers $= 2 \cdot 2 \cdot 2 \cdot 2 \cdot \cdots \cdot n$ times

$= 2^n$

Case(ii) If Compound is symmetrical

If given

- n-even: $TGI = 2^{n-1} + 2^{\frac{n}{2}-1}$
- n-odd: $TGI = 2^{n-1} + 2^{\frac{n-1}{2}}$

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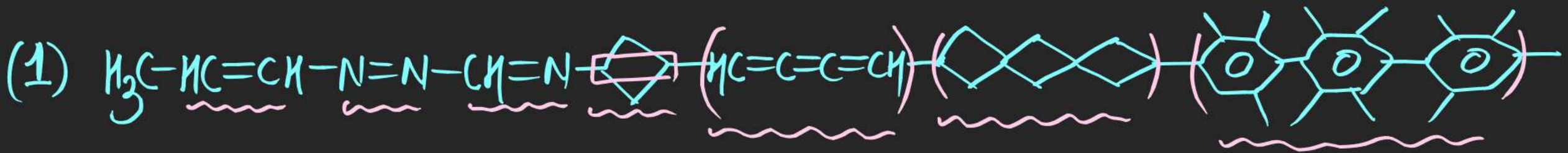
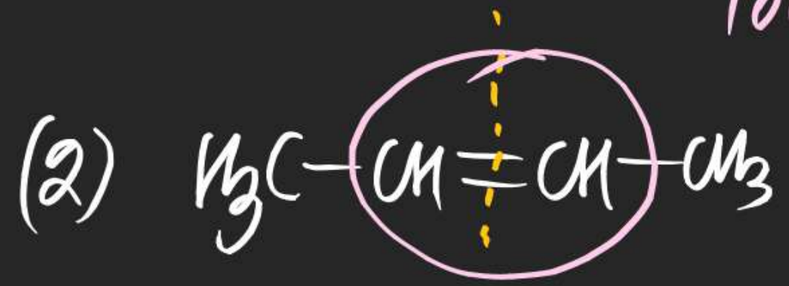
(1) 

$(n=7)$

Total No. of Geometrical isomers $= 2^7$

$= 128$

(2)  TGI = 2

(3) 

(4) 

$n=2$ / Even / Symmetrical / TGI $= 2^{\frac{2}{2}-1} + 2^{2-1}$

$= 2^0 + 2^1$

$= 1 + 2$

$= 3$

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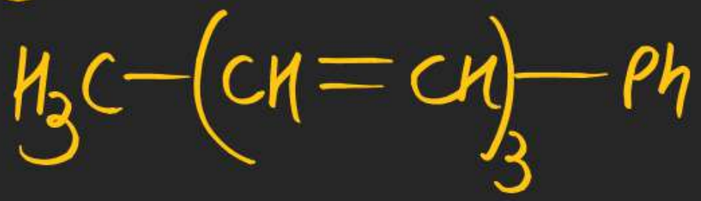
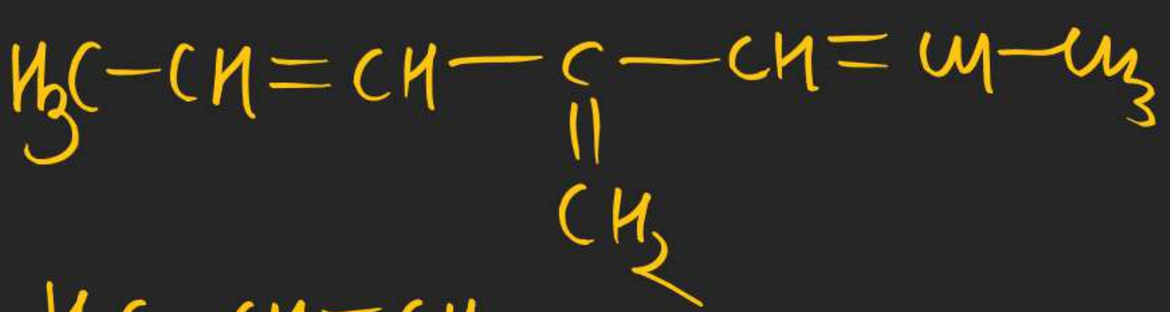
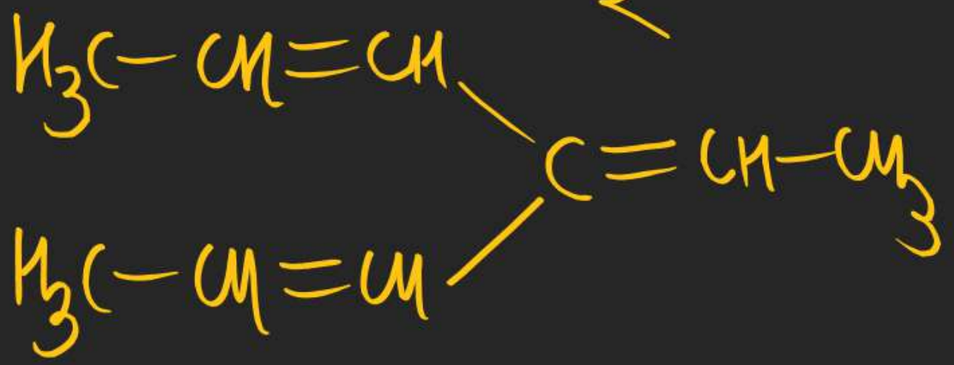
STEREOISOMERISM

(5) 

(6) 

(7) 

(8) 

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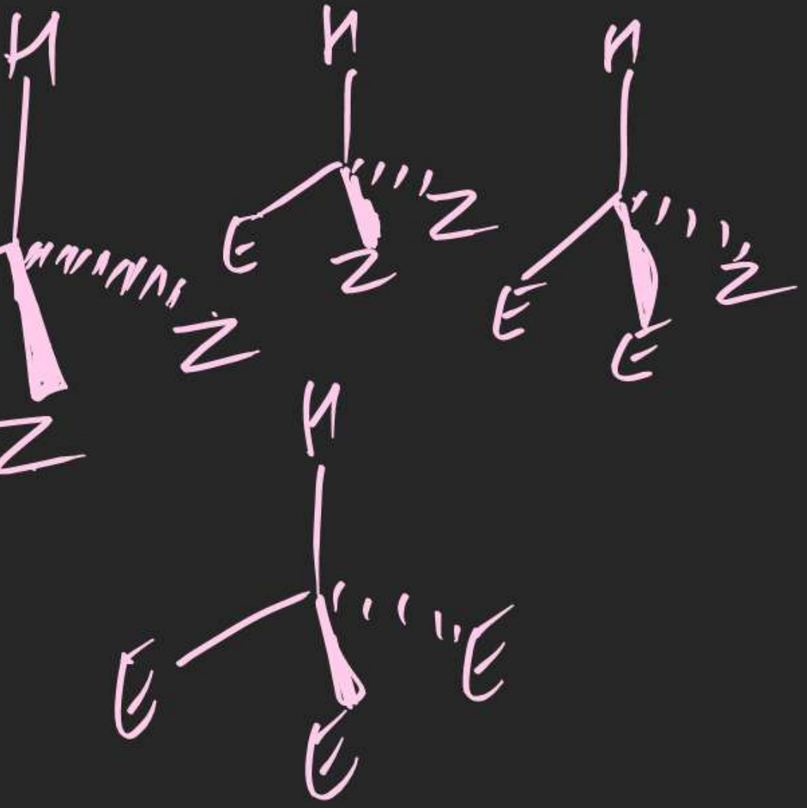
STEREOISOMERISM

(9) $H_3C-CH=CH$ — CH (sp^3) — $CH-CH=CH-CH_3$ and $H_3C-CH=CH$

(10) $H_3C-CH=CH$ — C — CH (=$CH-CH_3$) and CH_3 and CH_3

TGI = 4



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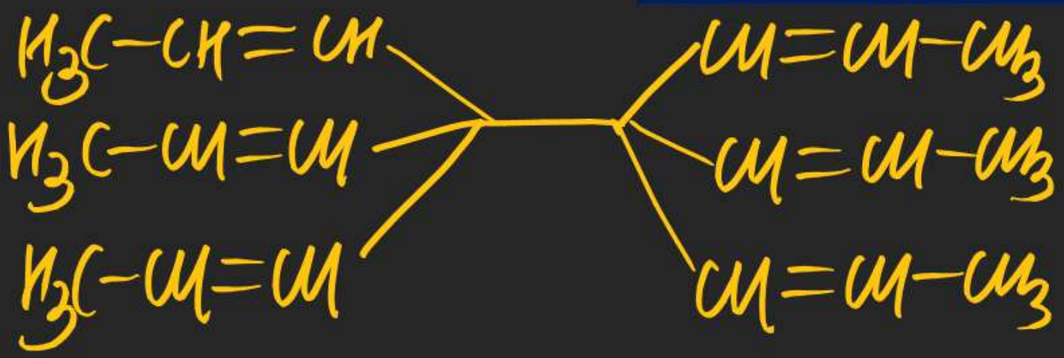
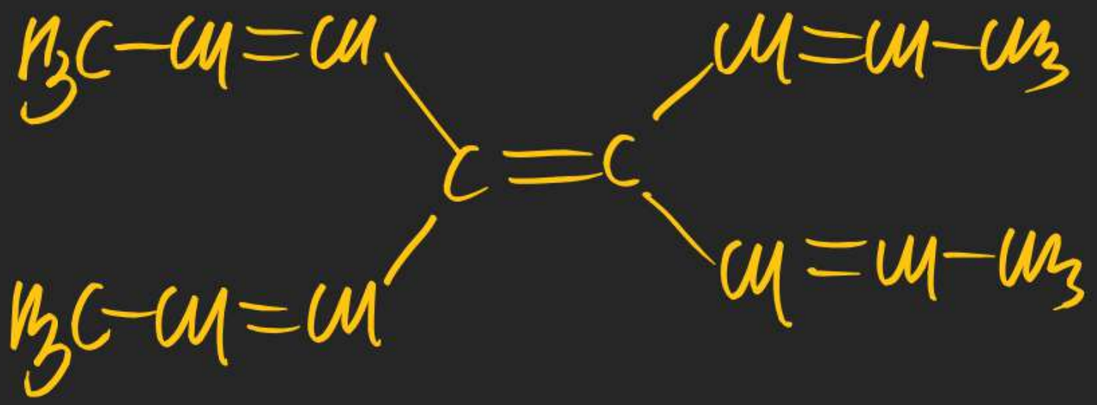
(11) 

(12) 

(13) 

(14) 

(15) 

(16) 

(17) 

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STEREOISOMERISM

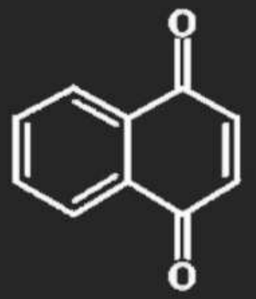
(18)

(19)

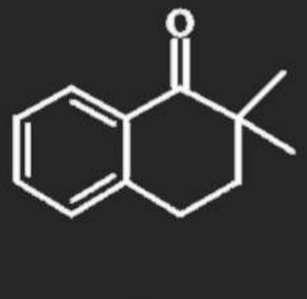
(20)

(21)

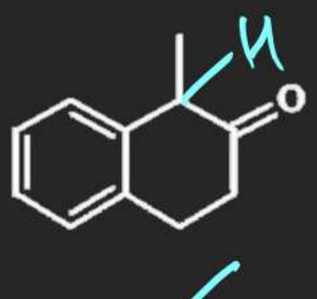
Q. The molecules that can exhibit tautomerism are



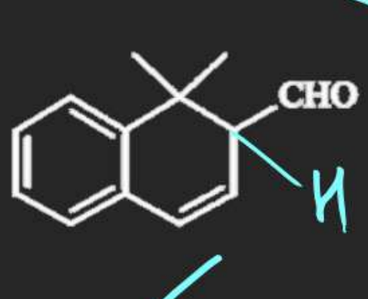
I



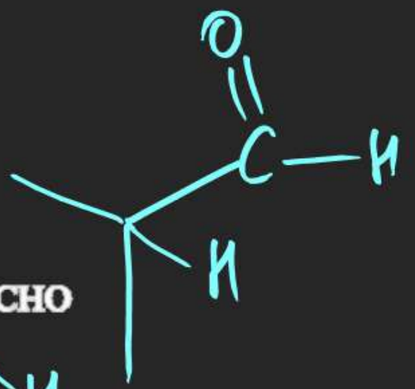
II



III



IV

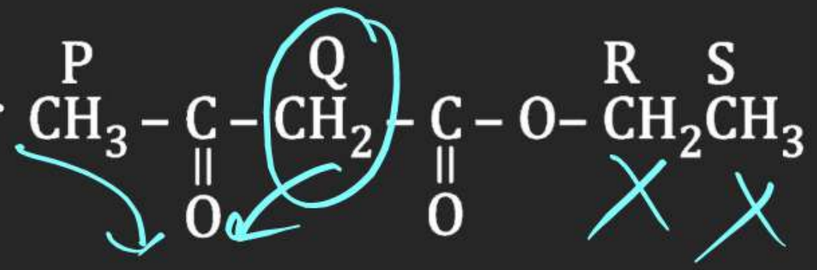


(A) I, IV

(B) II, III

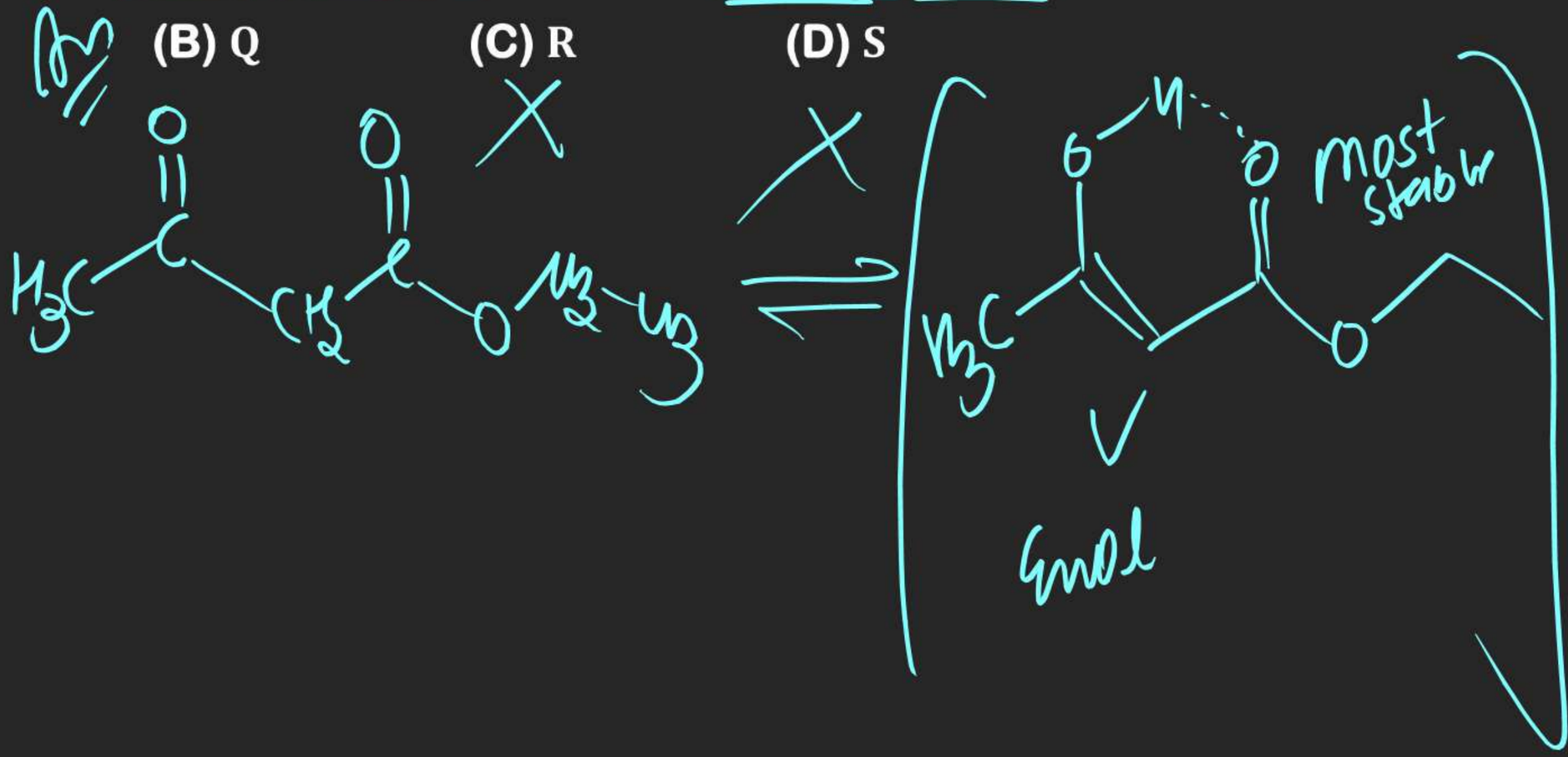
(C) III, IV

(D) I, II

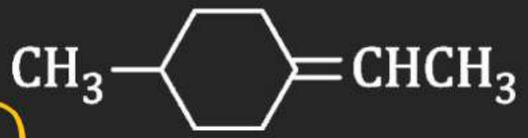
Q. Aceto acetic ester 

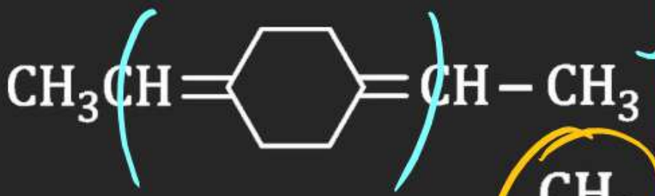
has 4 different hydrogens designated as P, Q, R, S. Which H is involved in the formation of most stable enol among all possible enols?

(A) P (B) Q (C) R (D) S



Q. Which of the following exhibits geometrical isomerism?

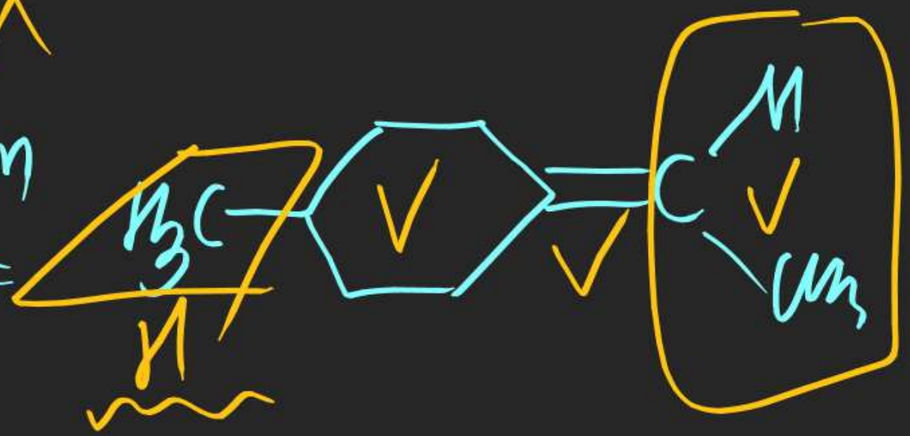
(A) 

(B) 

(C) 

(D) 

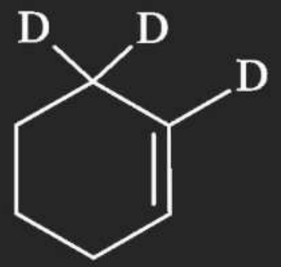
Soln



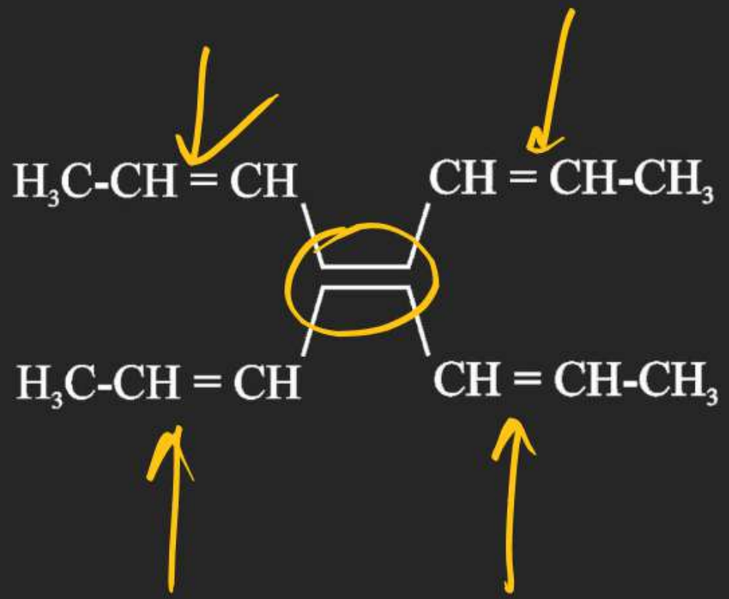
Q. Which of the following cannot show geometrical isomerism across the π – bond?

(A)

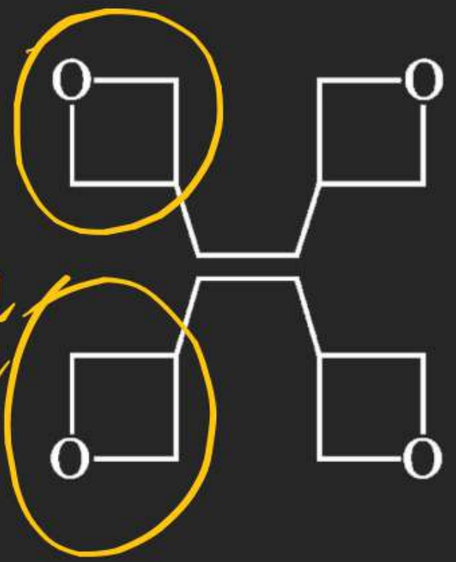
(B)

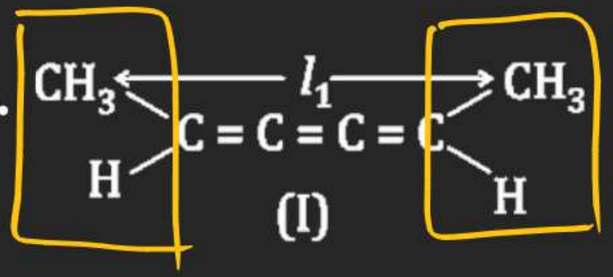


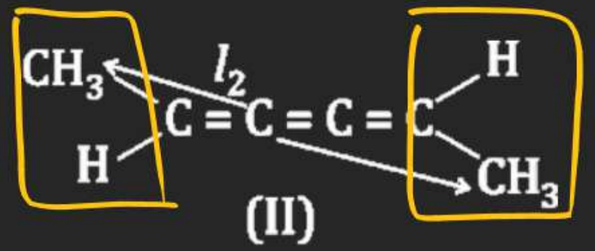
(C)



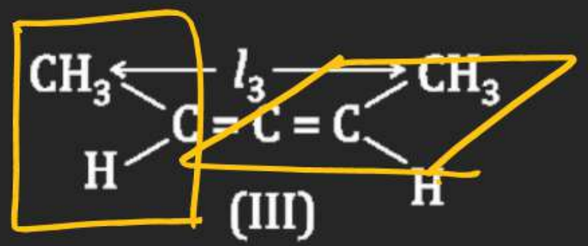
(D)

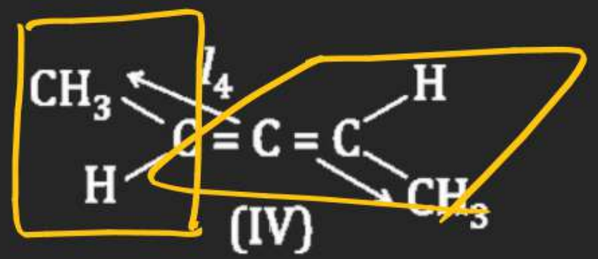


Q. 



$l_2 > l_1$





$(l_3 = l_4)$

Establish the relation among above geometrical isomer,

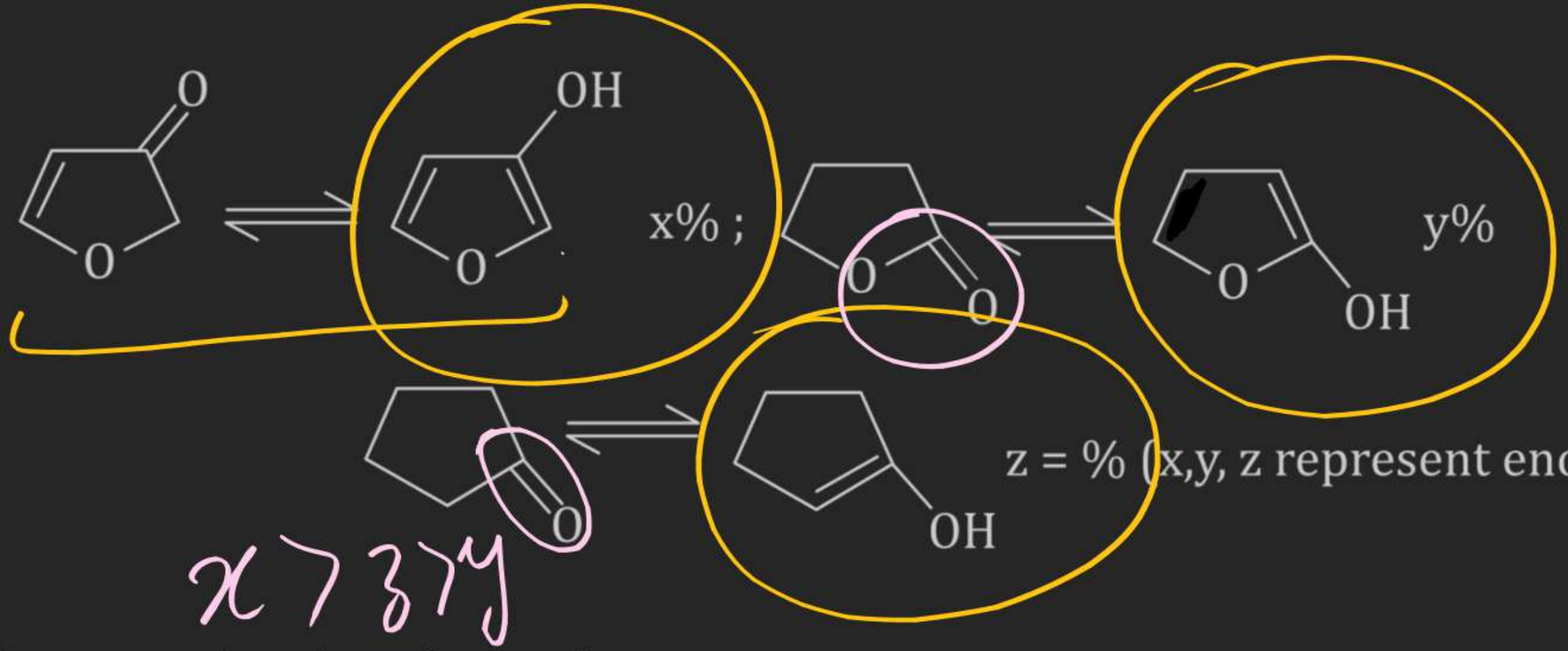
(A) $l_3 = l_4, l_1 > l_2$

(B) $l_1 = l_2, l_3 > l_4$

(C) $l_2 > l_1, l_3 = l_4$

(D) l_1, l_2, l_3, l_4 **cannot be compared.**

Q.



z = % (x,y, z represent enol content)

x > z > y

The correct order of x, y, z is :

(A) $x > y > z$

(B) $z > y > x$

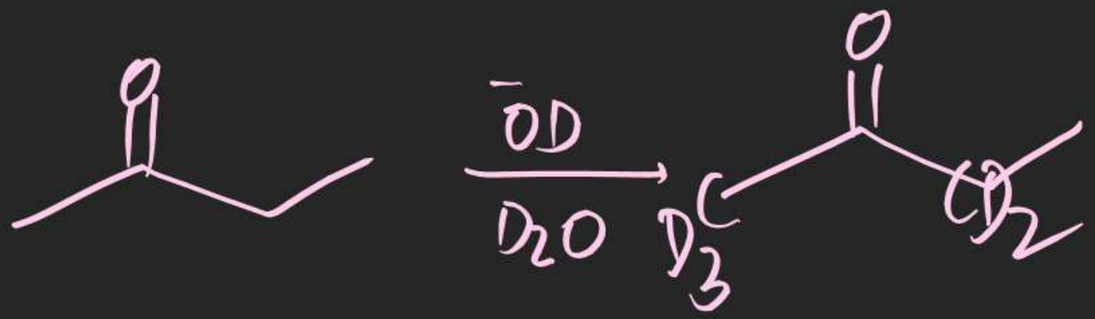
(C) $y > x > z$

(D) $x > z > y$

Q. The number of geometrical isomers of 

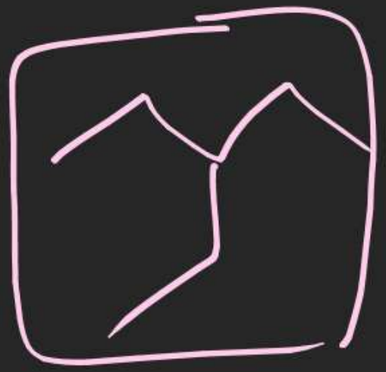
Q. Total number of Deuterium atom present in enol form of Butanone after prolong treatment of Butanone with OD^-/D_2O.

(5)



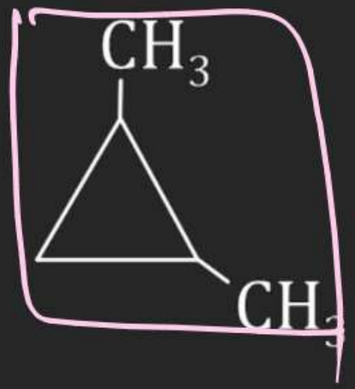
Q. Total number of possible structural isomers which are isomeric with

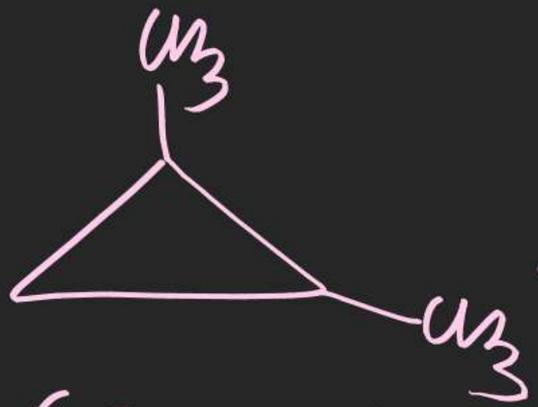
$C_7H_{16} \Rightarrow$ Total = 9



Ans 8

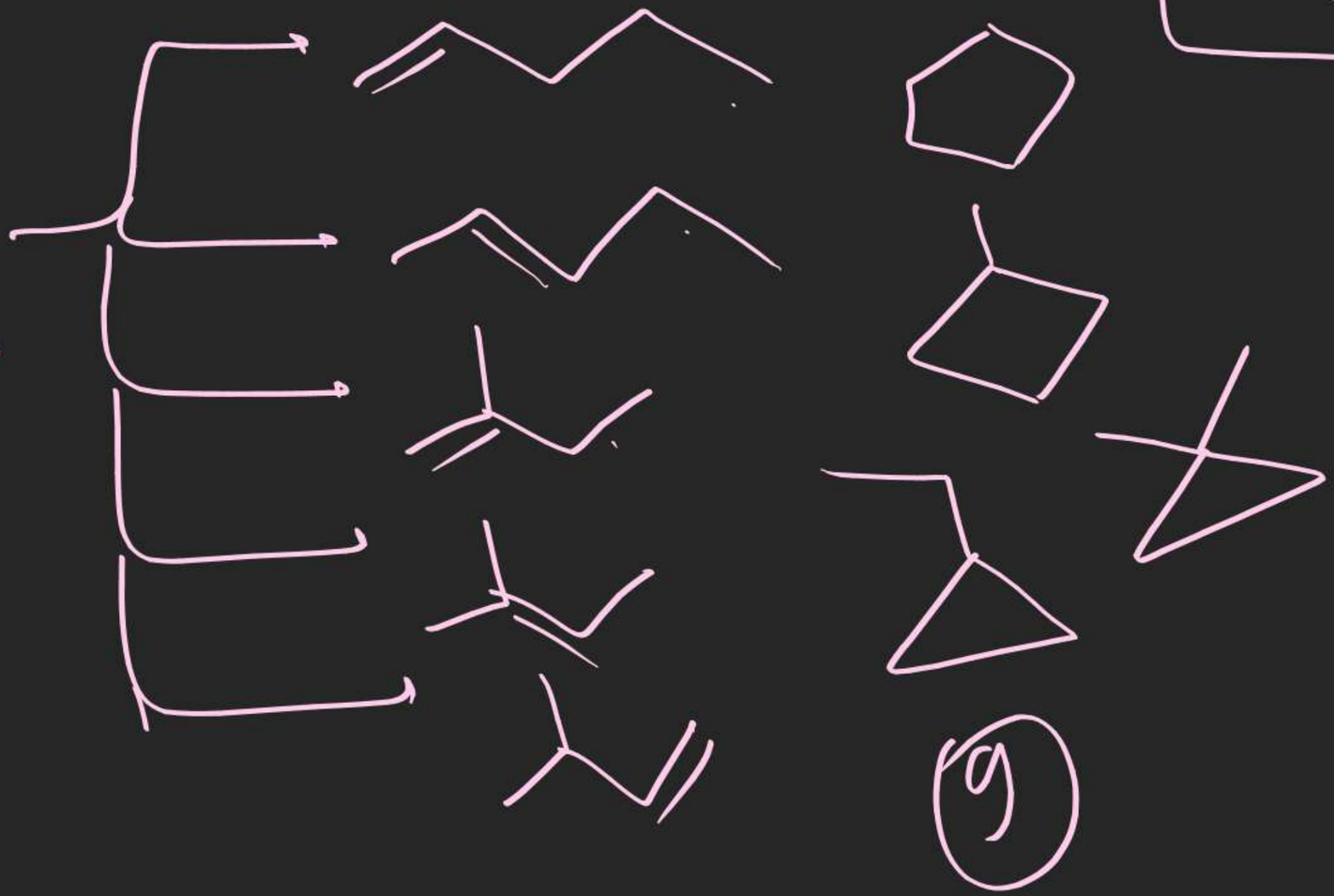
Q. Total number of possible structural isomers which are isomeric with





(C_5H_{10})

$(DOU = 1)$



9