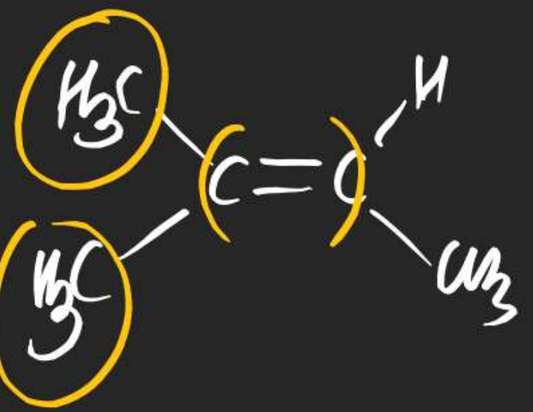
Nishant Jindal

STEREOISOMERISM

HW Discussion (GI Theory Copy)

(2) No

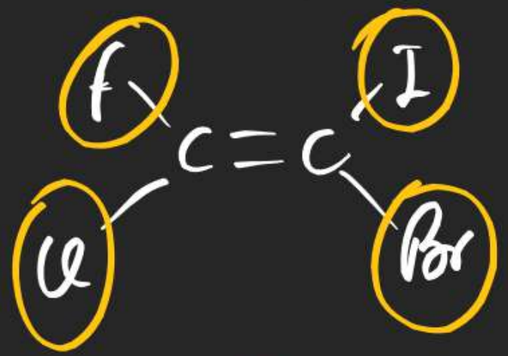
2-methyl-But-2-ene



Same

No GI

(3) yes



(4) No

Same

Restricted Rotation

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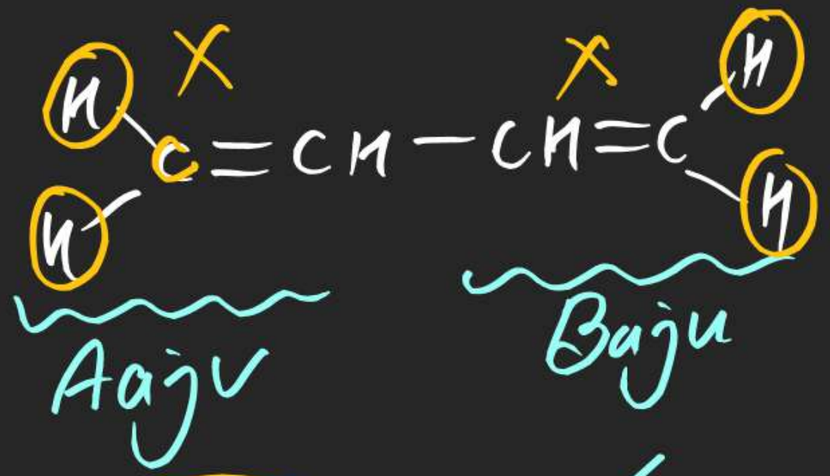
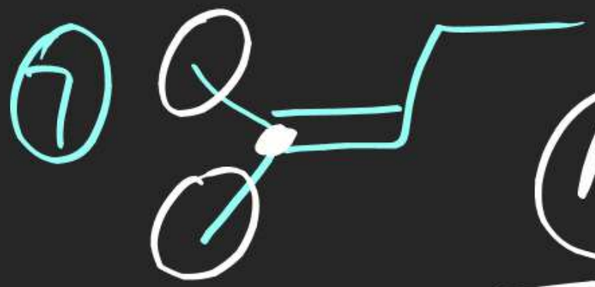
(5) 

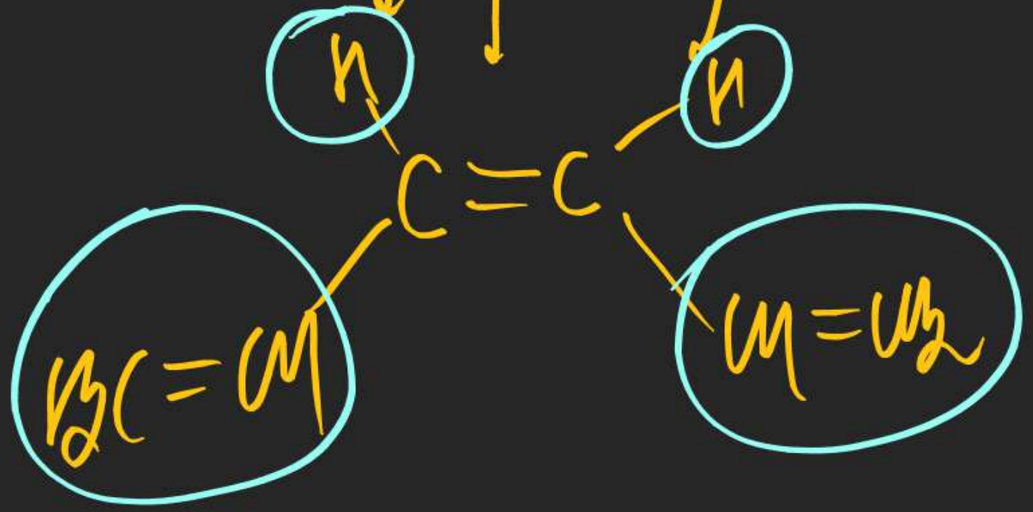
No



No

(6) $H_2C=CH-CH=CH-CH=CH_2$

Res. Rotation Res. Rotation Res. Rotation



yes

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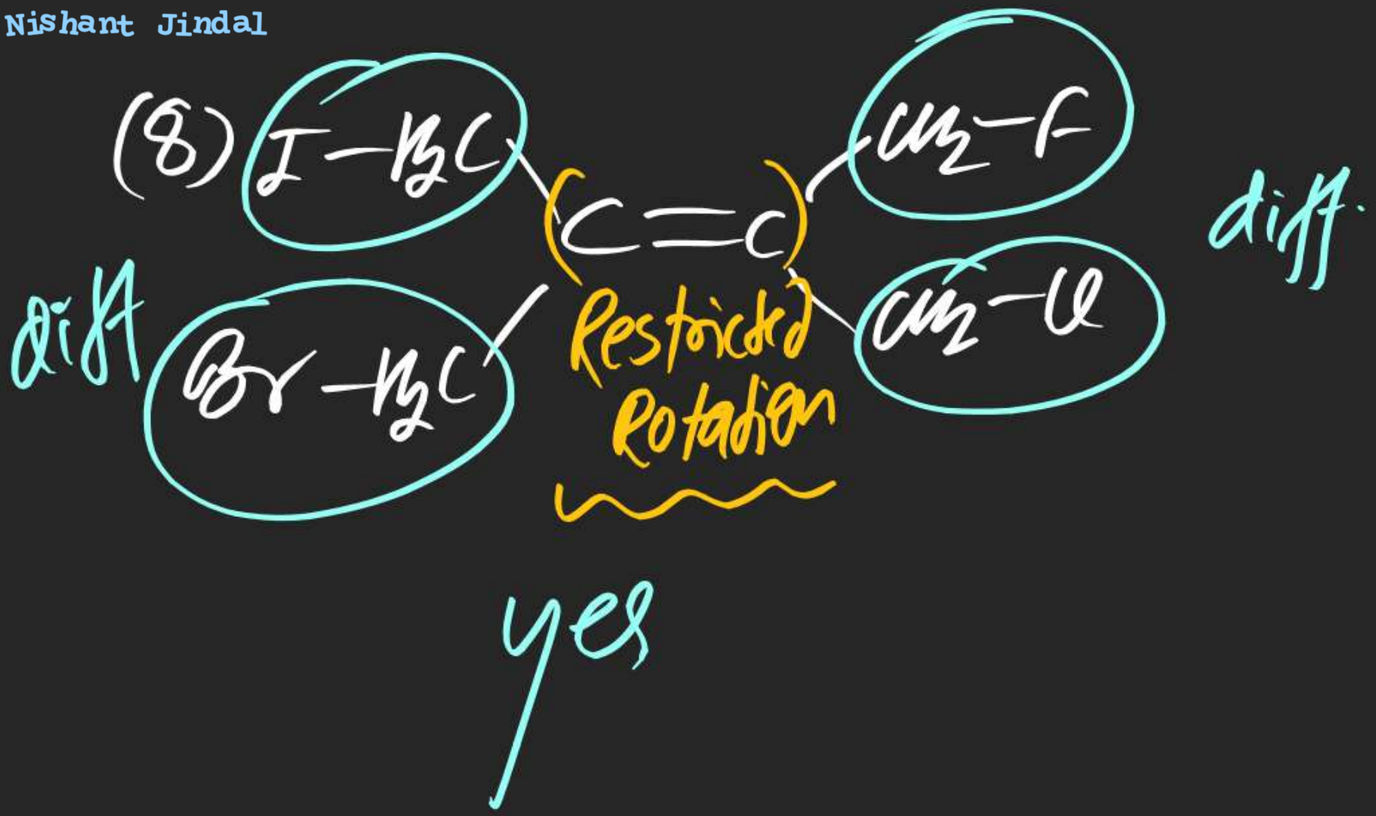
(8) 

yes

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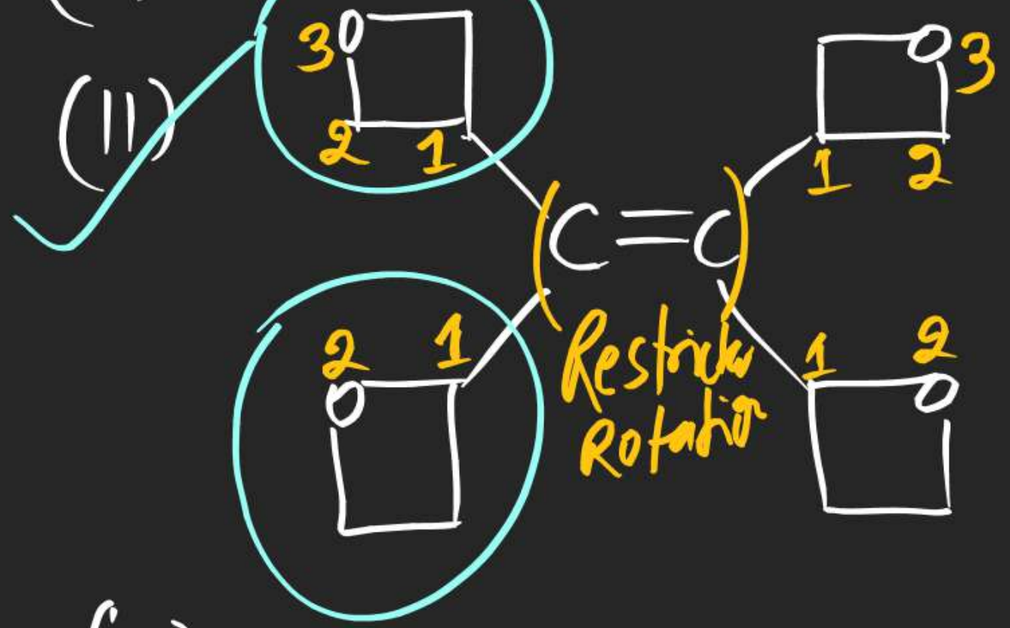
(9) $H_2C=CH-CH=CH-C\equiv CH$

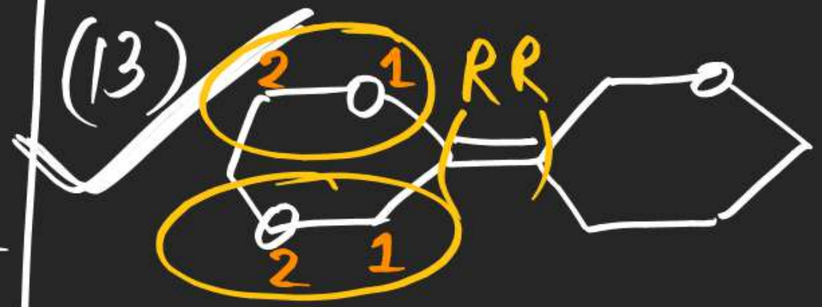
(10) $H_2C=CH-C\equiv C-CH=CH_2$

(11)



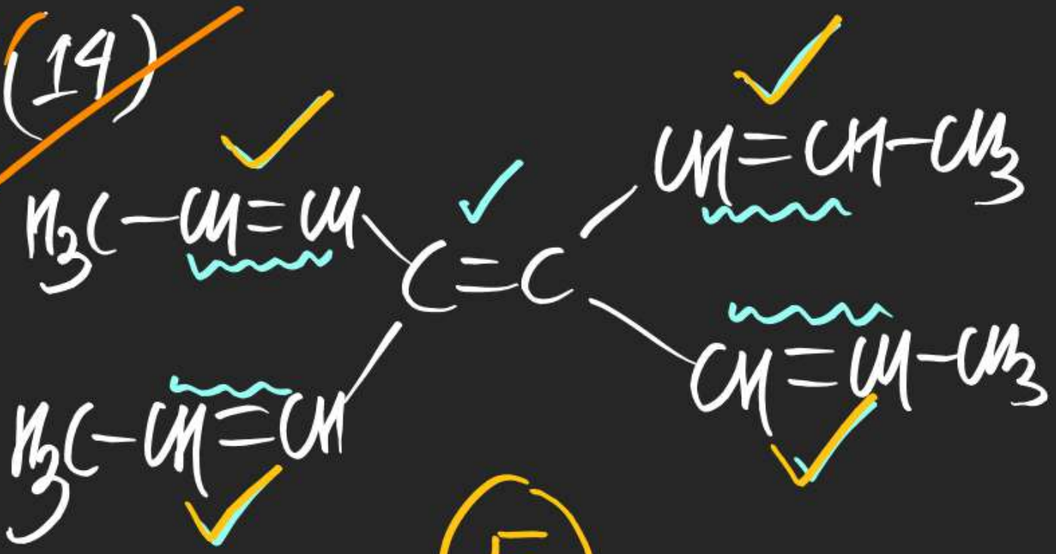
(12)

(13)

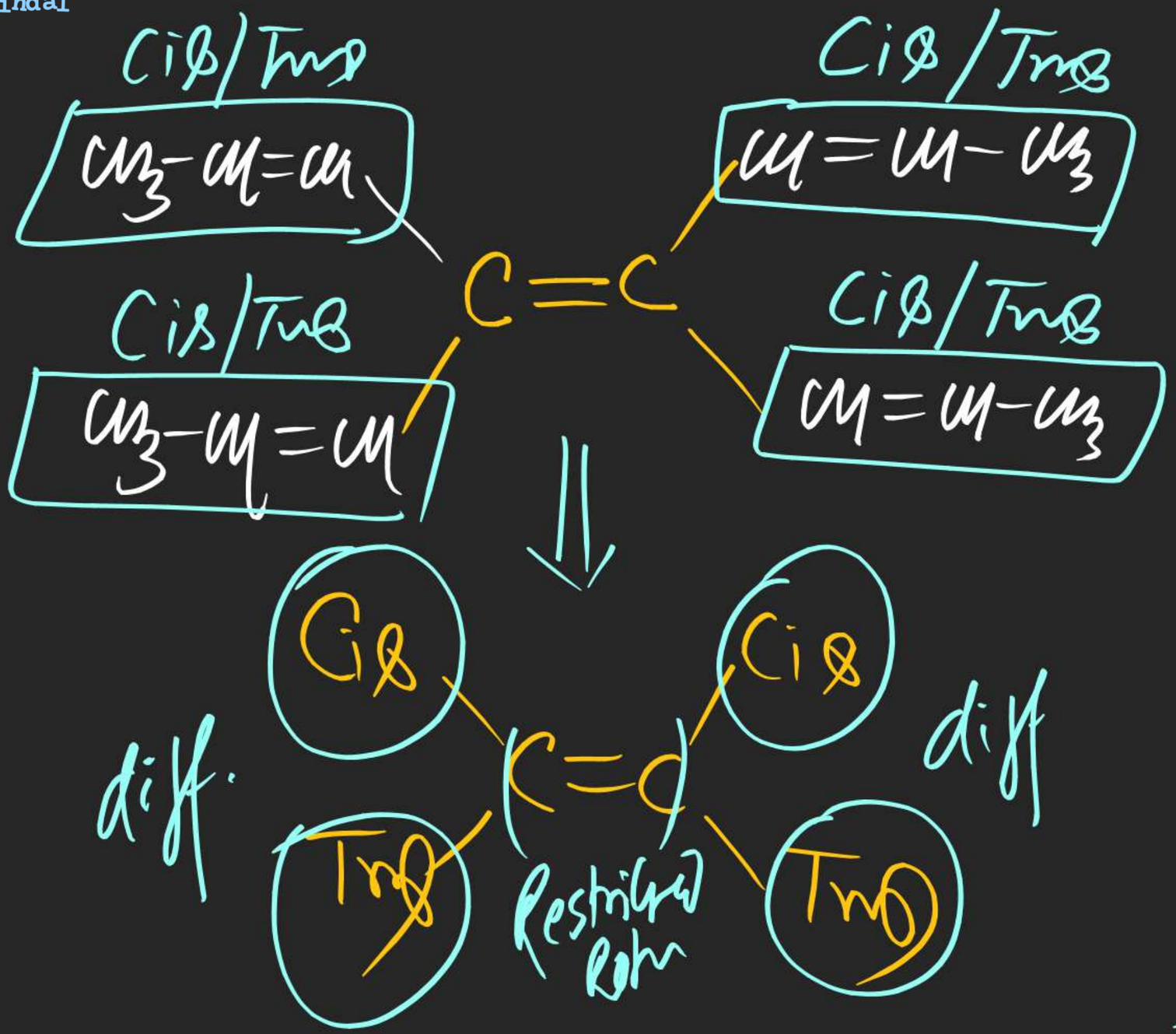


yes

(14)



5



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STEREOISOMERISM

(15) Find Total no. of Structural isomers which can show GI & having molecular formula.

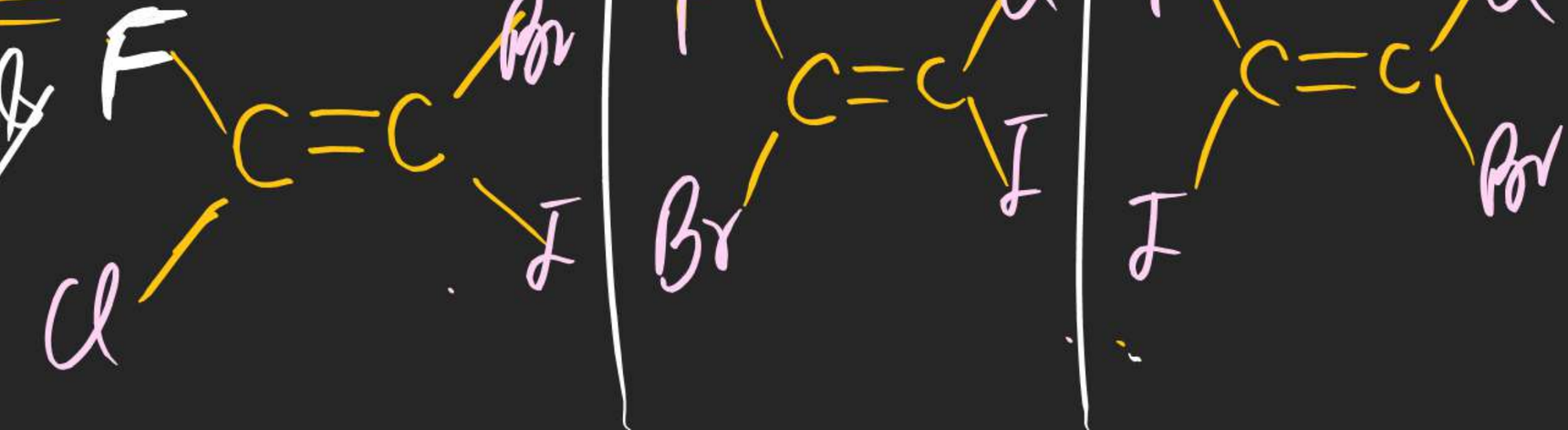
(i) $C_2FClBrI$ ✓

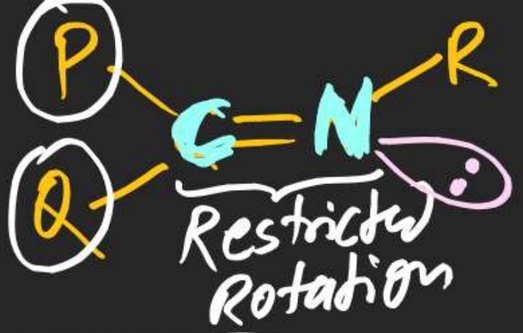
(ii) C_3H_3FClBr

Soln(i): $C_2FClBrI$

Position isomers

For GI → Compound must have Restricted Rotation (double Bond / Ring)



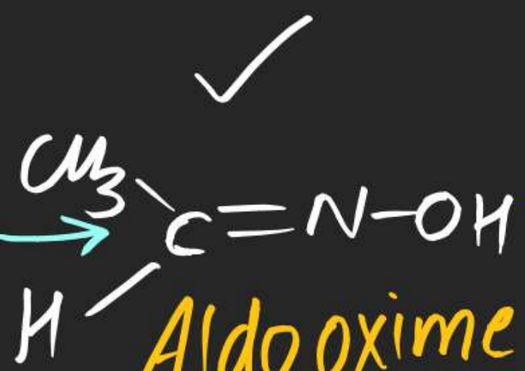
(#) GI in 

$P \neq Q$

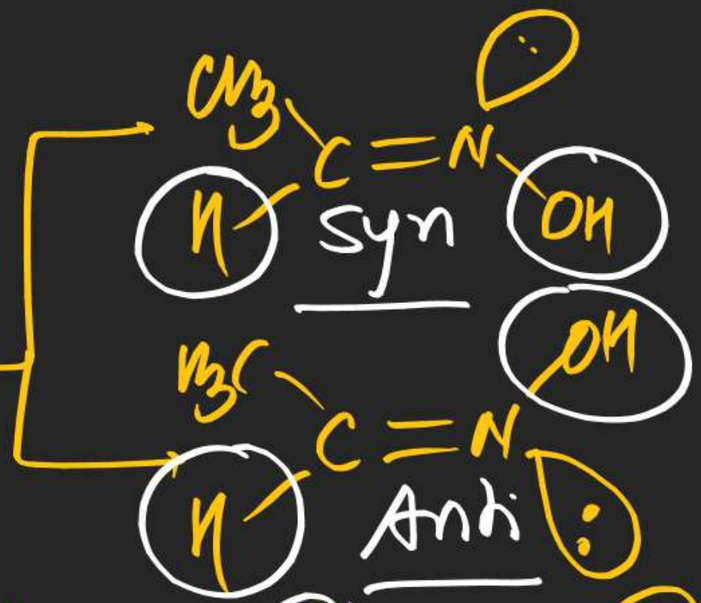
$A = A$ GI ⇒ Cis / Trans

$A = B$ GI ⇒ Syn / Anti

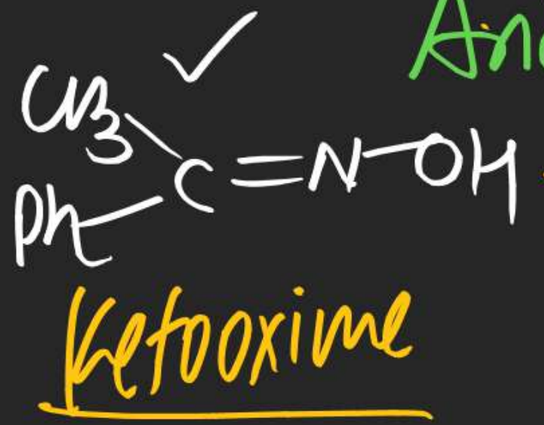
(16) $H_3C-\underset{H}{\overset{}{}}C=O + H_2N-OH \longrightarrow$ Aldehyde



Aldooxime ✓

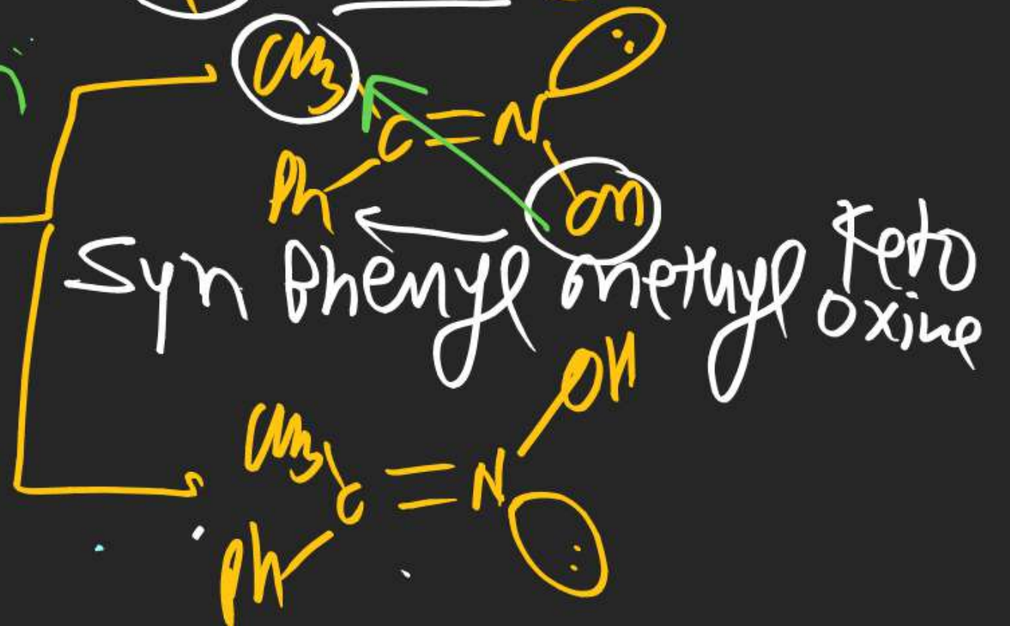


(17) $H_3C-\underset{Ph}{\overset{}{}}C=O + H_2N-OH \longrightarrow$ Ketone



Ketooxime ✓

Anti



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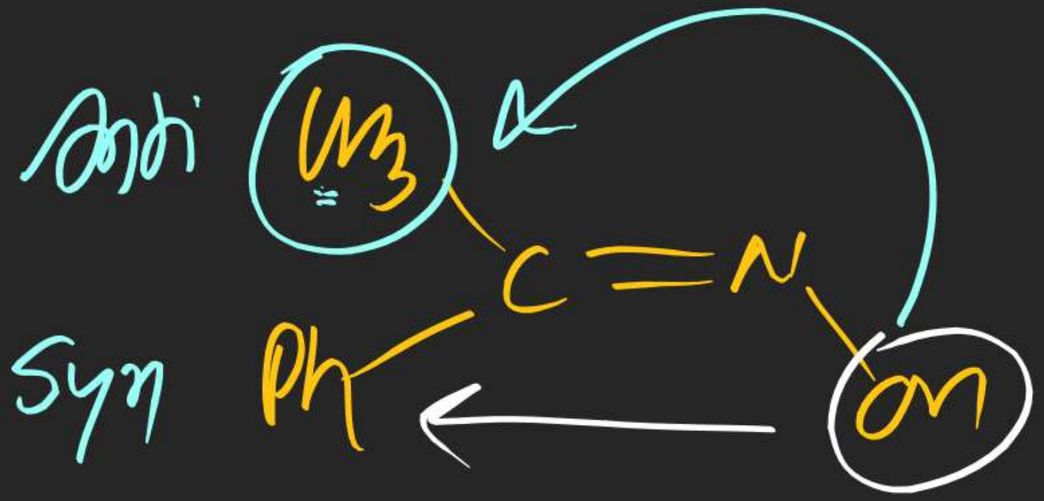
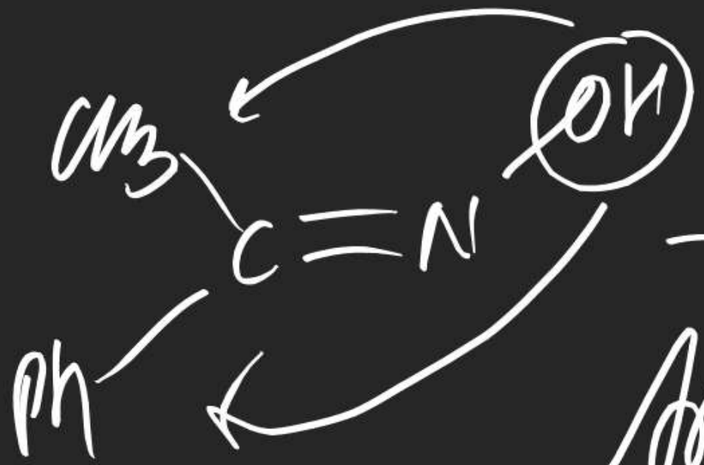
(a)



Syn phenyl methyl ketooxime.

Anti methyl phenyl ketooxime

(b)



Syn methyl phenyl ketooxime

Anti phenyl methyl ketooxime

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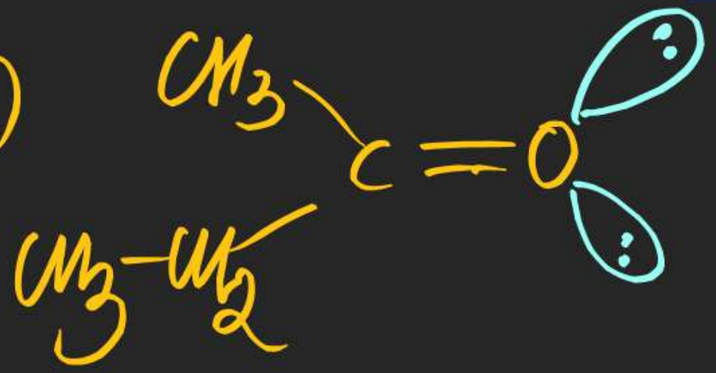
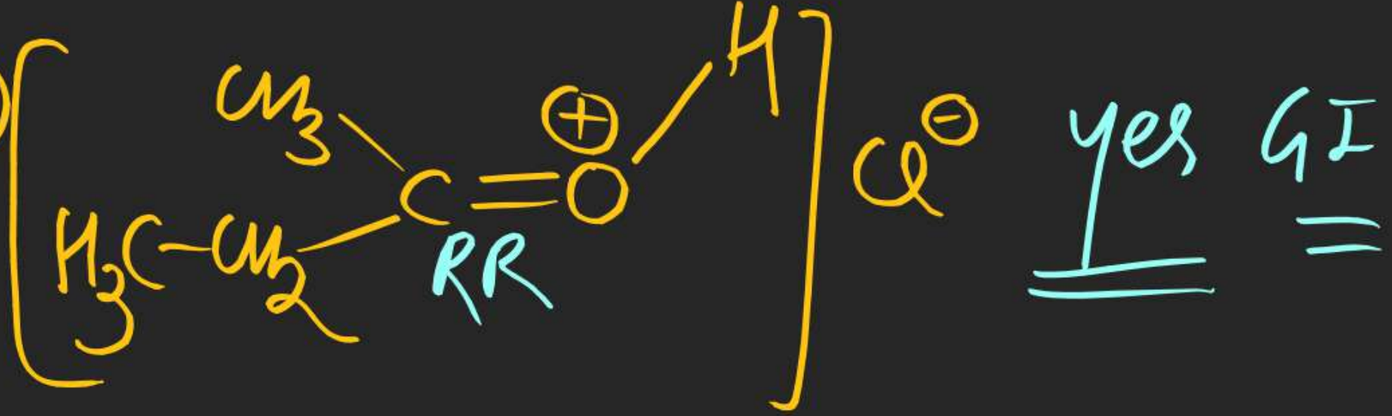
STEREOISOMERISM

(18) 

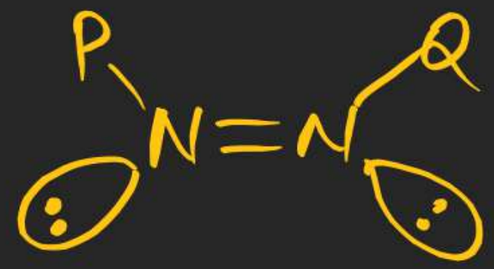
No GI

(19) 

yes GI

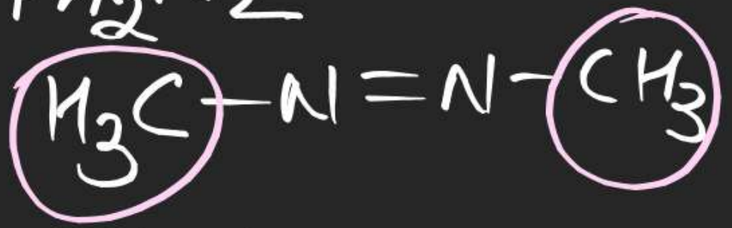
(20) 

No GI

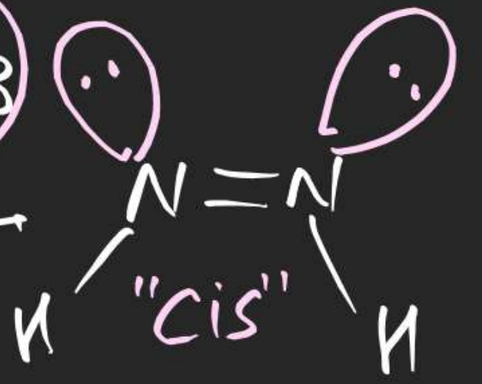
(#) GI in 

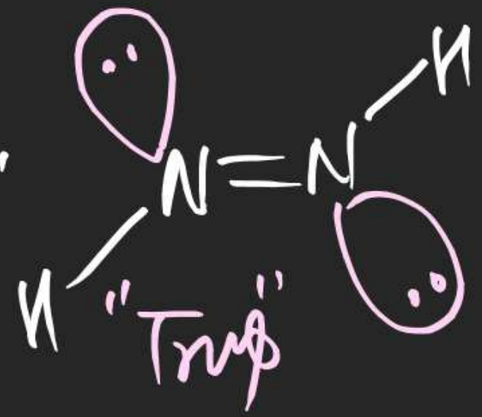
(No condⁿ for GI)

(21) Ph_2N_2

(22) 

(23) N_2H_2





(#) GI in Cyclo Alkene :-

(24) Cyclopropene 

100% CIP ✗

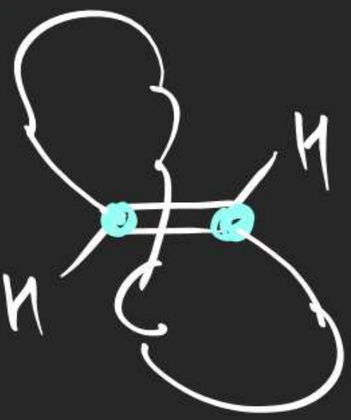
(25) CycloButene 

✗

(26) Cyclo Pentene ✗

(27) Cyclohexene ✗

(28) Cycloheptene ✗

नहीं ये हो नहीं सकता 

Note: Smallest Ring which can show GI across double Bond is 8 membered Ring.

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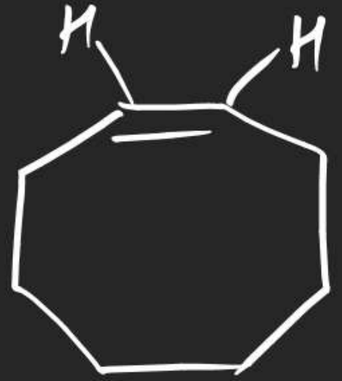
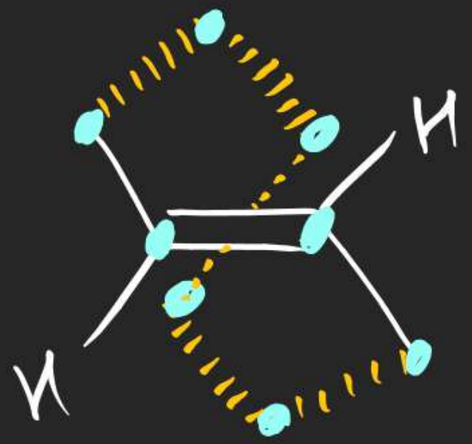
(29) Cyclooctene





stability order

C >>> T

Cis-Cyclooctene

Trans Cyclooctene

(30) Cyclononene (C >> T)

(31) Cyclodecene (C > T)

(32) Cycloundecene (C ≈ T)

(33) Cyclododecene (T > C)

(34) Cyclotridecene (T >> C)

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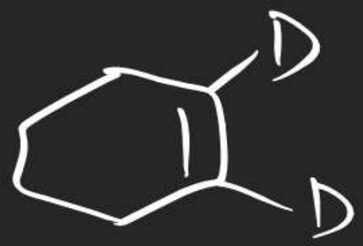
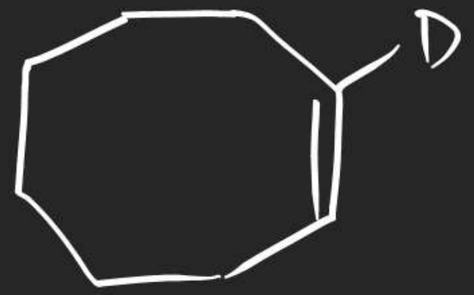
STEREOISOMERISM

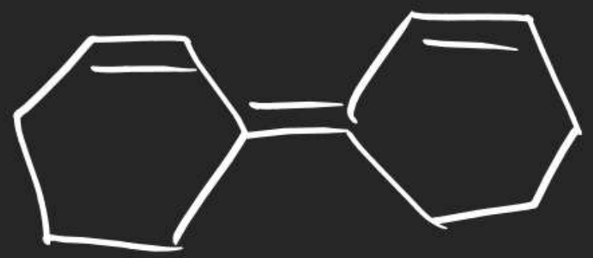
(35)



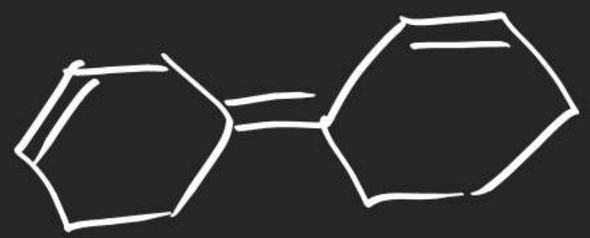
(36)



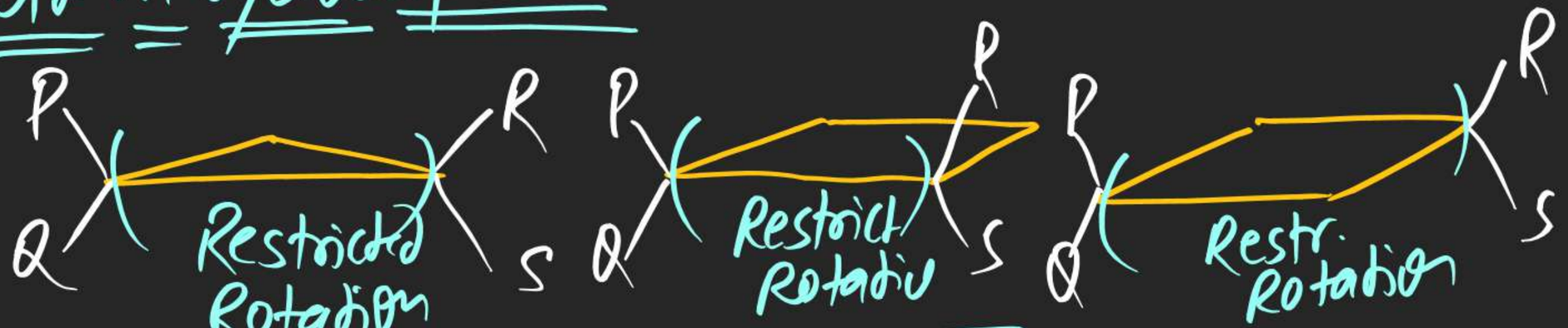
(37)



(38)



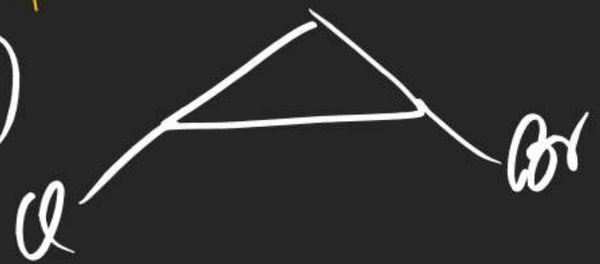
(#) GI in Cycloalkane :-



$P \neq Q$ — $\wedge$ — $R \neq S$

(39) 

(No)

(40) 

(41) 

(42) 

(43) 

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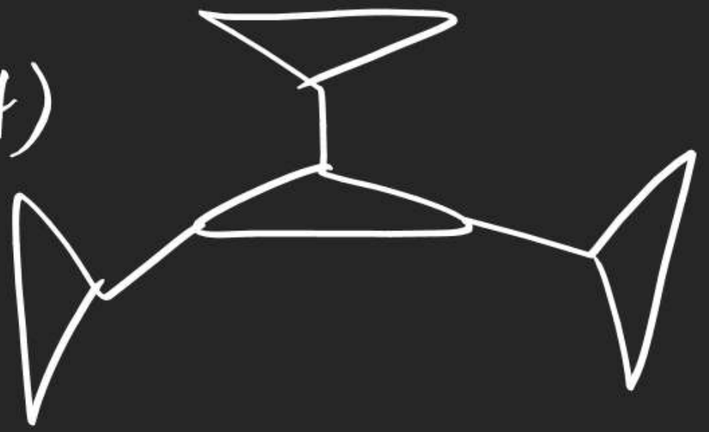
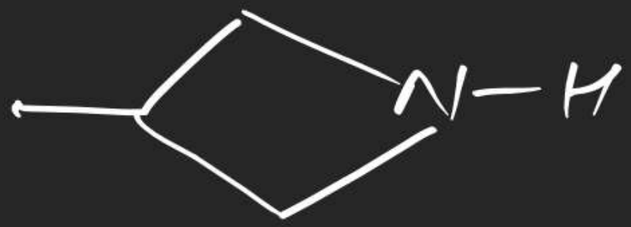
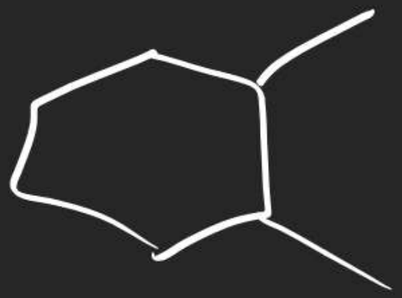
(44)



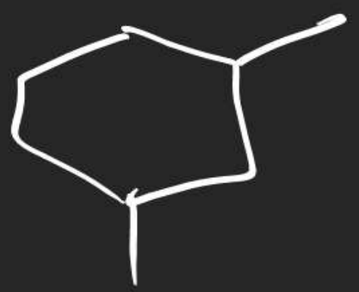
(45)



(46)

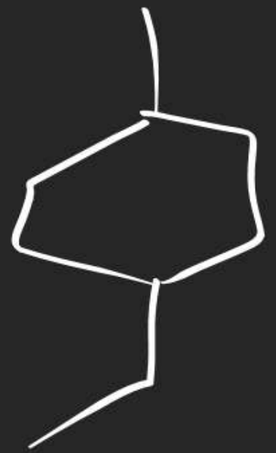


(47)



(40)

(49)



(50)