Nishant Jindal

STEREOISOMERISM

HW Discussion: (Theory Copy)

(9) yes $H_2C=CH-CH=CH-CH=CH_2$

(10) No

(12) yes

(15) (ii) C_3H_3FClBr

Ans (19)

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Soln (15-(ii))

C_3H_3FClBr (DOU = 1)

C_3H_3FClBr

C_2

$CH_3-C\equiv C-Br$

1 double Bond

1 Ring

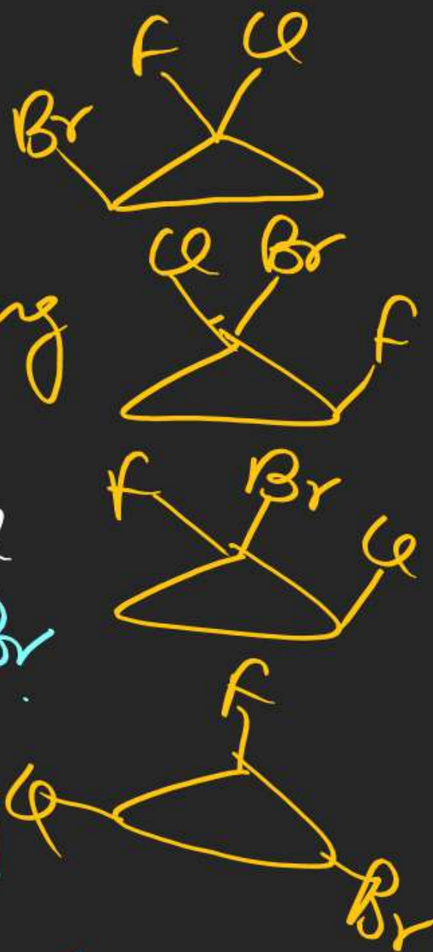
$H_3C-C=C-(F/Cl/Br)$ — 3

$H_2C(F)-C=C-(H/Cl/Br)$ — 3 ($H \to F$)

$H_2C(Cl)-C=C-(H/F/Br)$ — 3 ($H \to Cl$)

$H_2C(Br)-C=C-(H/F/Cl)$ — 3 ($H \to Br$)

$H \to F$, $H \to Cl$



1 — F/Cl

1 — F/Br

1 — Cl/Br

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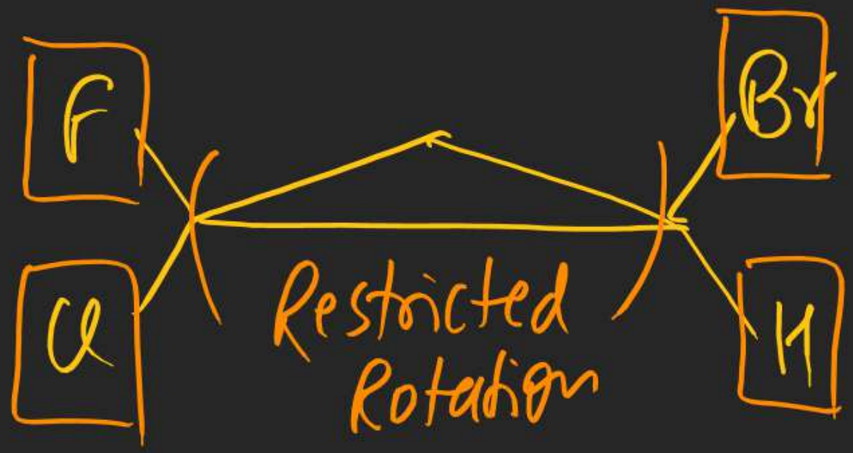
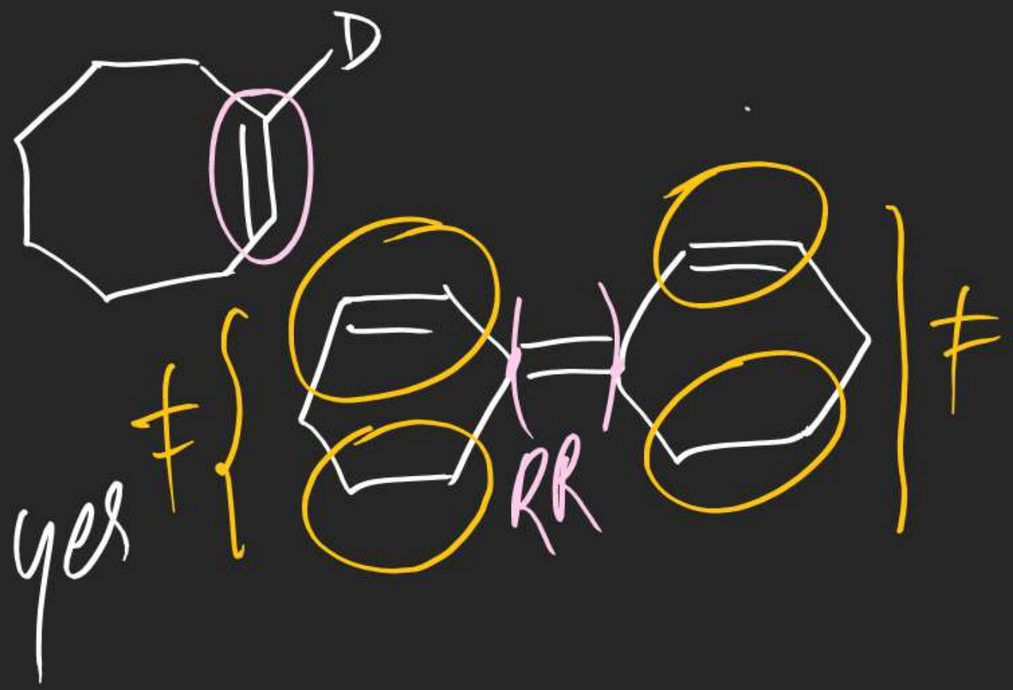


(35) No

(36) yes

(37) yes

(38) yes



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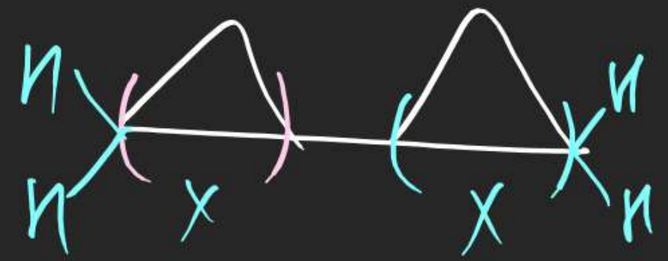
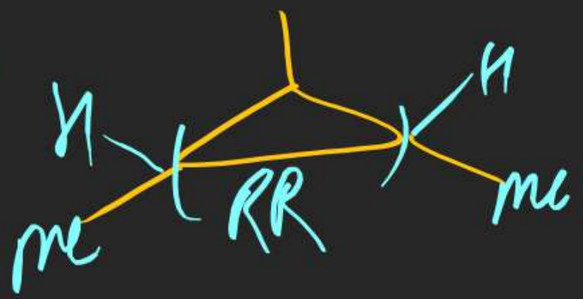
(40) 

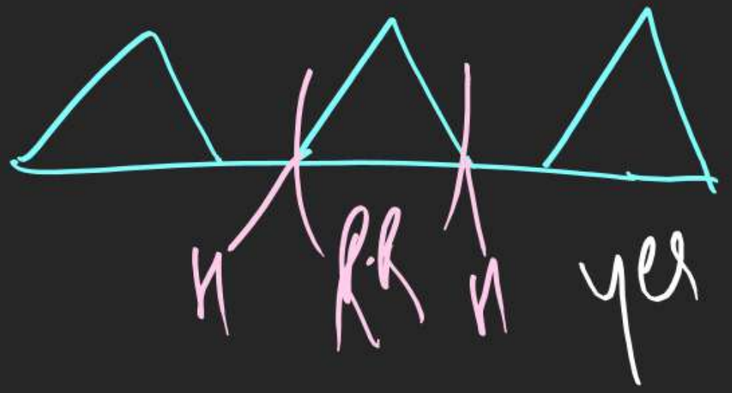
Yes

(41) 

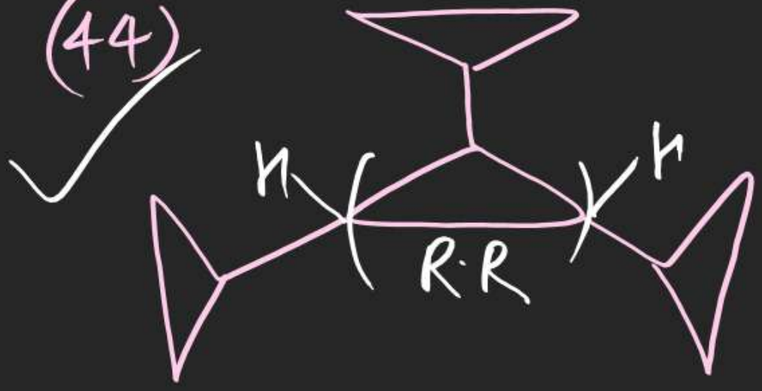
NO

(42) 

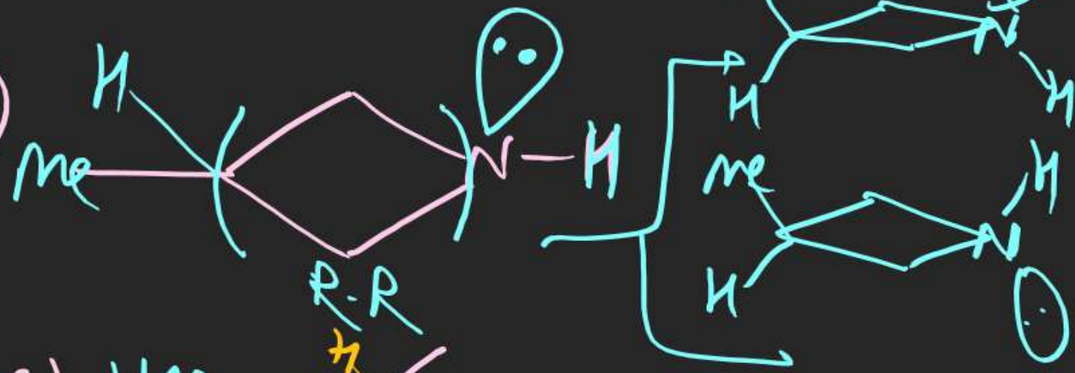
yes

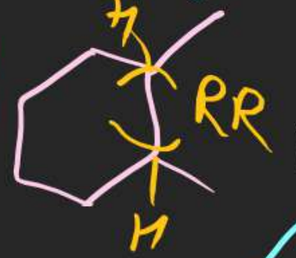
(43) 

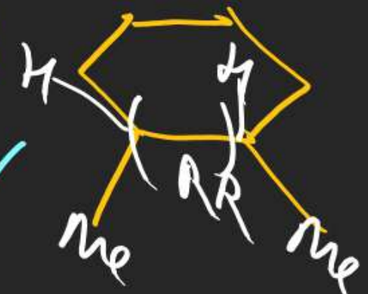
yes

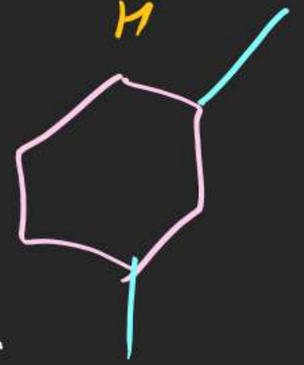
(44) 

yes

(45) 

(46) yes 



(47) yes 

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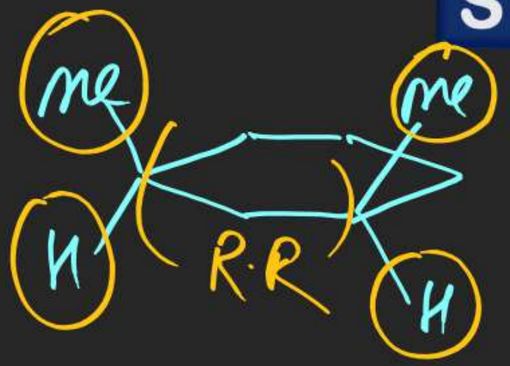
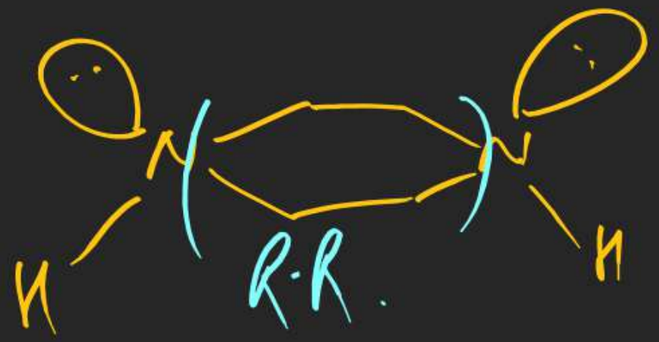
(47)

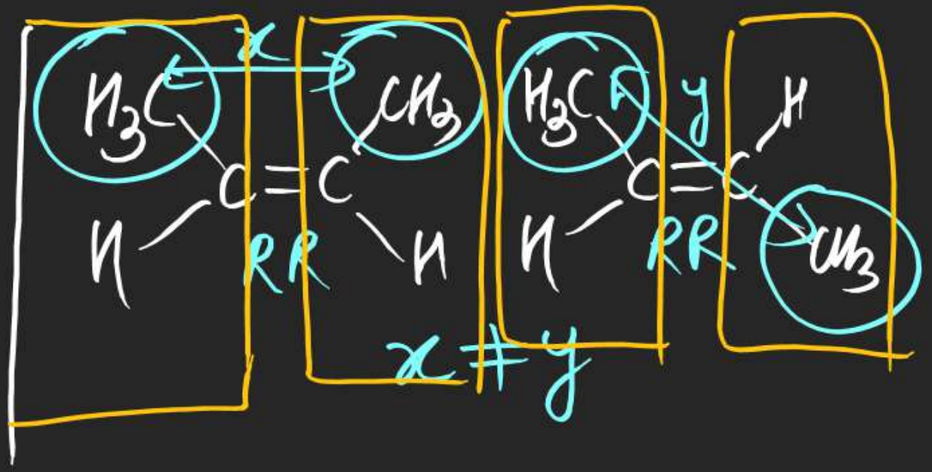


(50)



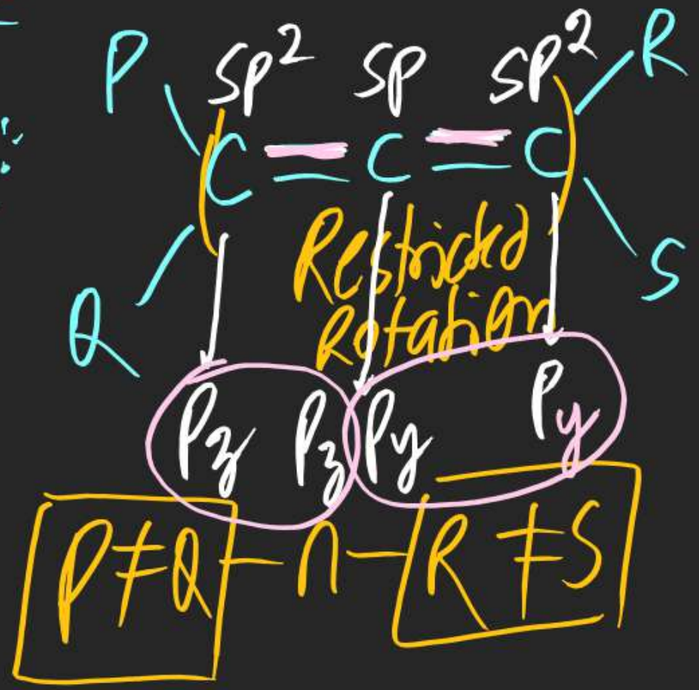
(#) GI in Cummulenes:

⇒ Cummulens are Compounds in which double Bonds are present at adjacent position

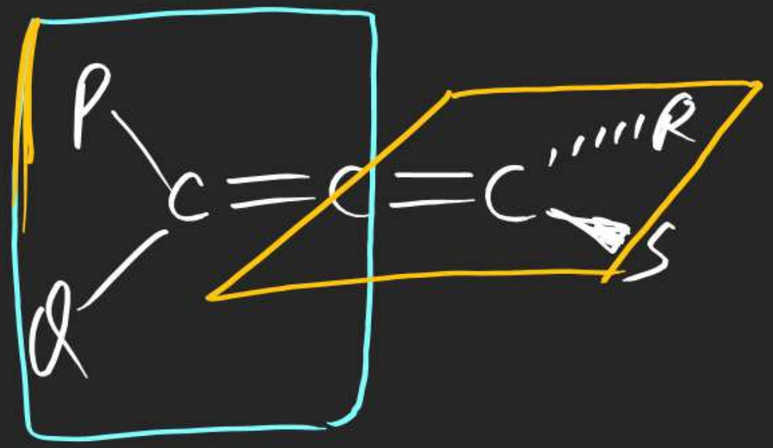


Ex: $H_2C=C=CH_2$

Ex:



⇒



No GI

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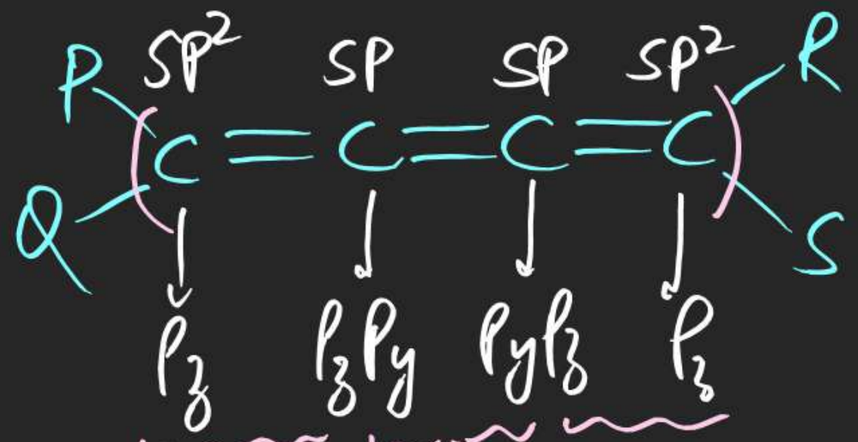
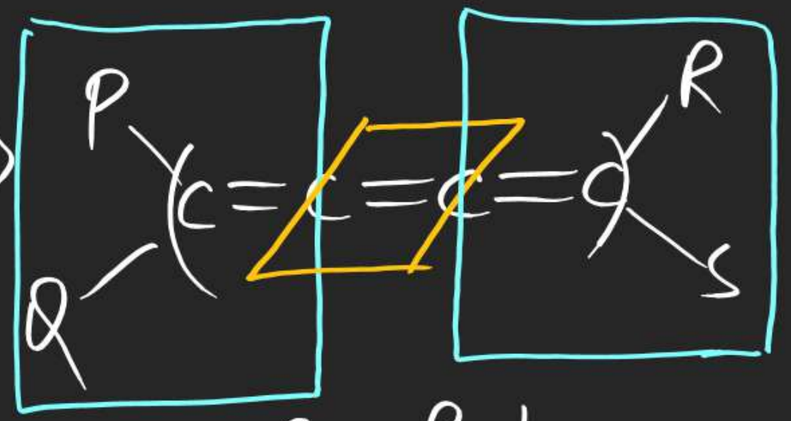
Ex!



$\Rightarrow$



yes GI

Res. Rota

$P \neq Q$ — n — $R \neq S$

Note: (i) Cumulene with Even No. of double Bond $\Rightarrow$ No GI

(ii) Cumulene with odd no. of double Bond $\Rightarrow$ yes GI

Bond alw with $P \neq Q$ — n — $R \neq S$

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(51) $H_3C-CH=C=CH-CH_3$ — No GI

(52) $H_3C-CH=C=C=CH-CH_3$ — yes

(53) $H_3C-CH=C=C=C=C=C=C$ (Cl, Cl)

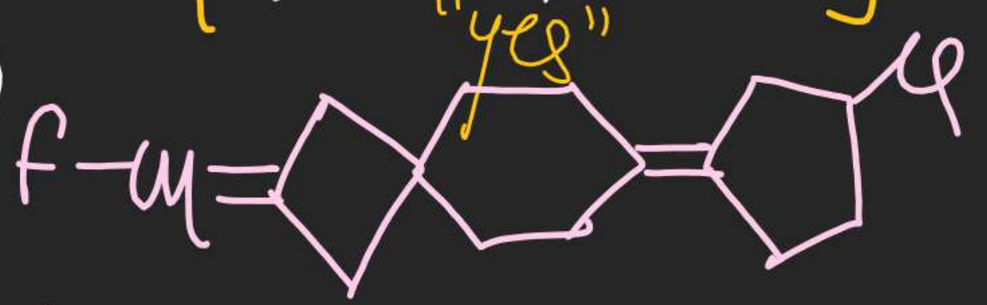
(54) $H_3C-CH=C=C=NH$

(55) $HN=C=C=NH$

(56) $\left[H_3C-\overset{\oplus}{N}=C=C=\overset{\oplus}{N}(CH_3)(H)\right] SO_4^{2-}$

(57) $F-CH=C=C=C=C=C=CH-Cl$ — ↓ ↓ ↓ yes ↓

(58) $F-[\text{polycyclic}]=CH-Cl$

(59) 

(60) ✓

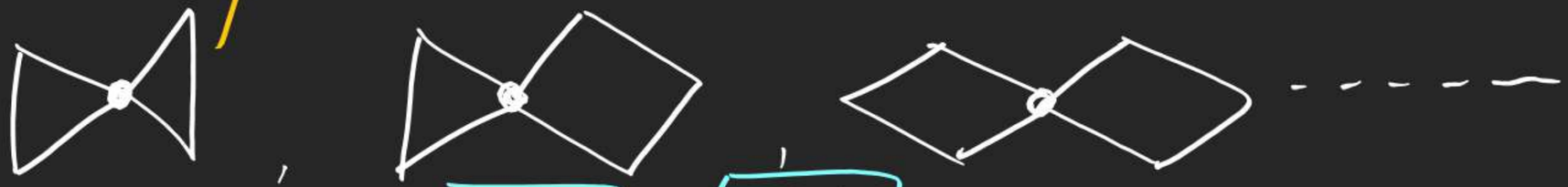
(61) ✓

(62) ✓

(#) GI in Spiro Compound :

Spiro Compound : Compounds having at least two Rings with Exactly one 'atom common.

Ex :



$P \neq Q$ ∩ $R \neq S$

No GI (Terminals are in ⊥ Plane)

Ex :

yes GI

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Note: (1) Spiro Compound with odd no. of Rings & $P \neq Q$ & $R \neq S$
$\Rightarrow$ wd always show GI.

(2) Spiro Compound with even no. of Rings (across) as a Restricted Rotation segment wd never show GI.

(63)  "No"

(64)  "yes"
Restricted Rotation

(65) 

(66) 

(67) 

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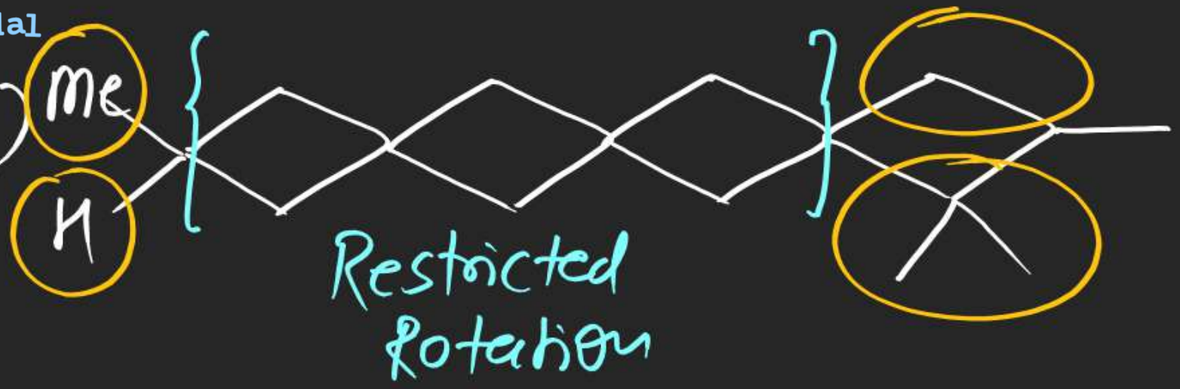
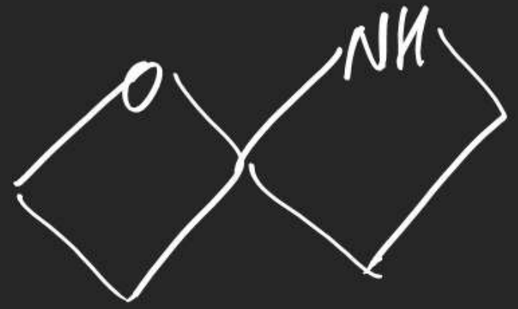
(68)



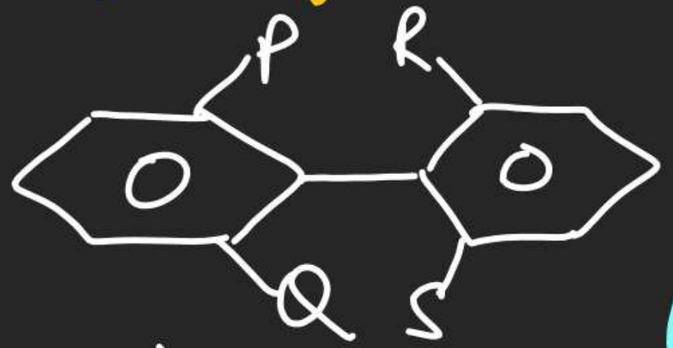
(69)

(70)

(71)



(#) GI in Polyphenyl Compounds :-



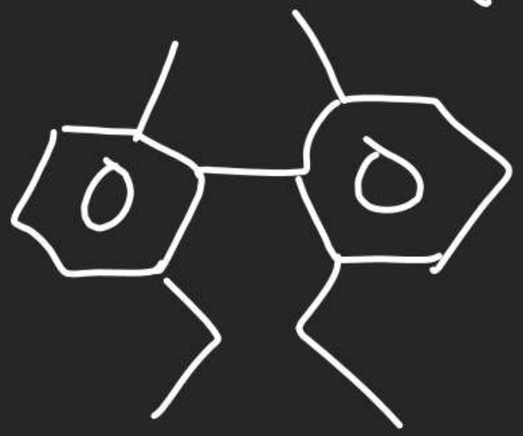
⇒ P, Q, R, S small → No GI due to Free Rotation

P, Q, R, S ⇒ large → Restricted Rotation due to SIR

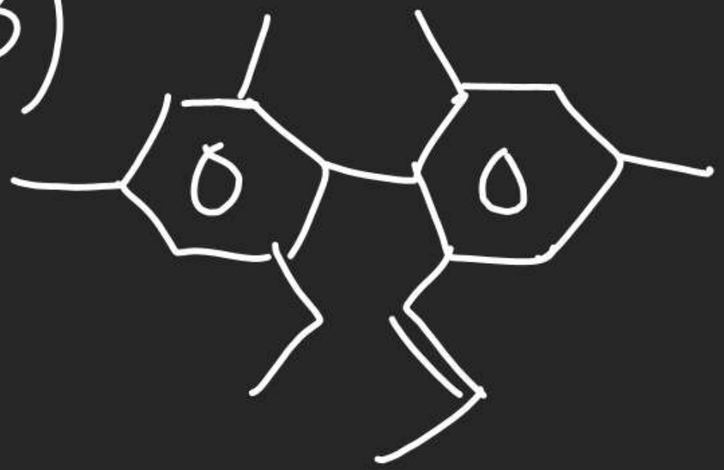
No GI

due to I Terminals

(72)



(73)



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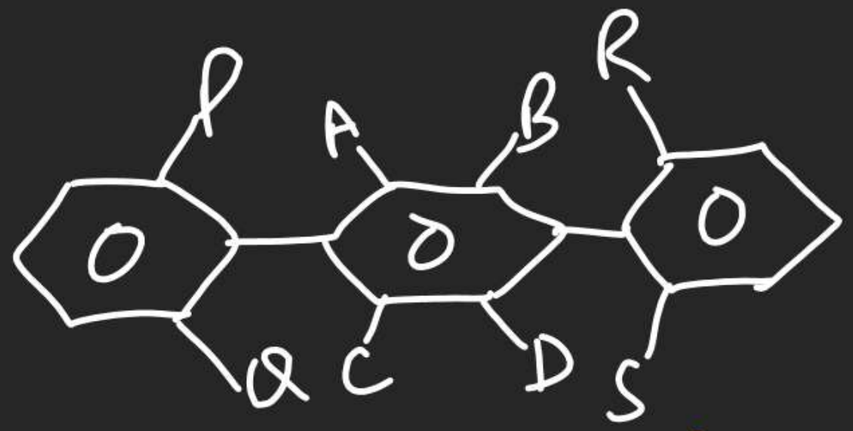
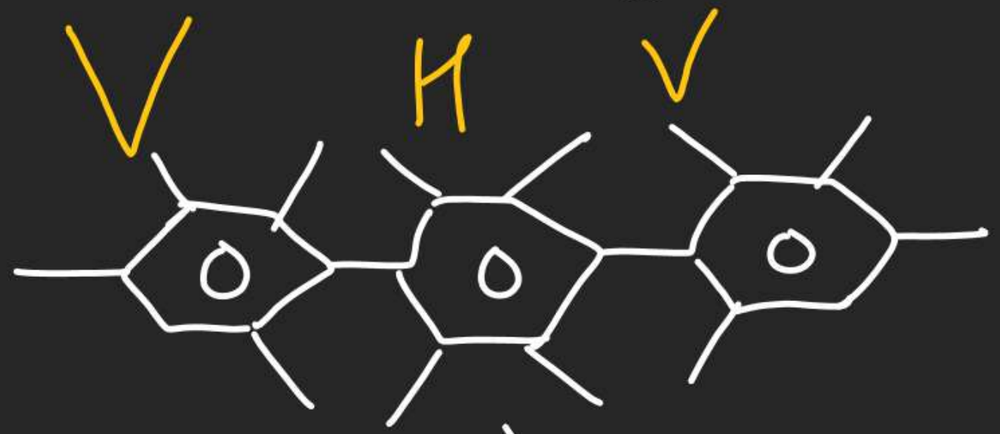
(74)



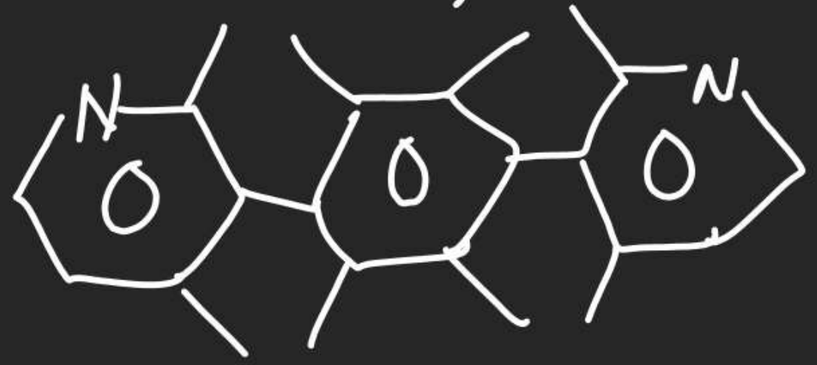
$P \neq R$ — $R \neq S$

yes GI

(75)



(76)

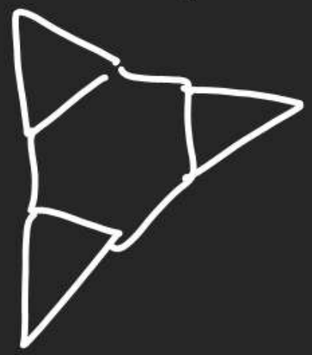


(77)

(78)

(79)

(80)



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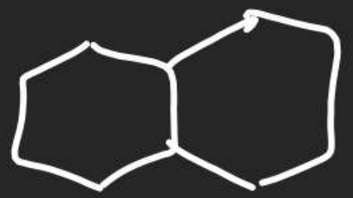

(82)

$$CH_3-CH=S=CH-CH_3$$

Ex-1

HW

St. Isomerism sheet

1-30