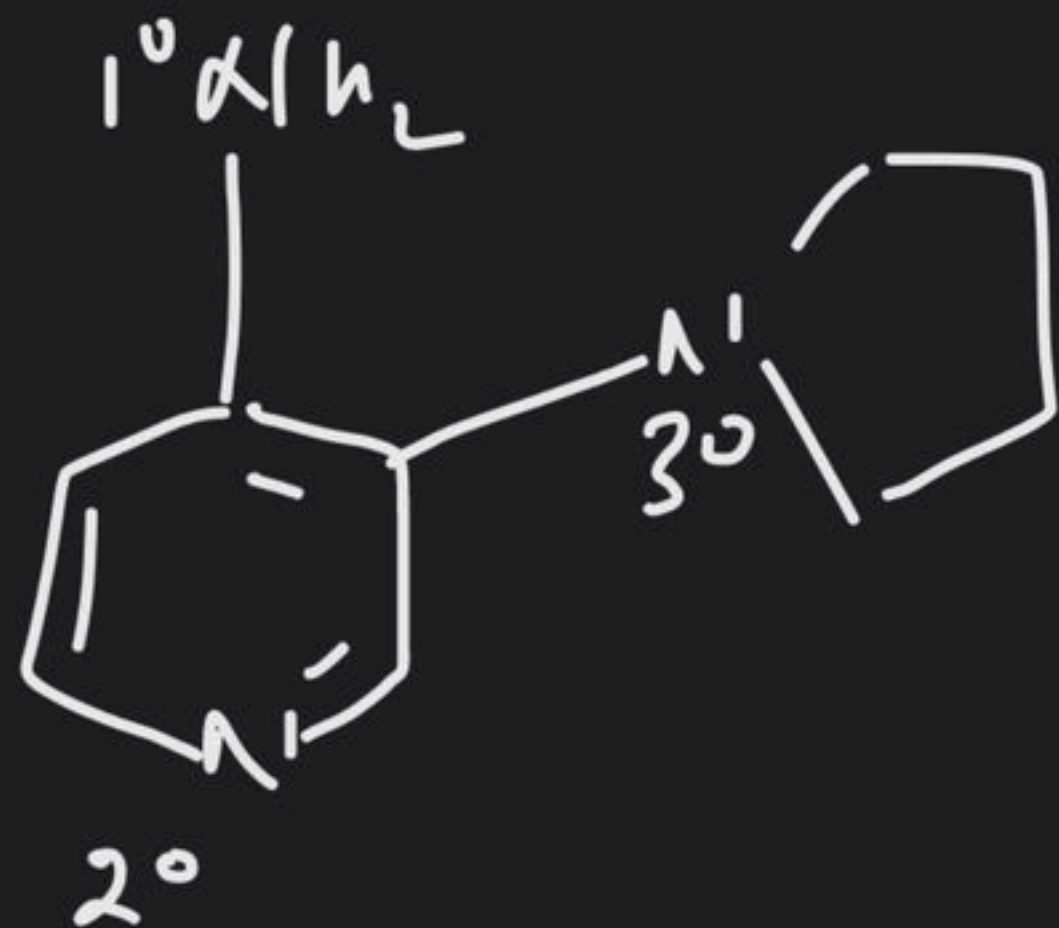




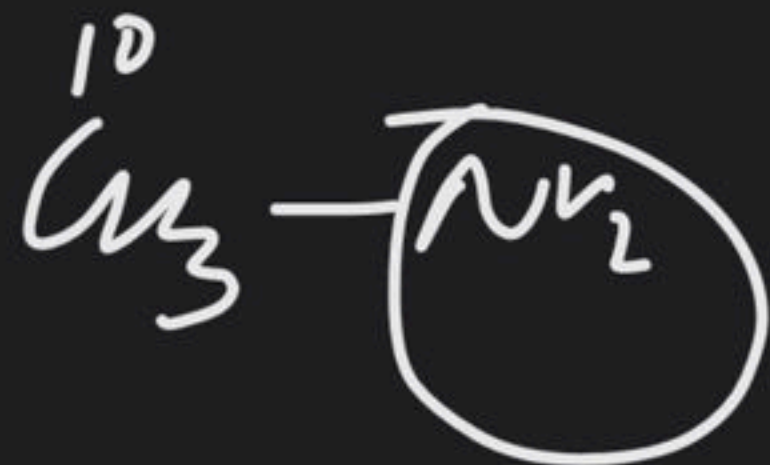
# Aromatic Compounds - I

Course on General Organic Chemistry for Class XI

(57) (B)



(59) (C)

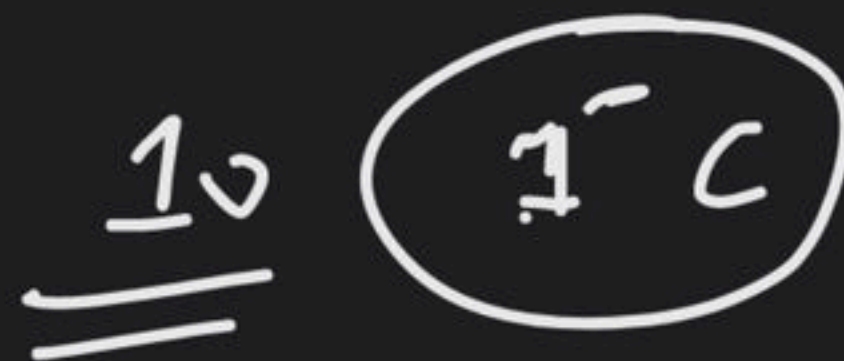
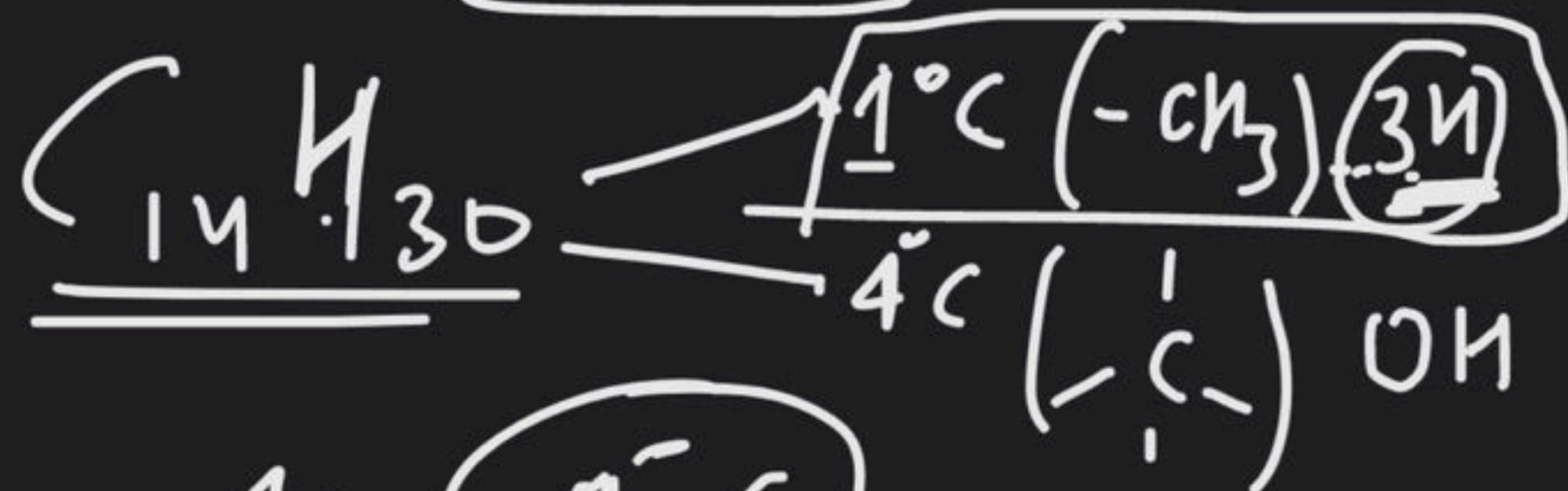


(65)  $C_n H_{2n+2}$  (mw = 198)

$$12n + 2n + 2 = 198$$

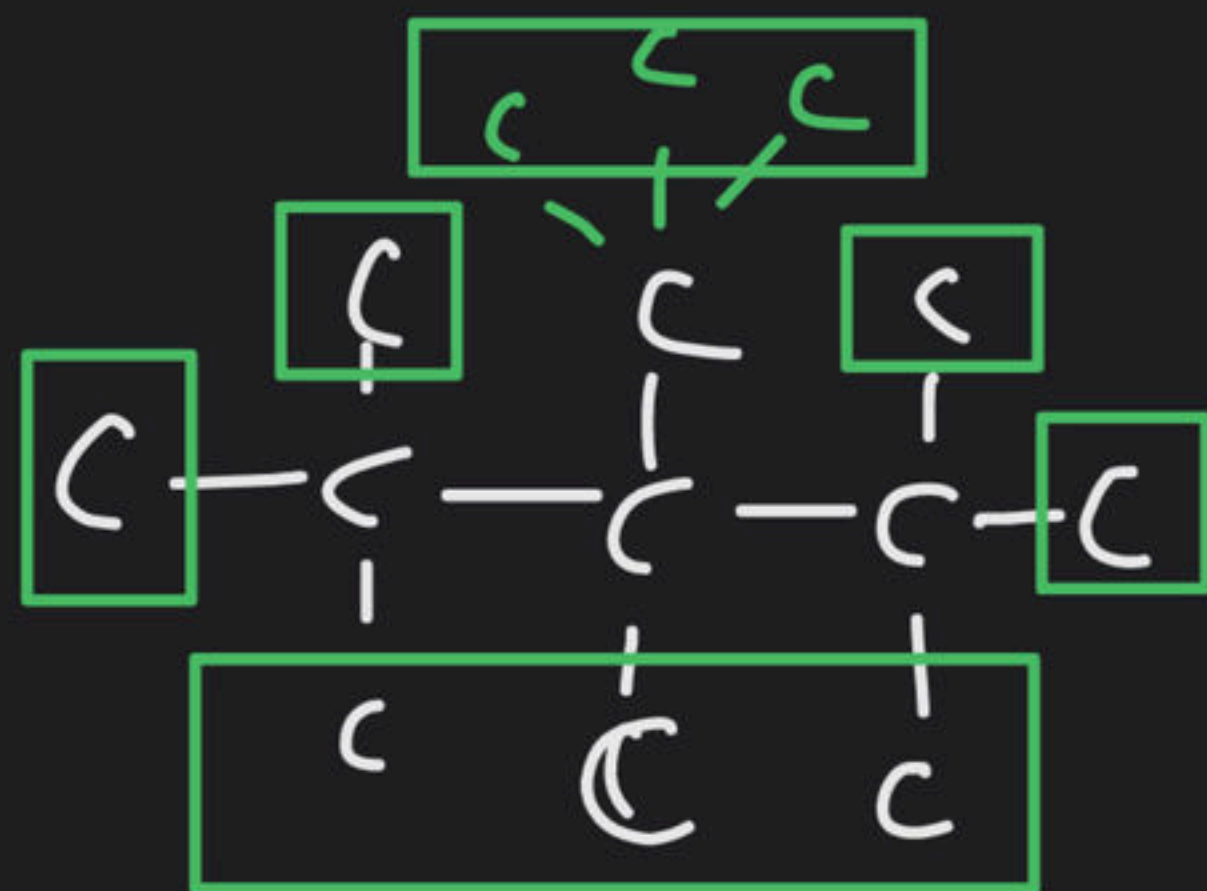
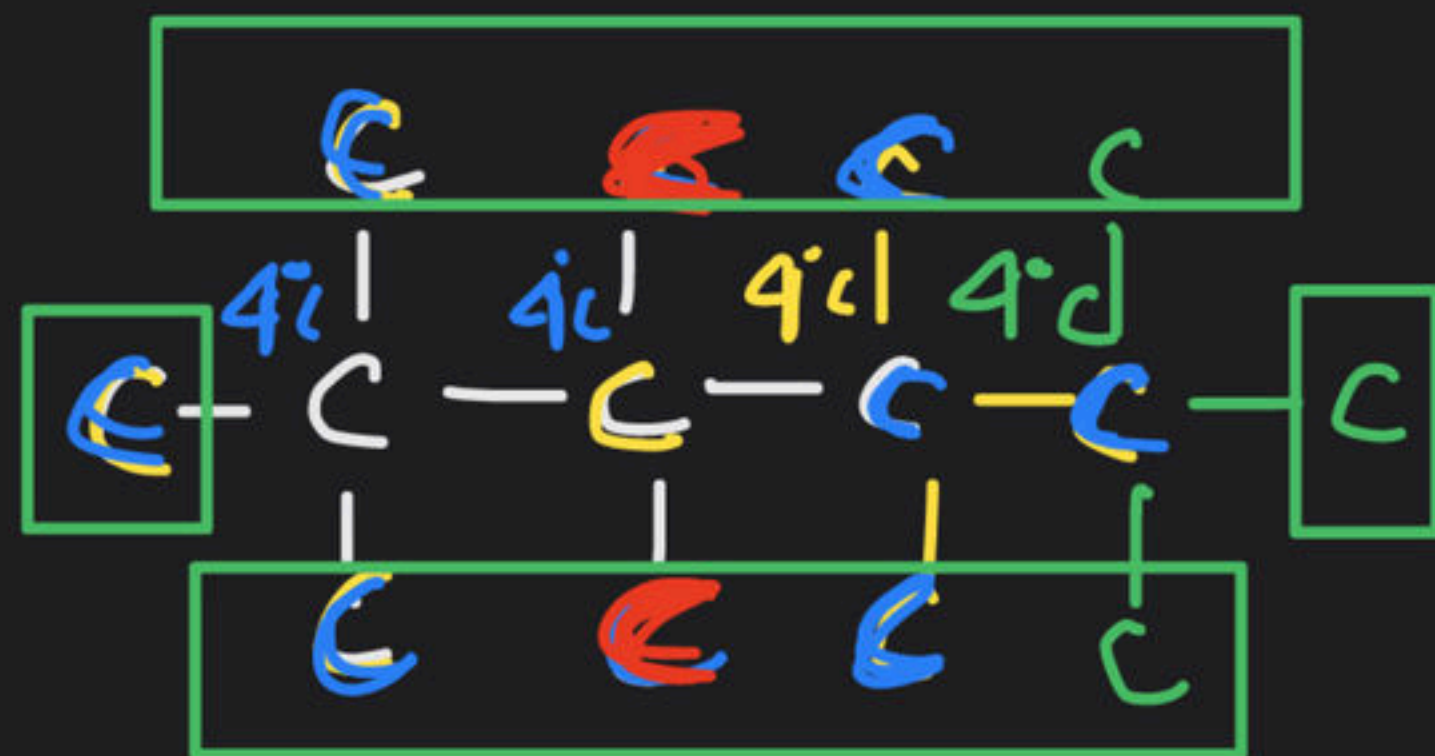
$$\Rightarrow 14n + 2 = 198$$

$$\Rightarrow \boxed{n = 14}$$



C<sub>14</sub>H<sub>30</sub>

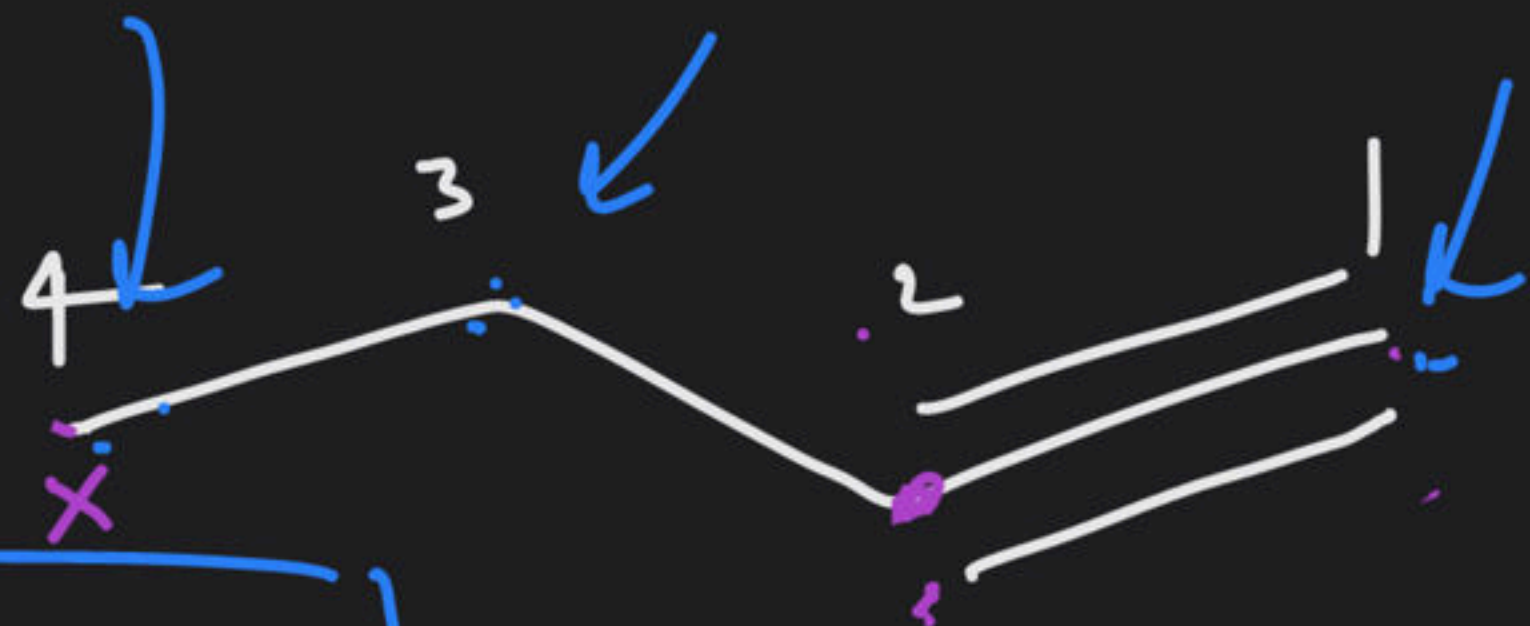
(isomers)





60'.

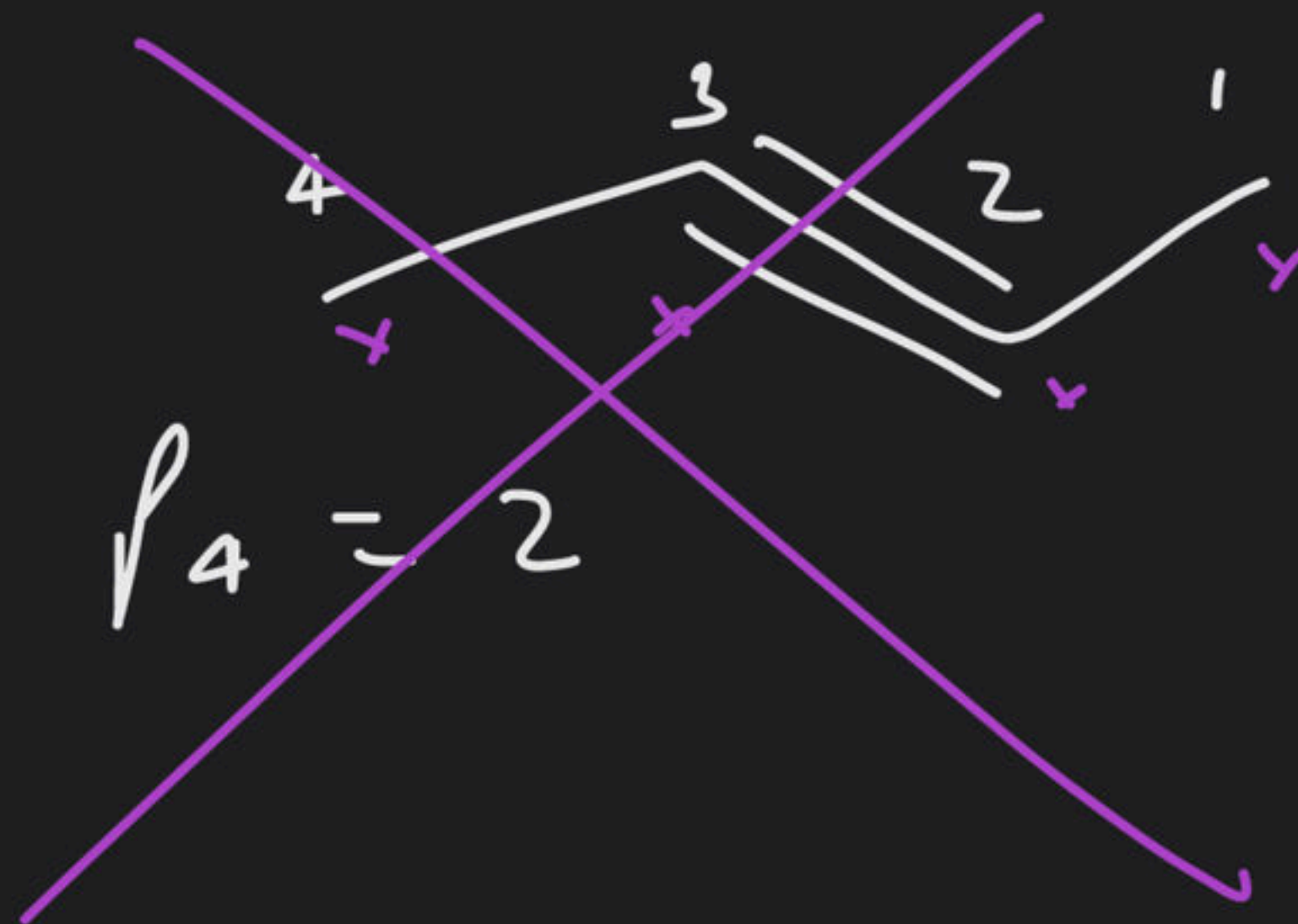
$P_1$ -Bromo -  $P_2$ -chloro -  $P_3$ -methyl but  $P_4$ -yne



$$\begin{aligned} P_4 &= 1 \\ P_3 &= 3 \end{aligned}$$

$$P_2, P_1 = (1, 3, 4)$$

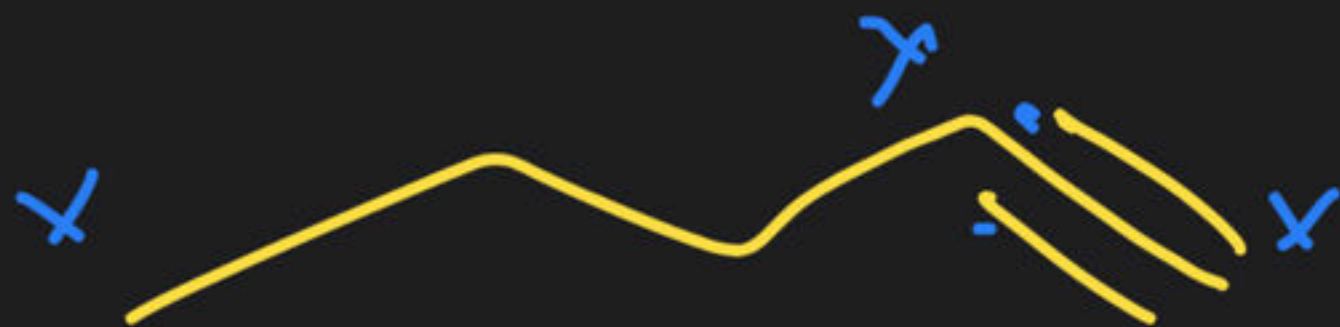
$$\frac{P_4}{P_3} = \frac{1}{3}$$



$$P_4 = 2$$

(70)

$p_1$ -methyl Pent- $p_2$ -yne



$$p_2 = 1$$

$$p_1 = 3, 4$$

$$(1, 3)$$

$$(1, 4)$$



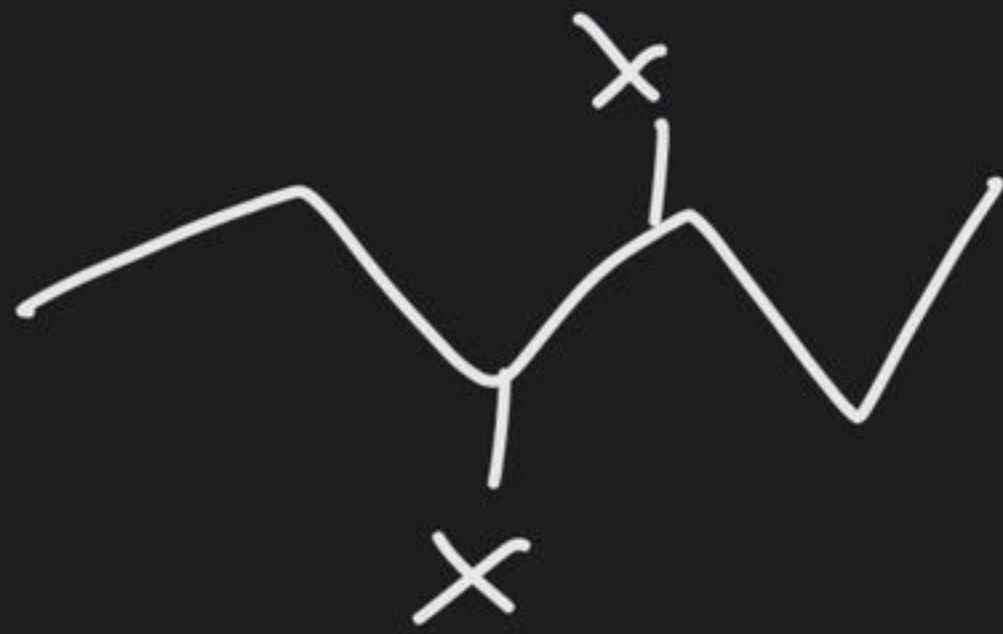
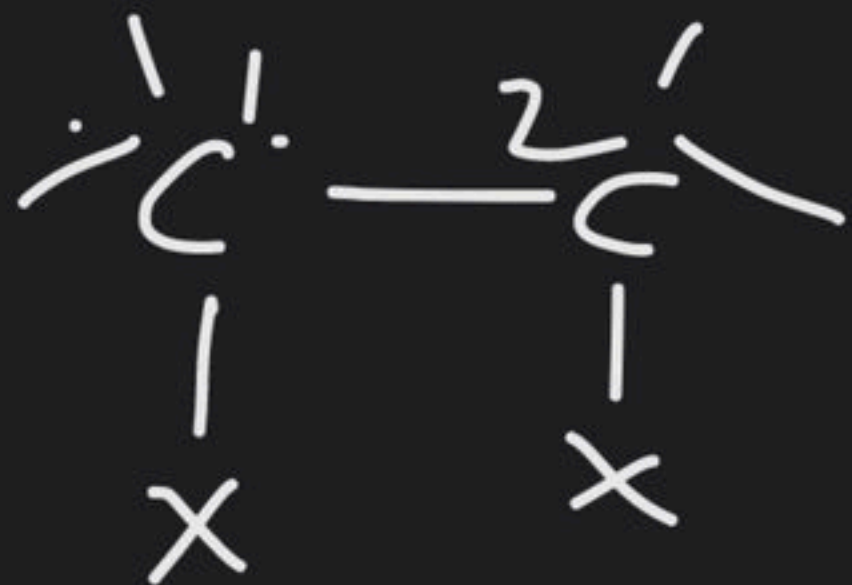
$$p_2 = 2$$

$$p_1 = 4$$

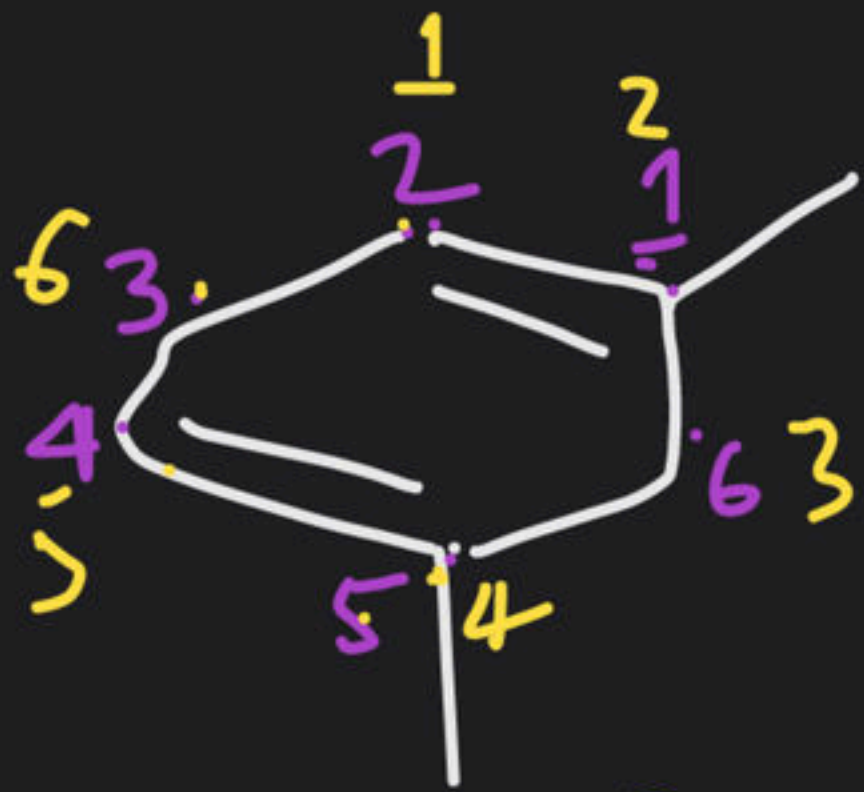
$$(2, 4)$$



(76)



(77)



(80)

~~double~~  
✓ 1, 4  
X 1, 4

me	me
①	5
2	4



Ortho



meta



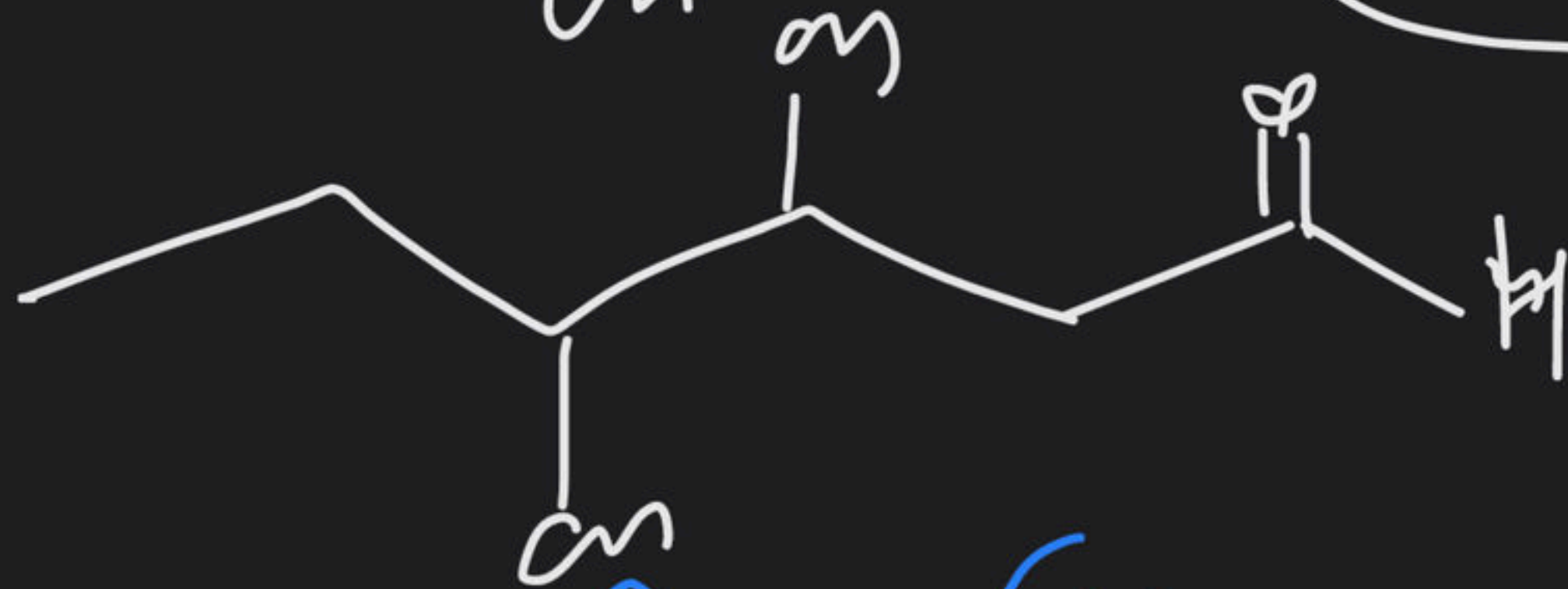
para.

(86)  $C_6H_{12}O_3$  DBE = 1 (double bond)

(A)

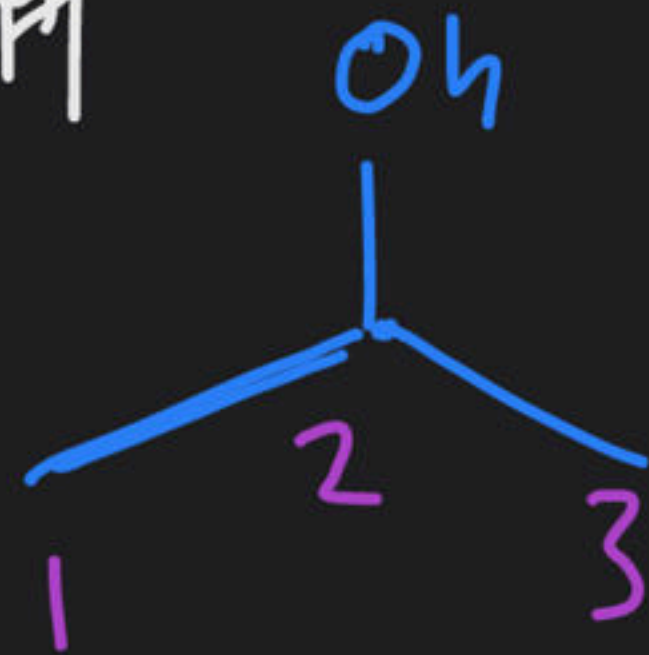


(B)



(C)

(93) (B)

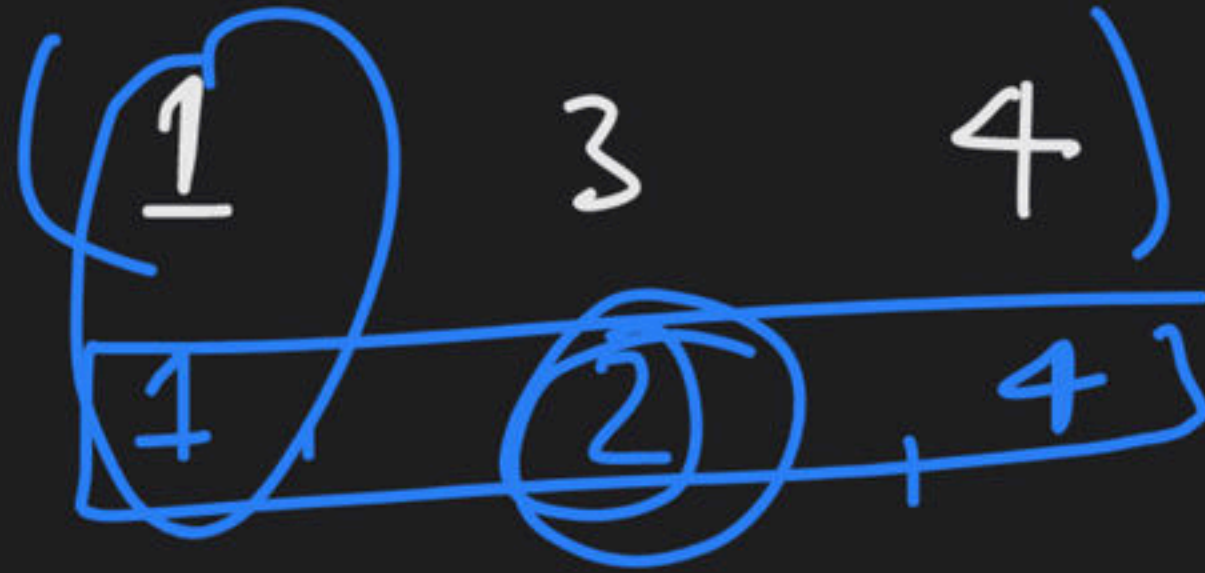
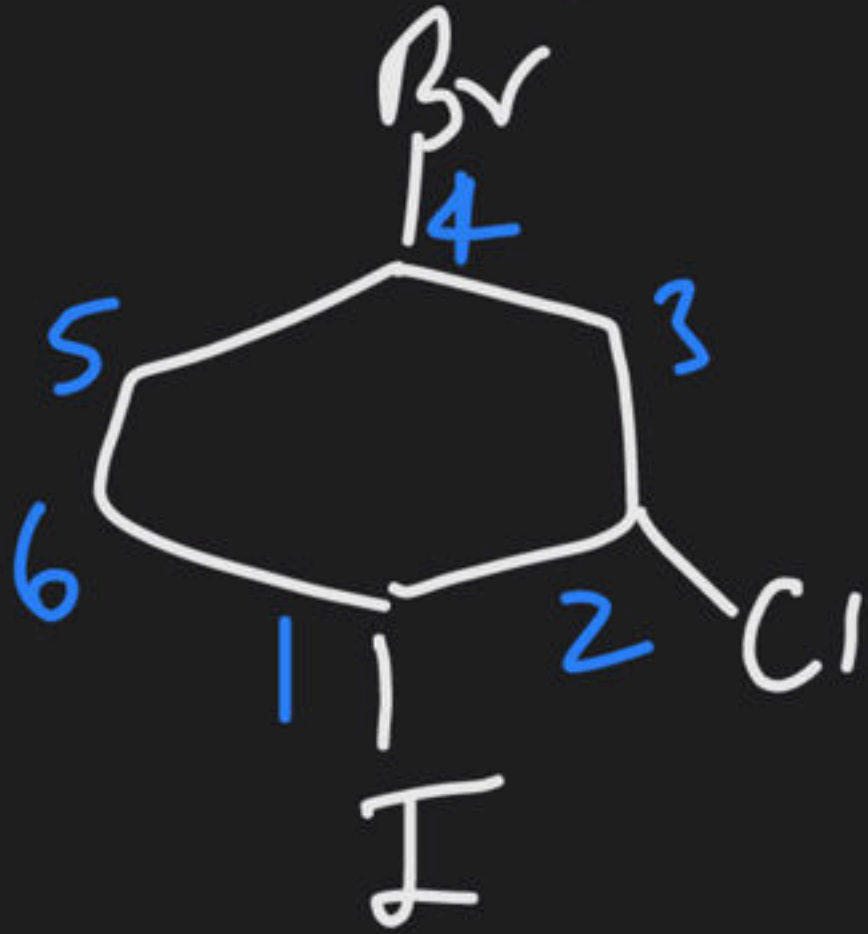
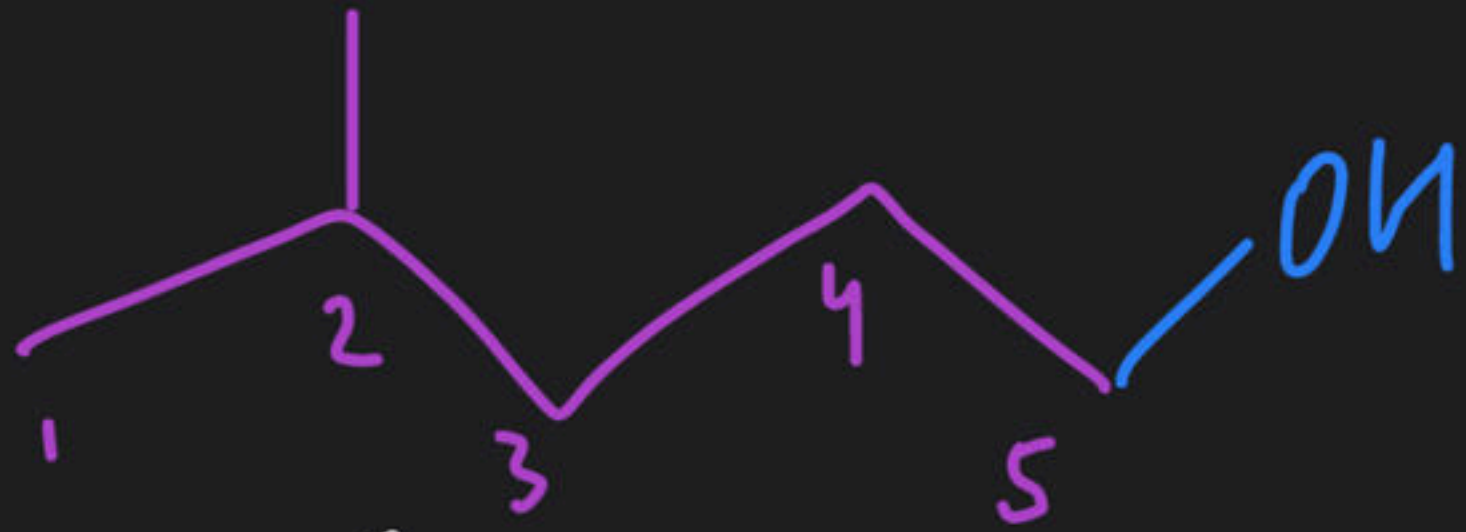


(Propan-2-ol.)

(203)

(B)

(D)





BB  $\Rightarrow$  finish (IUPAC) (111 marks)

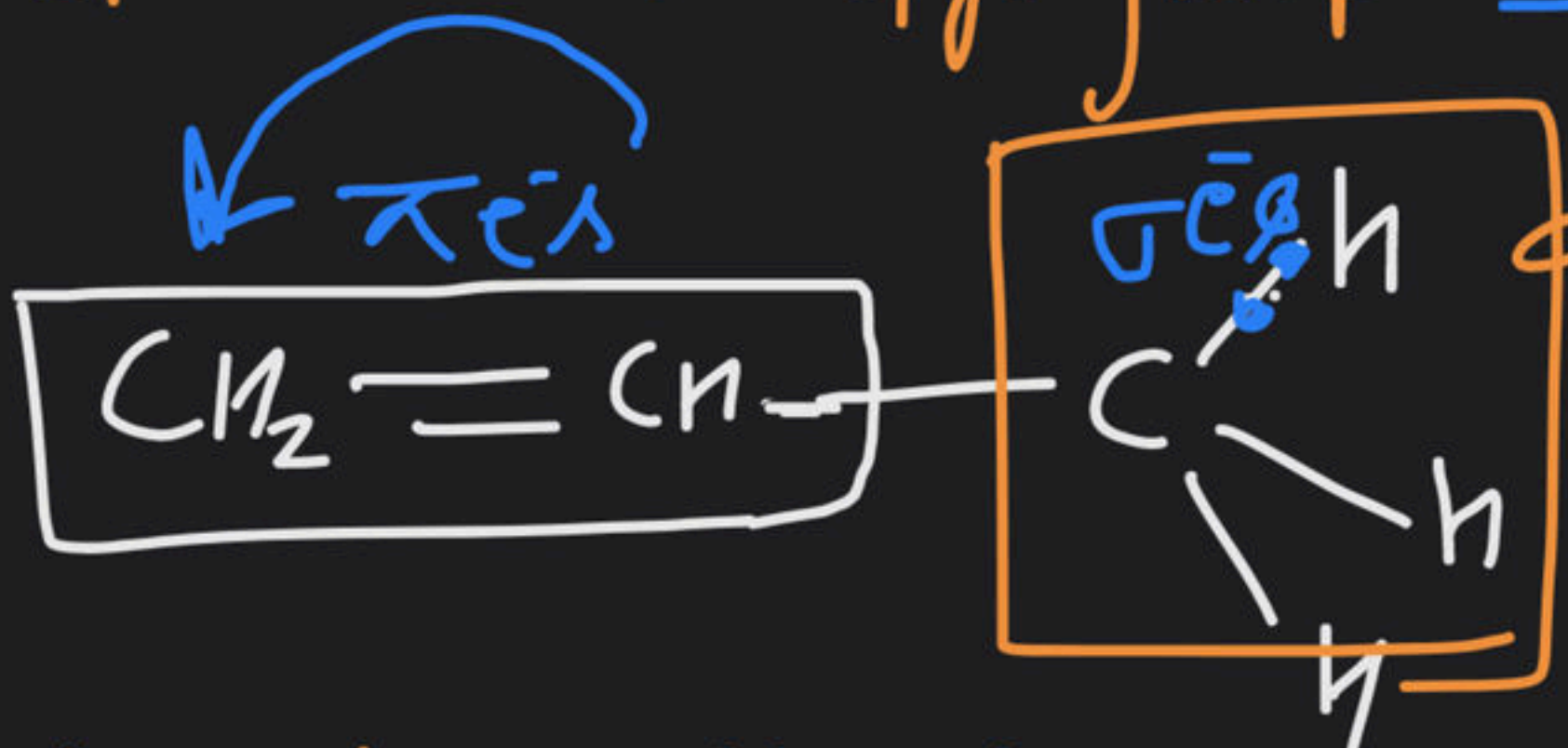
DPP  $\Rightarrow$  243

Types of HyperConjugation effect

(a) +H effect

(b) -H effect

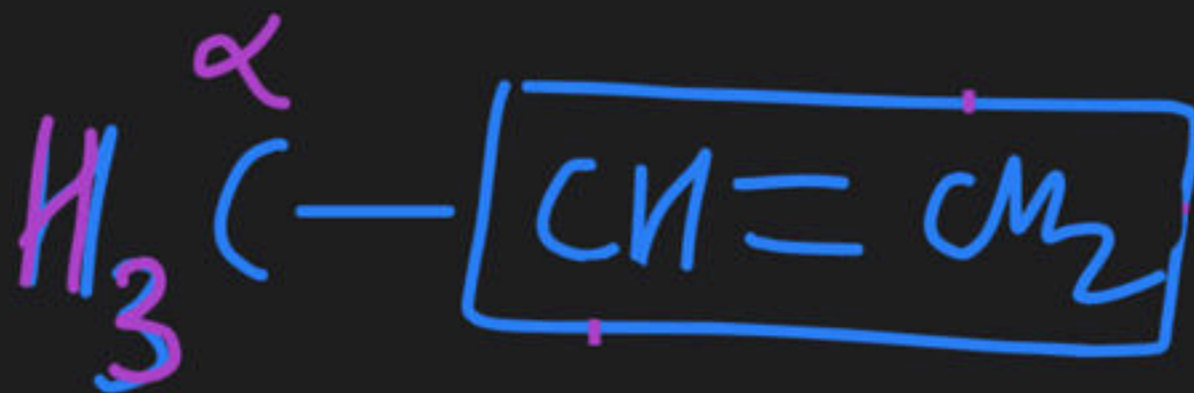
+H-effect!

permanent displacement of  $\pi e^-$  density  
away to attached alkyl group due to  $\sigma$  electron  
density of  directly attached  
C-H Bond is known as

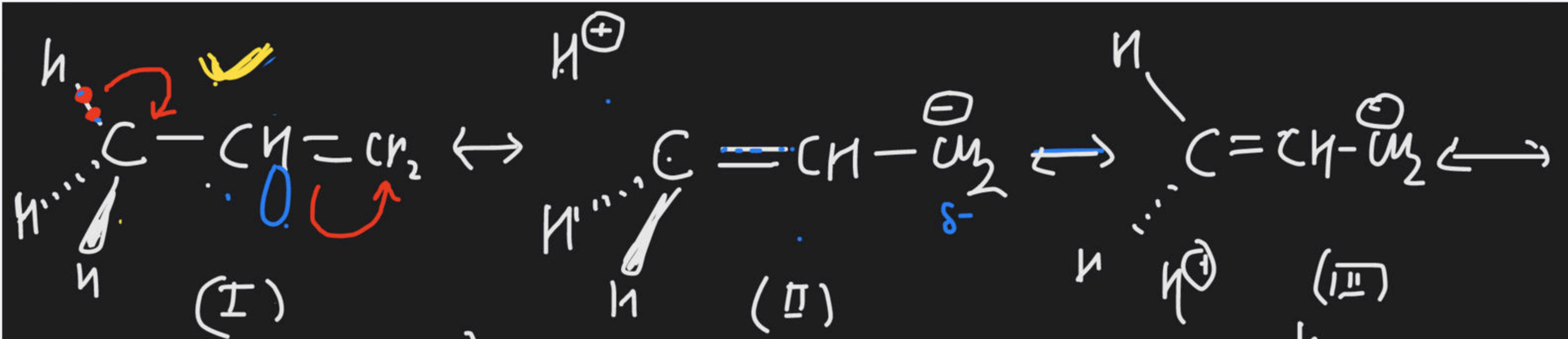
+H effect of attached groups.

Ex-1:

Propene

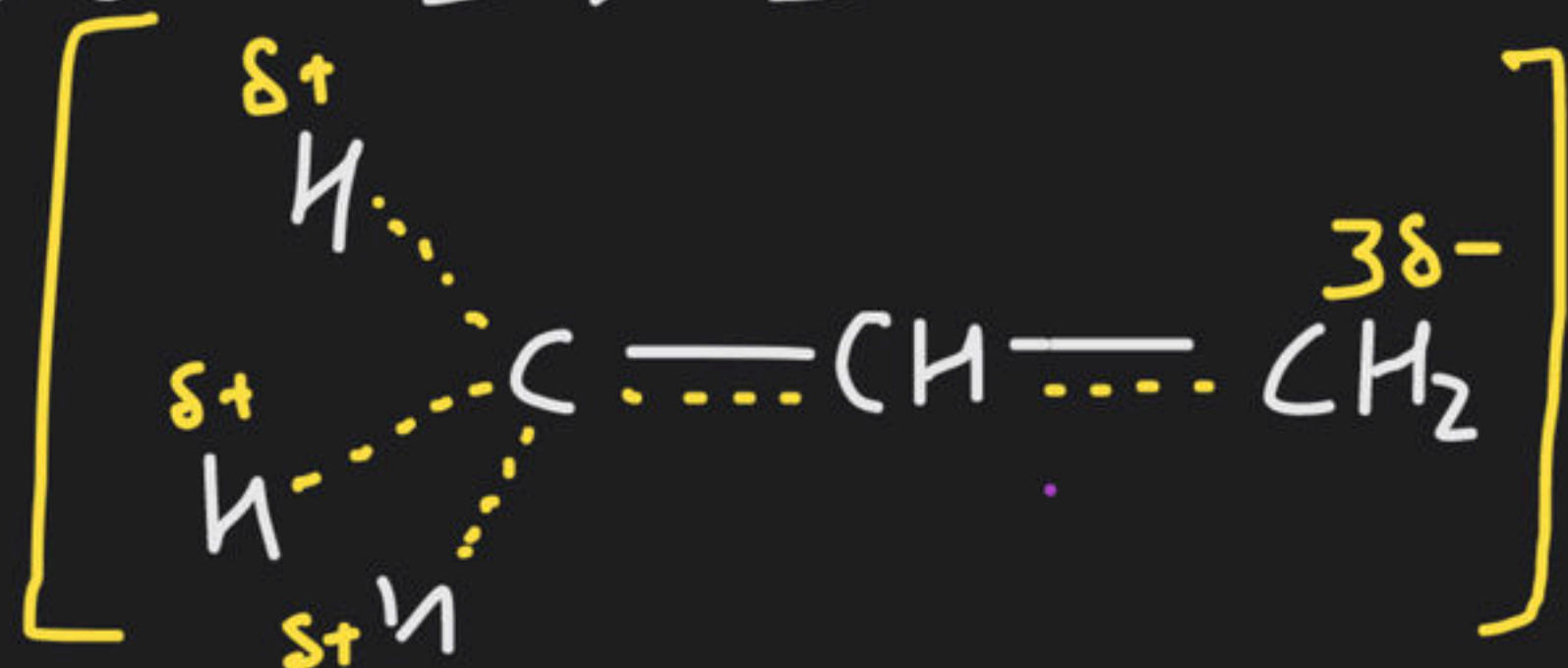






must contribute  
 Hyperconjugative str.  
 Hyperconjugative str.

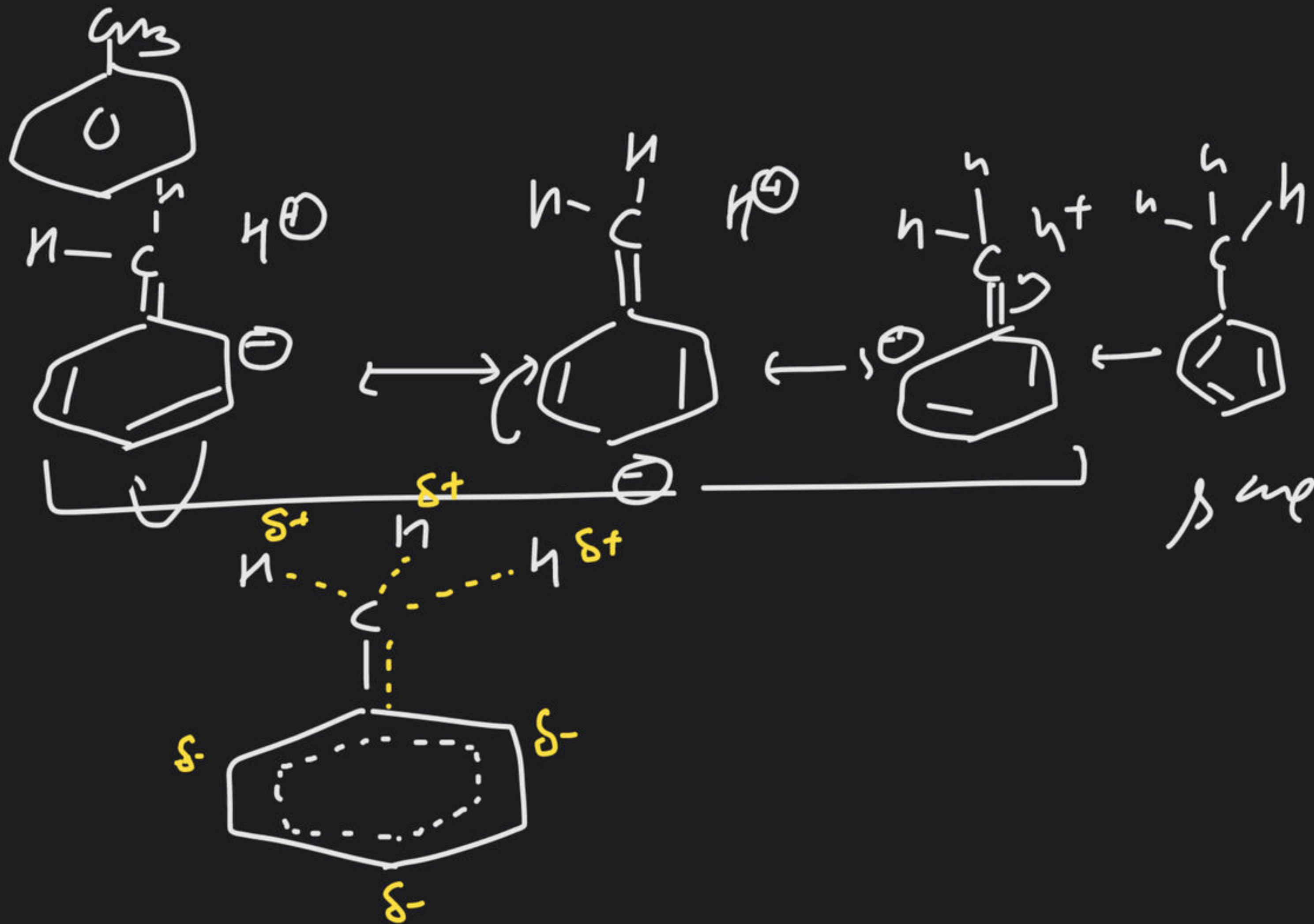
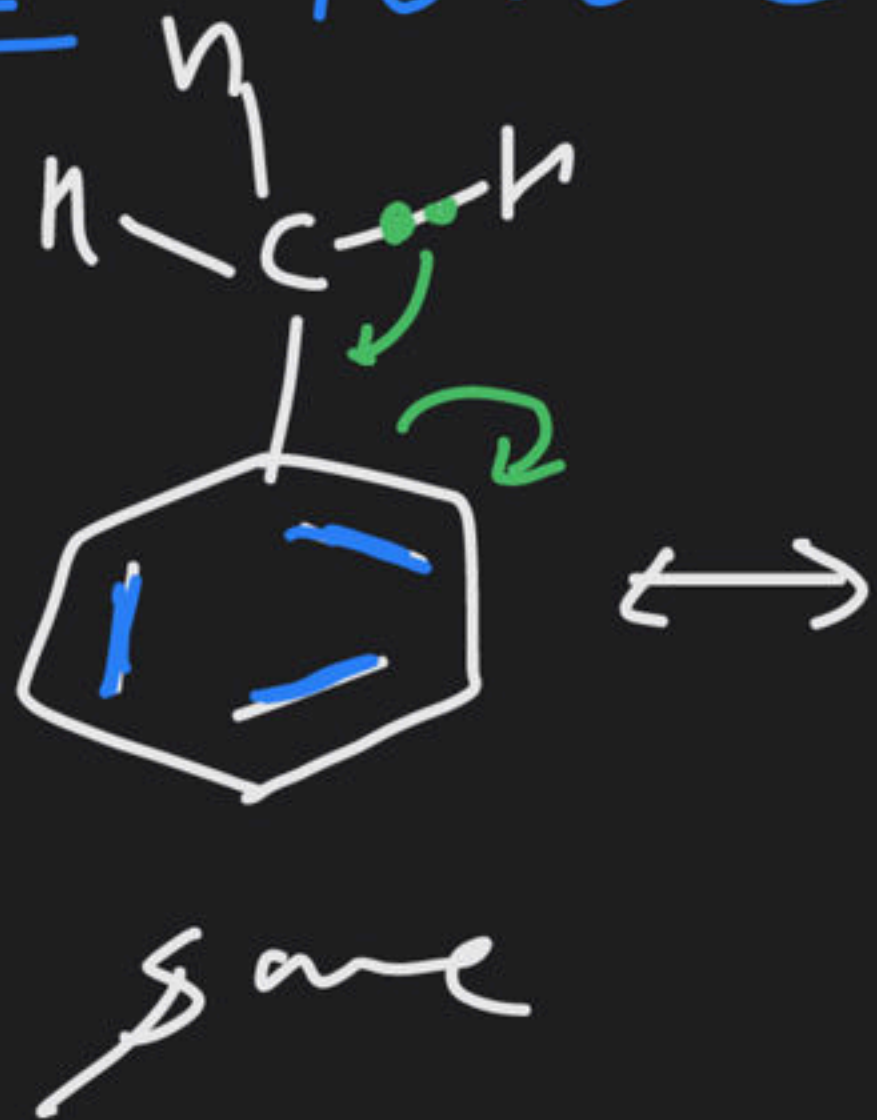
Stability order  $I > II \approx III \approx IV$



Hyperconjugative  
 hybrid.



Ex-2 Toluene



Note (i)  $\pi$  effect is also known as  
Nathan Baker effect

(ii)  $\pi$  effect is also known as N'obsona Resonance  
phenomenon.

~~(iii)~~ <sup>M.I.N.F</sup> Total number of  $\pi$ -str.

$$\begin{aligned} &= \pi\text{-str without involving C-H Bond with } f\text{-orbital} \\ &+ \text{H-str. involving } \underline{\underline{\text{C-H Bond}}} \text{ with } \underline{\underline{f\text{-orbital}}} \\ &= \underline{\underline{1}} + (n_{\alpha\text{H}} \text{ no}) \end{aligned}$$

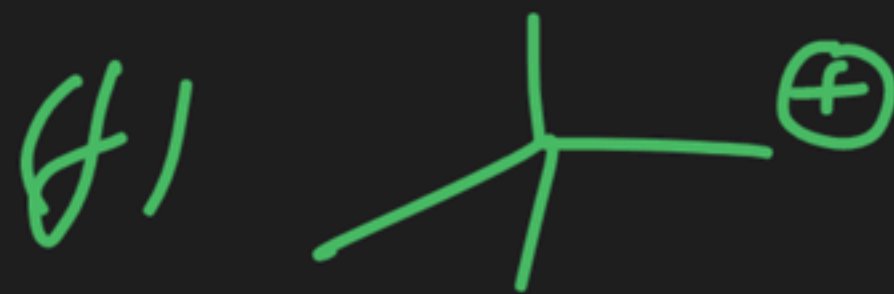
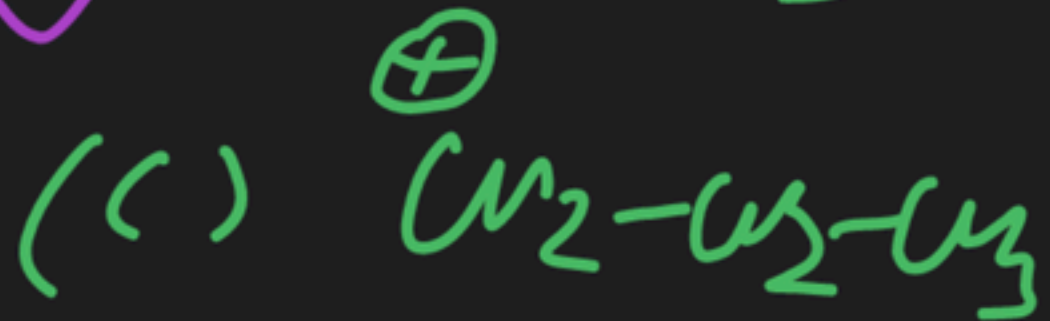
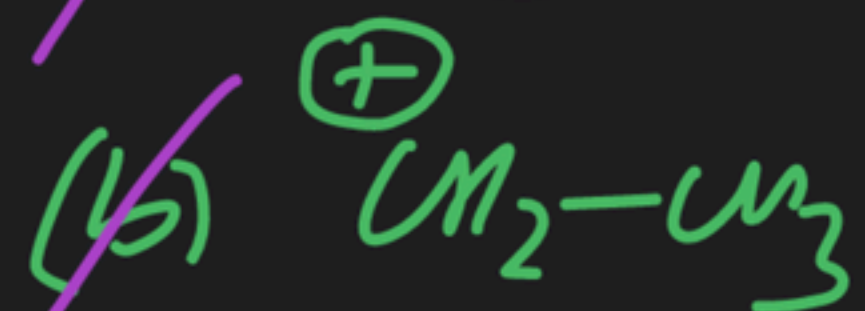


(iv) +H groups increases  $e^-$  density mainly at ortho & para position in Benzene nucleus.

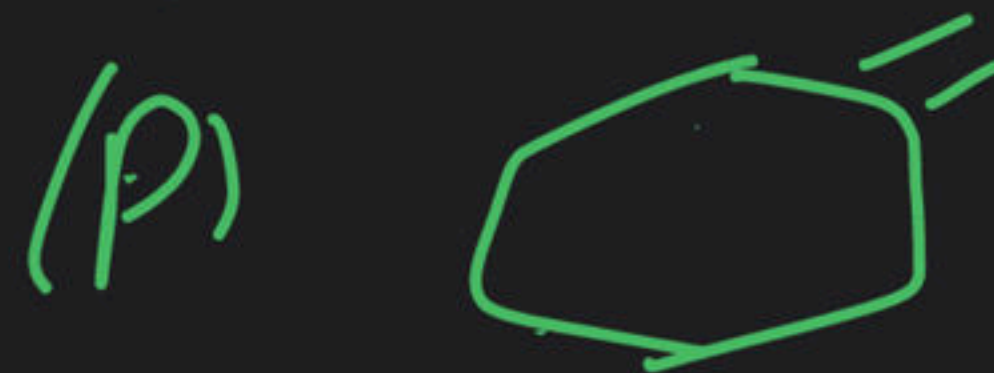
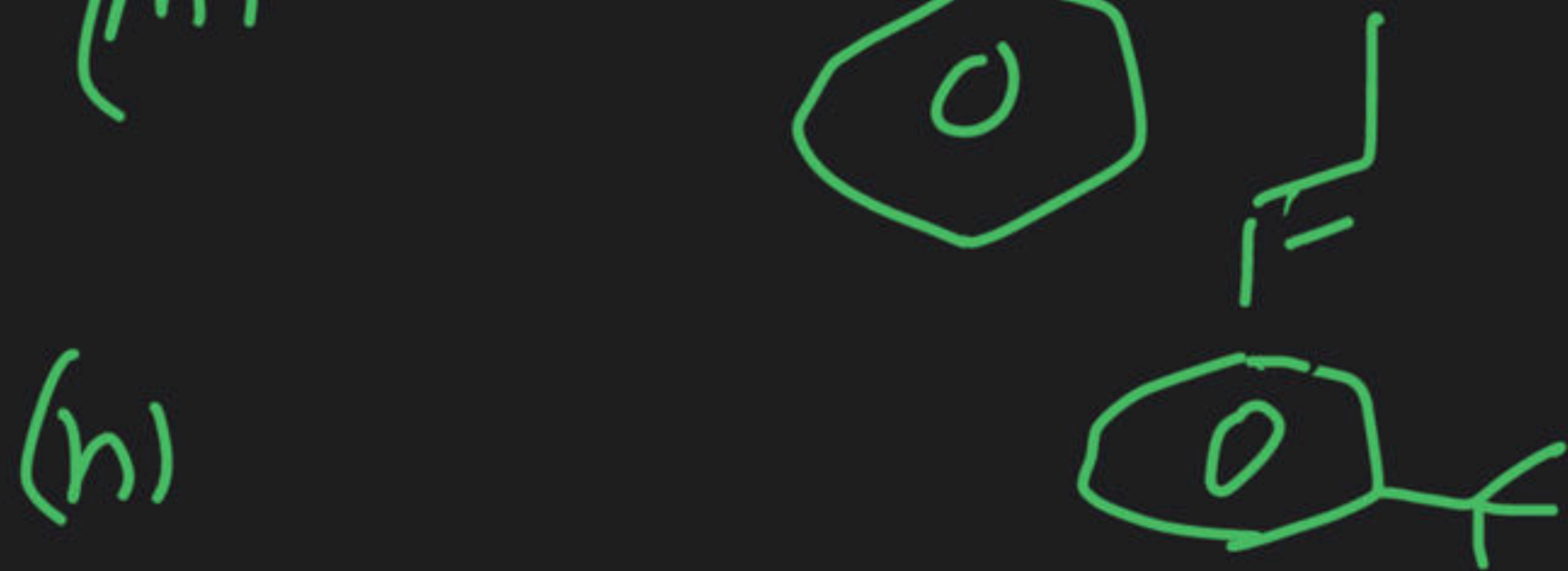
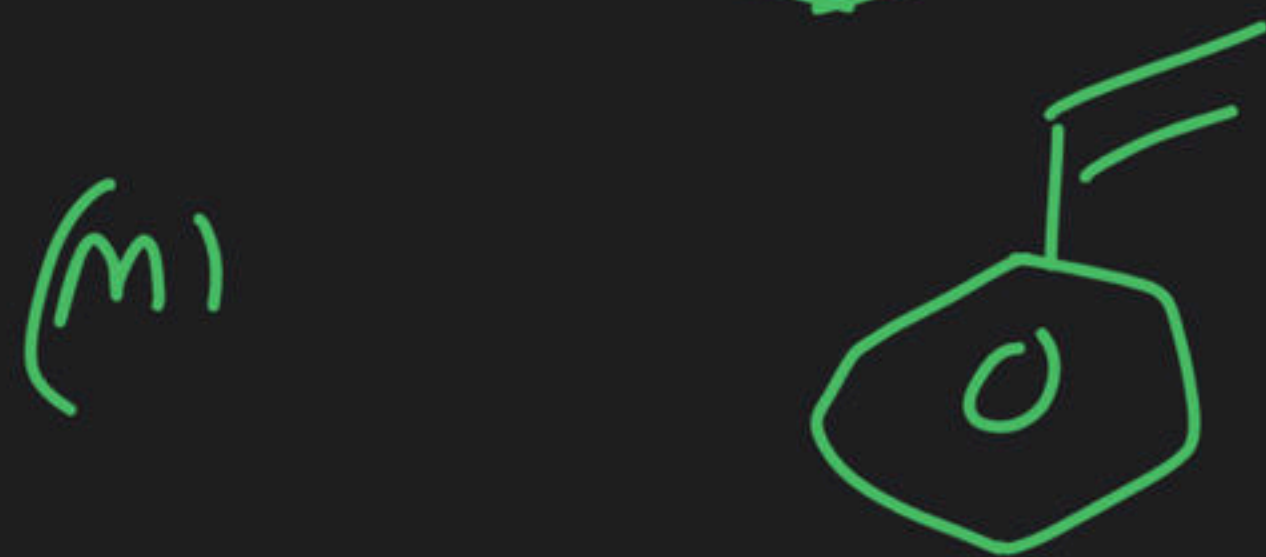
(v) The effect also depends on Bond strength of C-H bond.

Ex-1 Identify Compounds/Intermediates

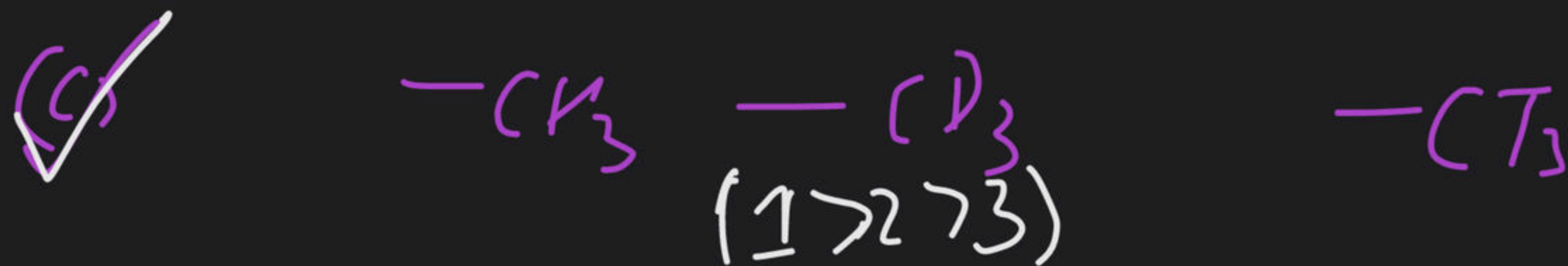
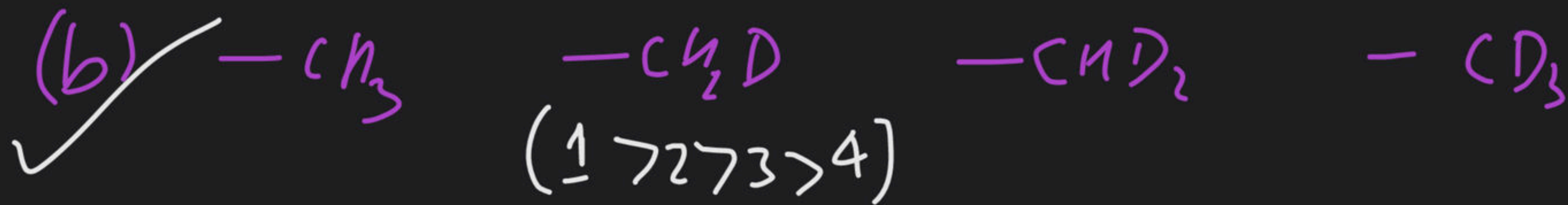
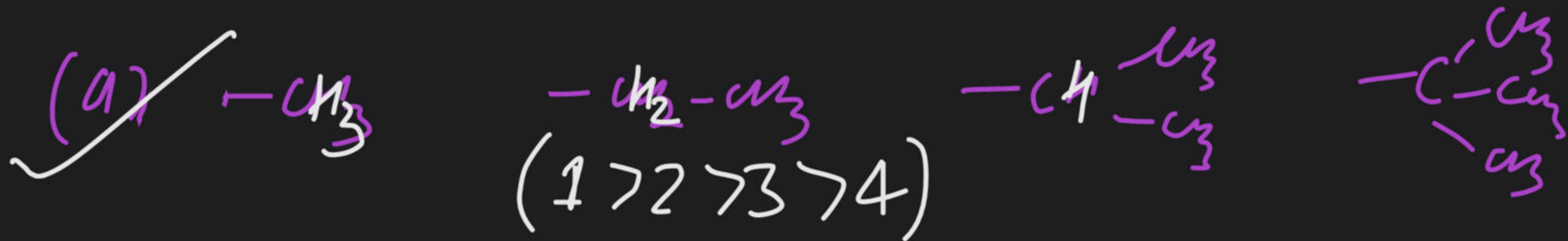
showing Hyperconjugation phenomenon.







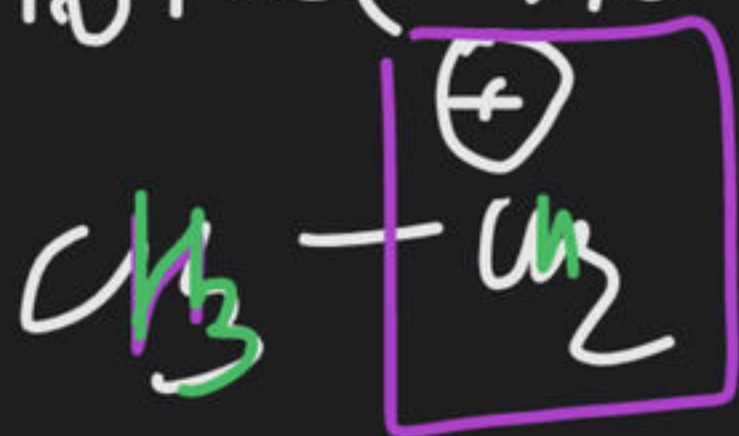
Ex: Anye following in decreasing order of +H effect when connected with  $\pi$  system.





Ex-3:- Total no. of h. structure involving (C-H) Bond

(i)



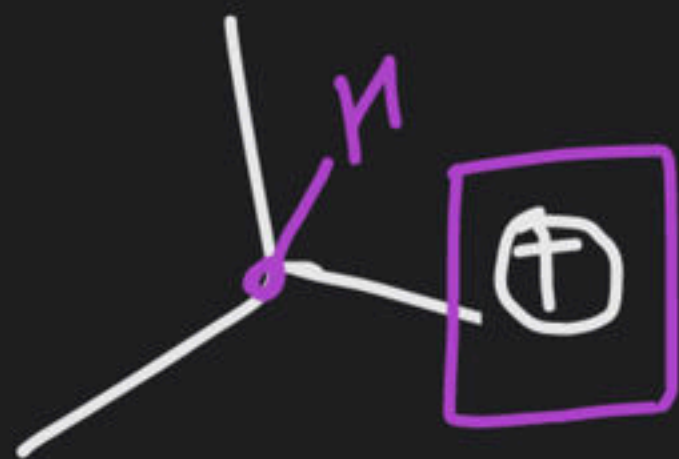
(3)

(A) 1

(B) 2

(C) 3  
(D) 4

(ii)



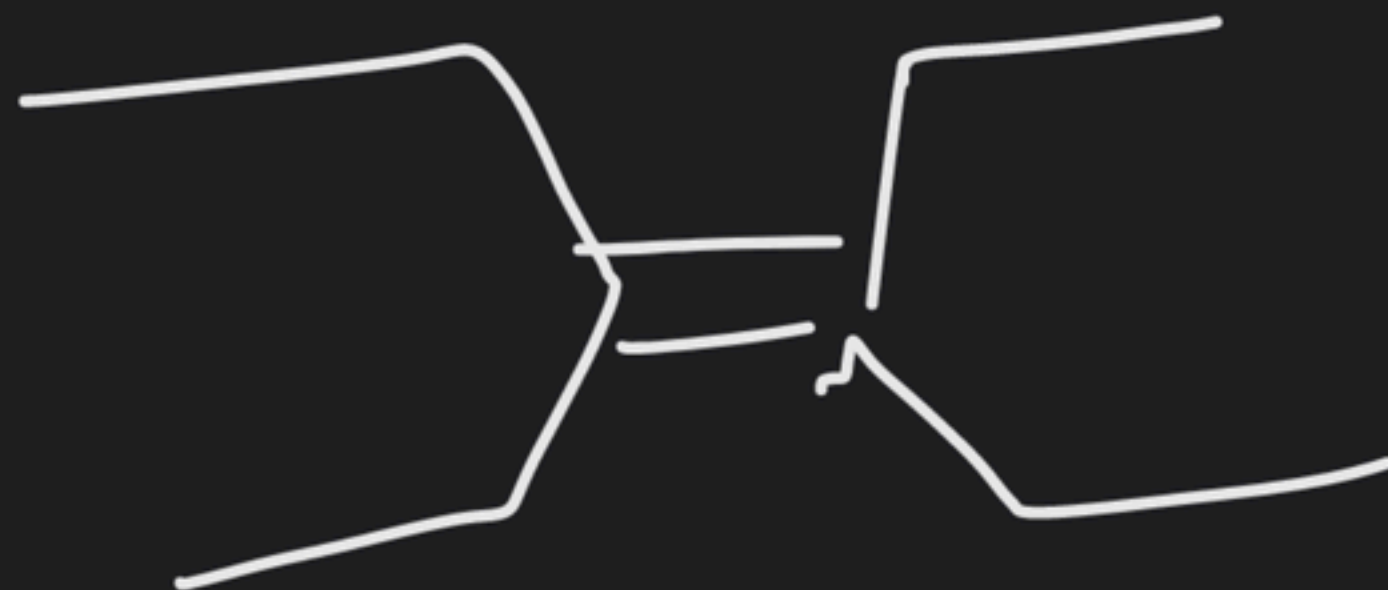
(1)



(vi)



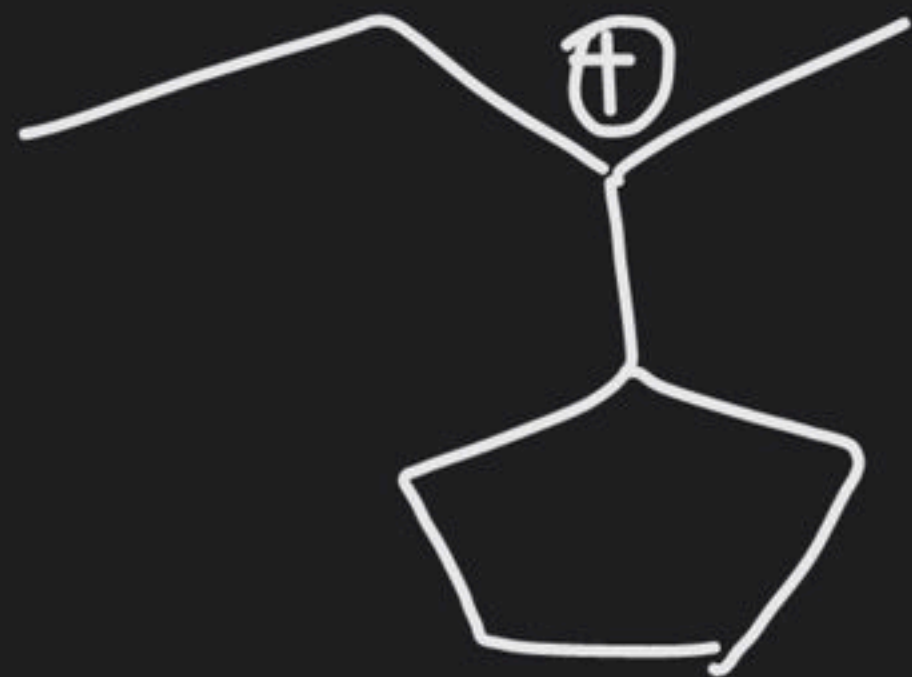
(vi)



(vii)



(viii)

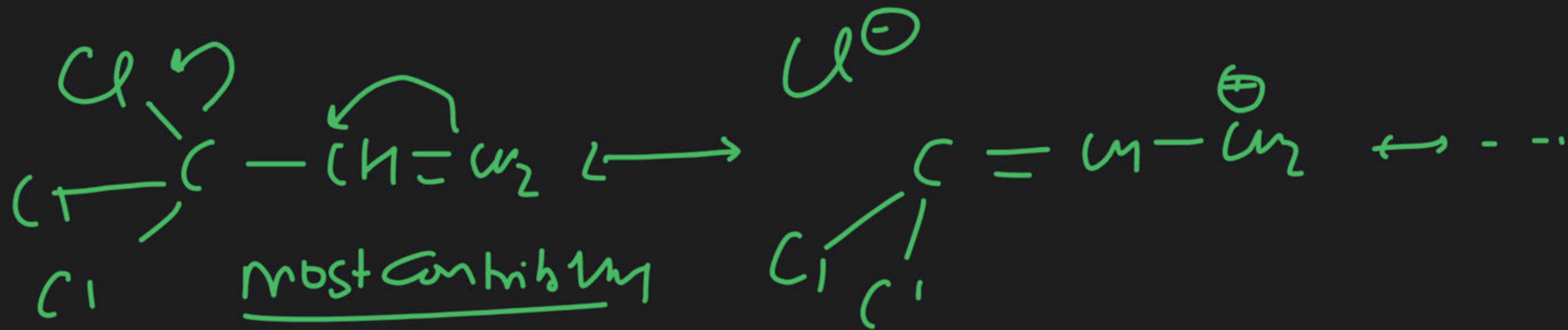


(#)

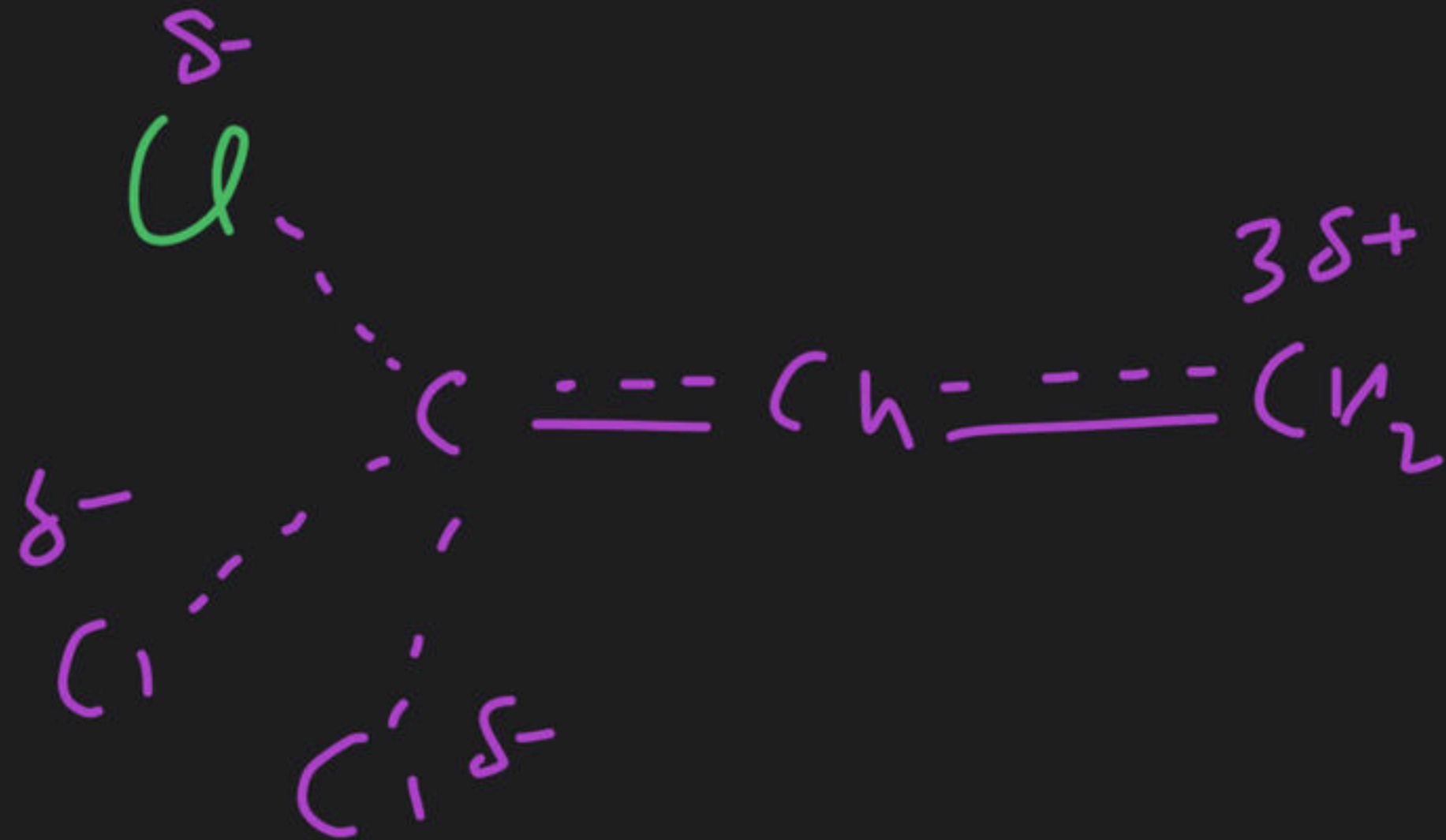
$-I$  effect

--- towards

Ex:



4 hyp. str.





$$\begin{array}{r|rr}
 -1I & +R & +h \\
 -I & -R & -h
 \end{array}$$

Question