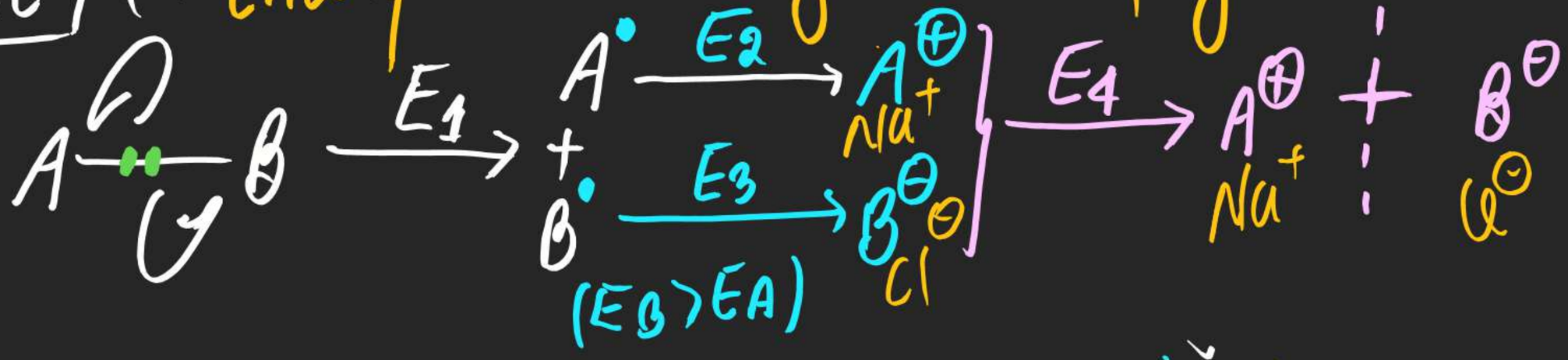
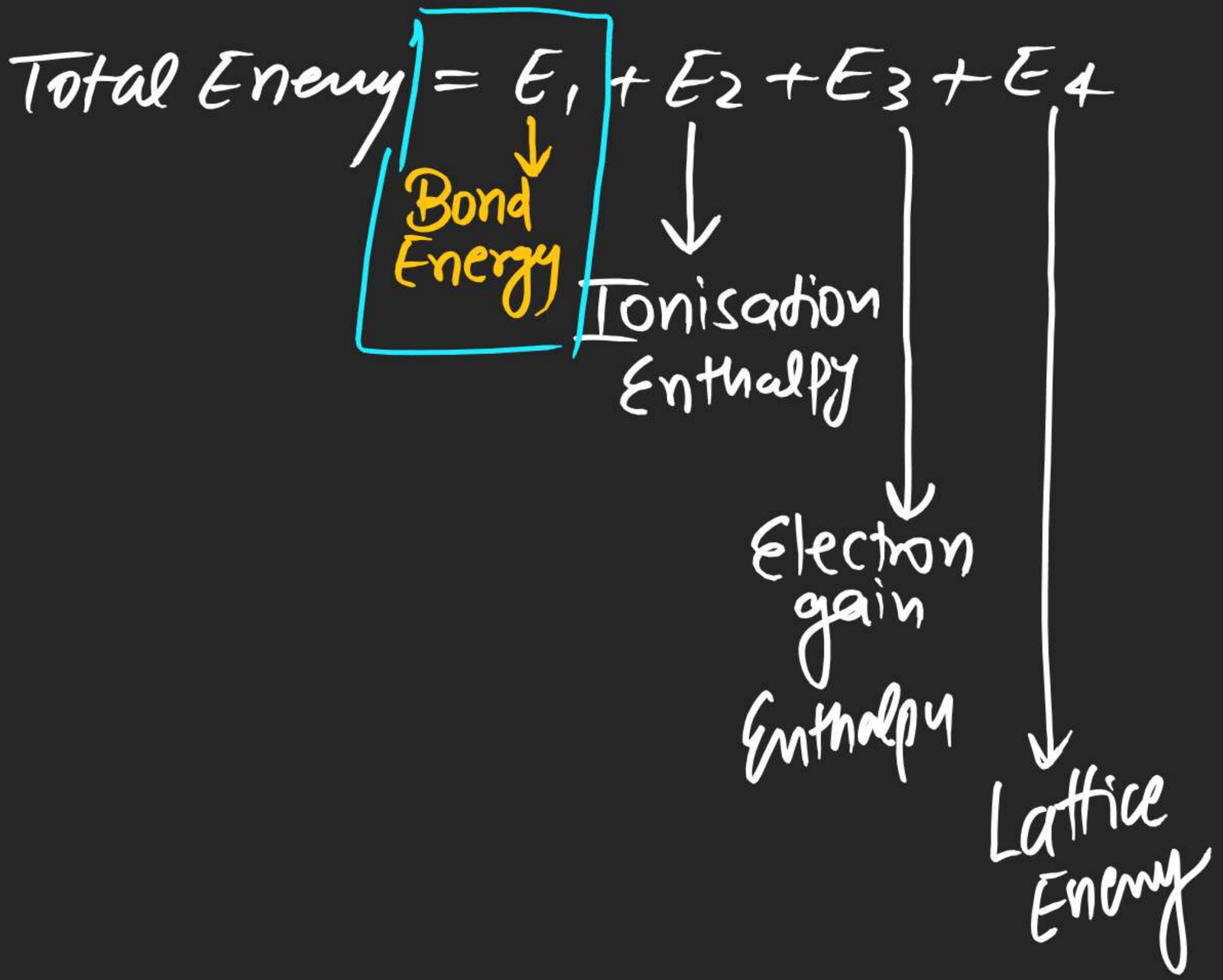
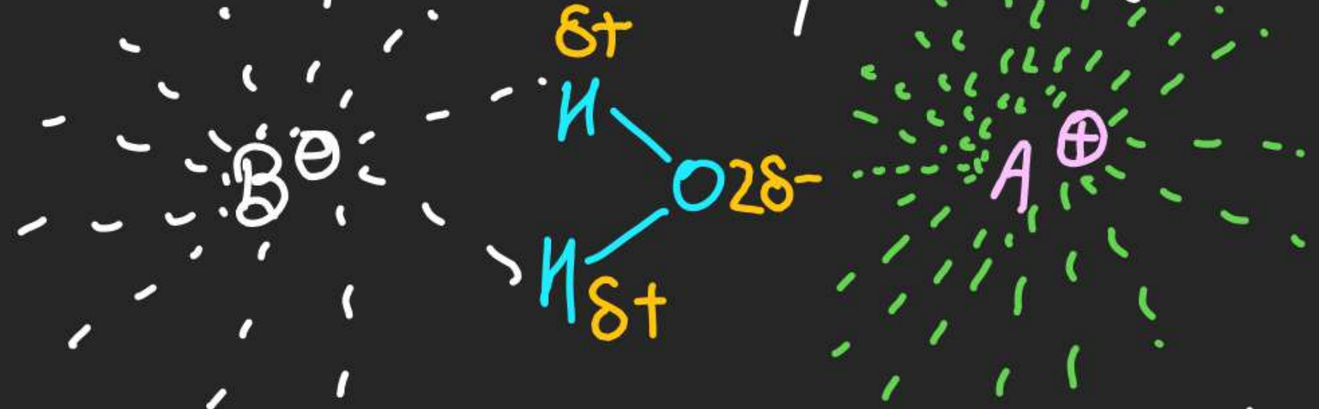
(#) **Heterolytic Bond Breaking:** In such kind of Bond Breaking Bonding e⁻s are shifted towards more electronegative atom so that Ions are obtained.

Note (i) Enemy involved during Bond Breaking




Total Energy = E1 + E2 + E3 + E4
Bond Energy
Ionisation Enthalpy
Electron gain Enthalpy
Lattice Energy

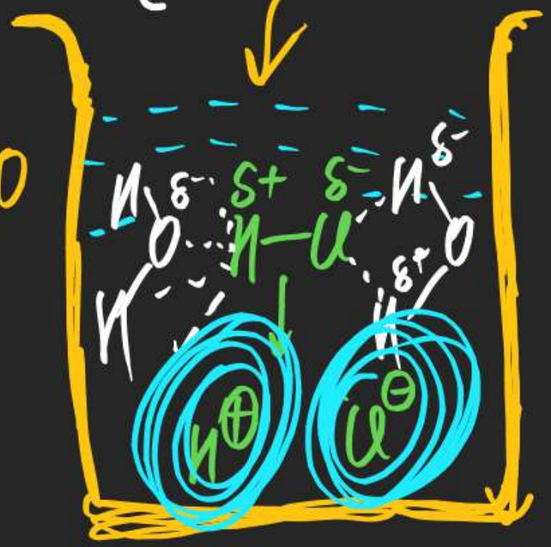
(ii) H_2O Stabilises ions By Solvating it.



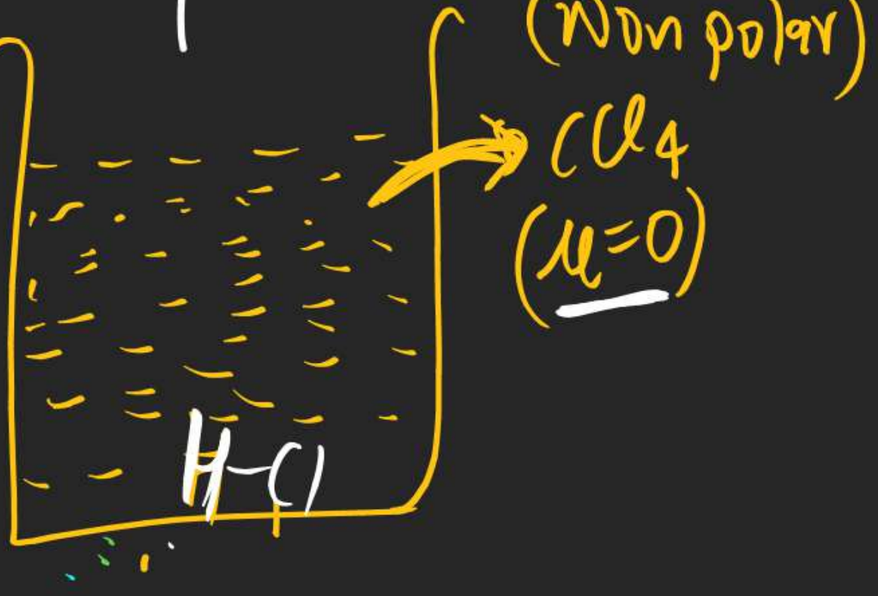
H_2O (Polar Solvent) help in dissociating Bond.

(iii) Free Radicals ($\mu \neq 0$) (neutral) are never stablised By Solvents

(iv) $\overset{\delta+}{H}-\overset{\delta-}{Cl}$ is Acid in H_2O



(v) $\overset{\delta+}{H}-\overset{\delta-}{Cl}$ is not a Acid in CCl_4

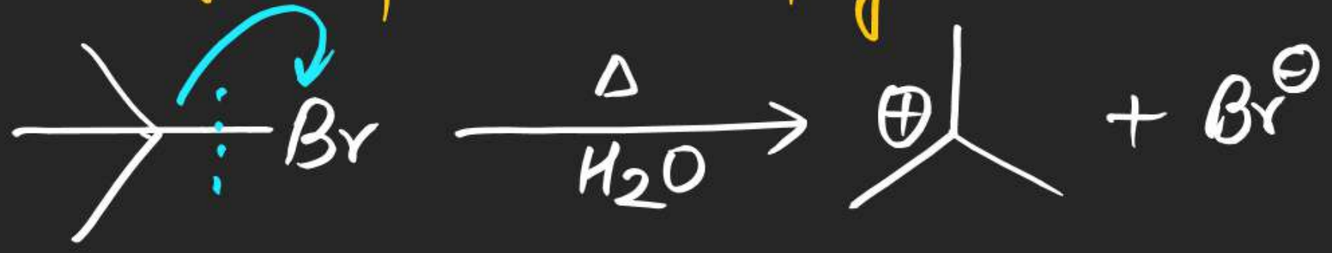


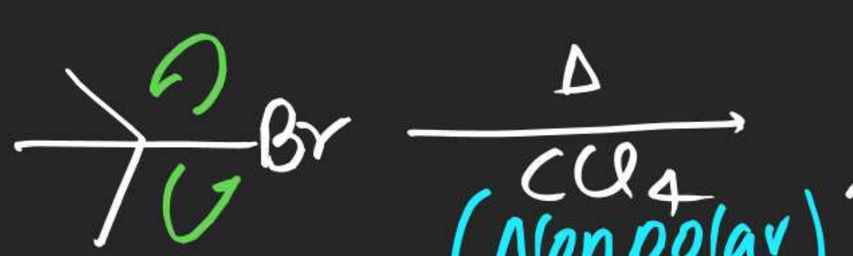
(vi) Heterolytic Bond Breaking takes place always in presence of polar solvent.

(vii) Homolytic Bond Breaking takes place By supplying Energy in Non polar Solvent.

(viii) **Bond Energy** minimum amount of Energy Req^{d} to Break a Bond is known as Bond Energy (In homolytic pattern)

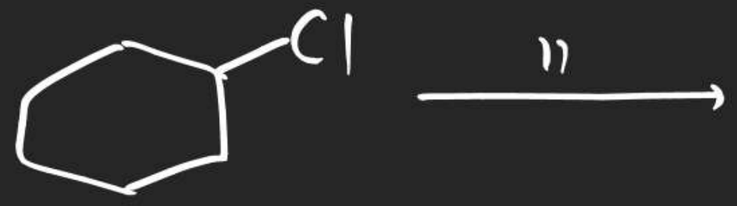
(#) Few Examples of Bond Breaking.

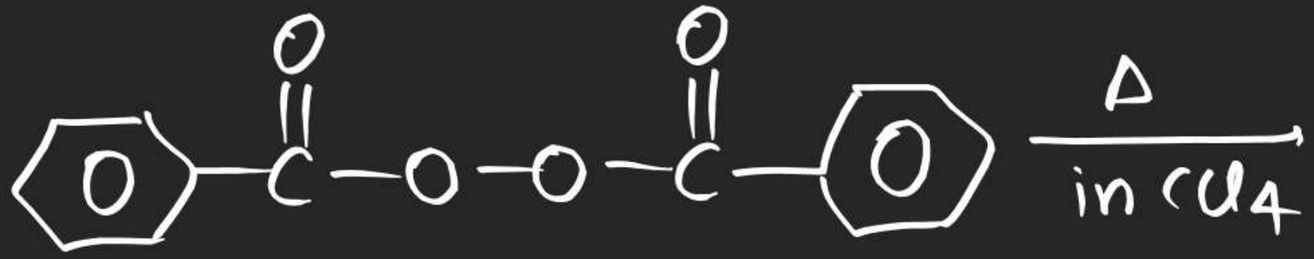
(1) 

(2) 

(3) $Cl-Cl \xrightarrow{h\nu}$

(4) 

(5) 

(6) 

(7) 

(8) 

(#) Reaction Intermidiate:-

Species obtained during a Reaction in b/w Reactant & product.

Reactant ⟶ Intermidiate ⟶ Product

Reaction Intermidiates

Carbocation
Carbanion

Carbon free Radical

Carbene

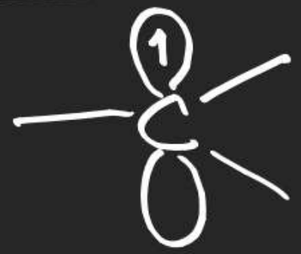
Nitene

Benzyne

Carbocation :-

⇒ Trivalent
⇒ Incomplete octet
⇒ highly unstable
⇒ highly Reactive
⇒ BP = Bond pair = 3
⇒ UP = Un pair = 0
⇒ LP = lone pair = 0
⇒ m.m = magnetic moment = $\sqrt{n(n+2)}$
(n = UP) = 0
⇒ Diamagnetic
⇒ Hybridisation sp^2
⇒ Trigonal planer

Carbon free Radical



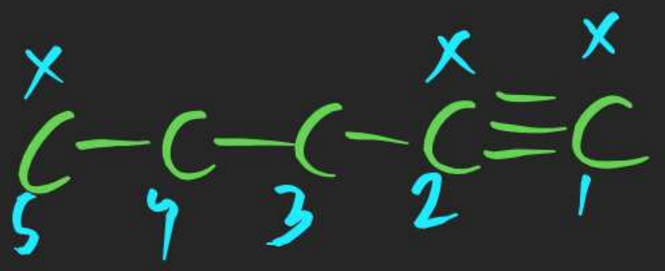
Carbanion

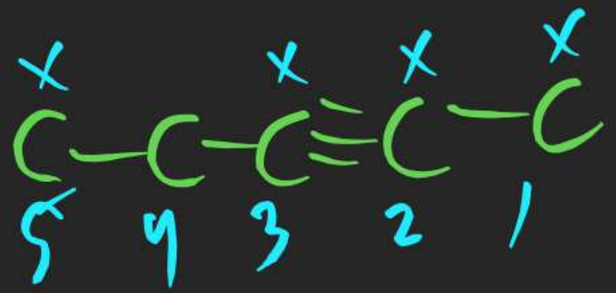
Electronic Displacement Effect

- Tempory Effect
  - Inductomeric effect
  - Electromeric effect
- Permanent effect
  - Induction
    - Inductive effect
  - Resonance
    - Resonance effect or mesomeric effect
  - Hyperconjugation
    - Hyperconjugation effect.

BB (Dis.)

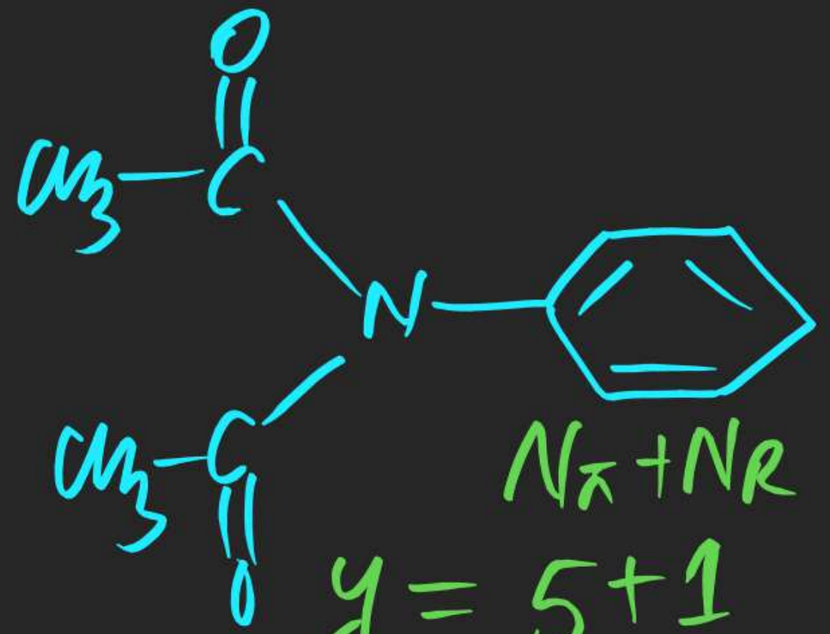
P_1-methyl pent-P_2-yne





P_2	P_1
1	3
1	4
2	4

(74)

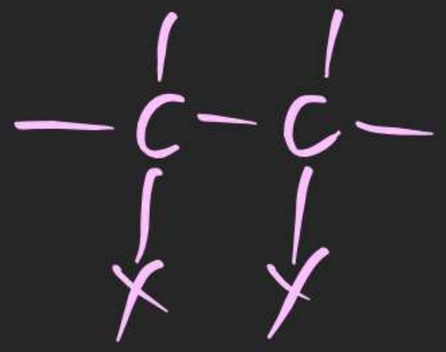


$N_\pi + N_R$

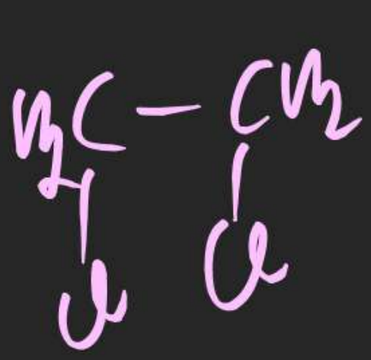
$y = 5 + 1$

$y = 6$

(75)



(B)

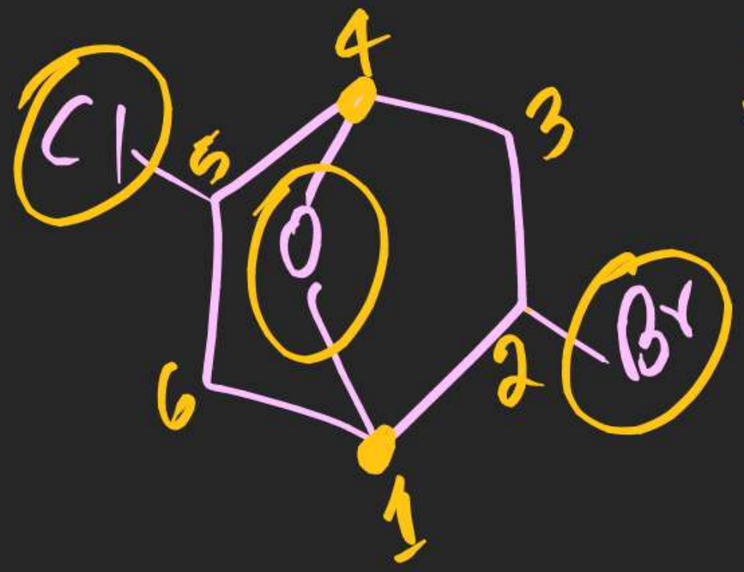


(C)

(72)

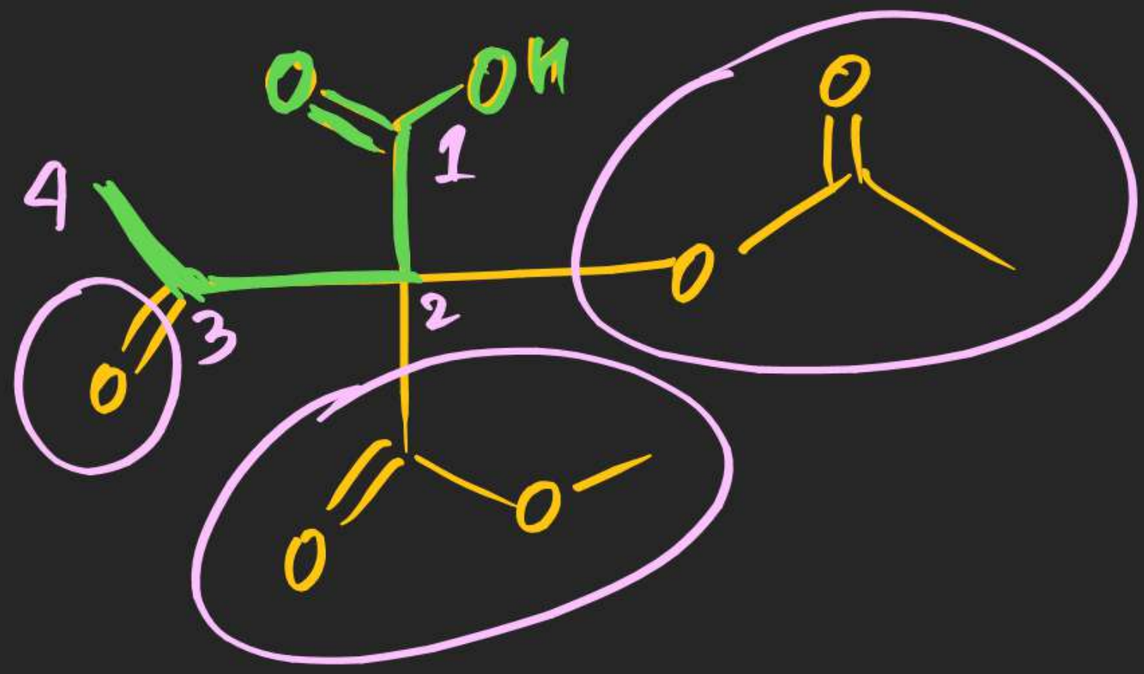
1,5-Dimethyl cyclohexa-1,4-diene

(78)

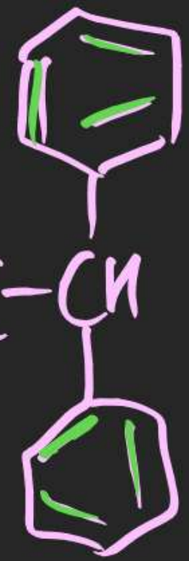


2-Bromo-5-Chloro
1:4-Epoxy cyclohexane

(80)



(77) $C_3H_4 \Rightarrow HC\equiv C-CH_3 \xrightarrow[+2pn]{-2H} H(\equiv C-CH$



$N_\pi + N_R$

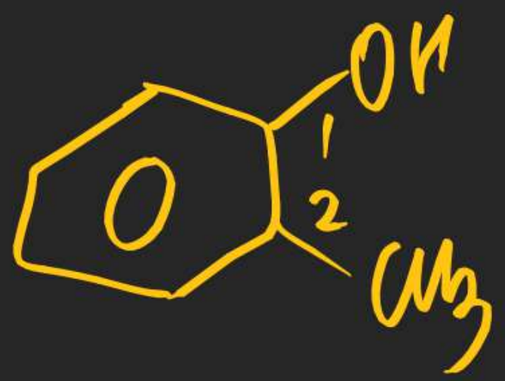
$= 8 + 2$

$= 10$

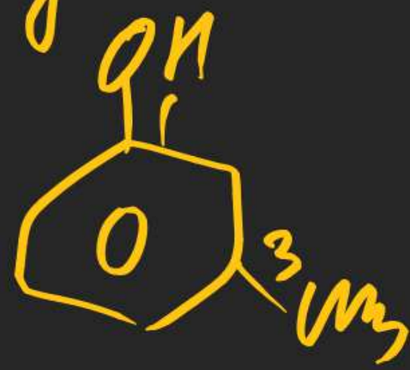
(82) $CH_3^3-CH^2-CH^1-NH-CH_3$

N-methyl

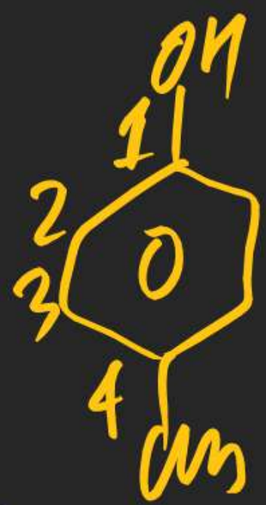
(83)



"Ortho



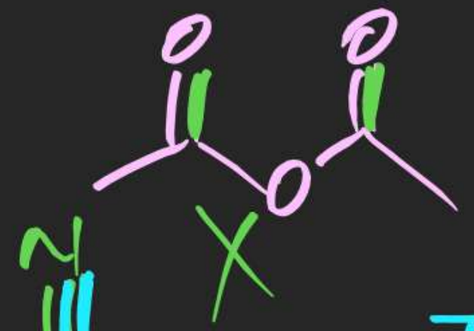
"meta"



(para)

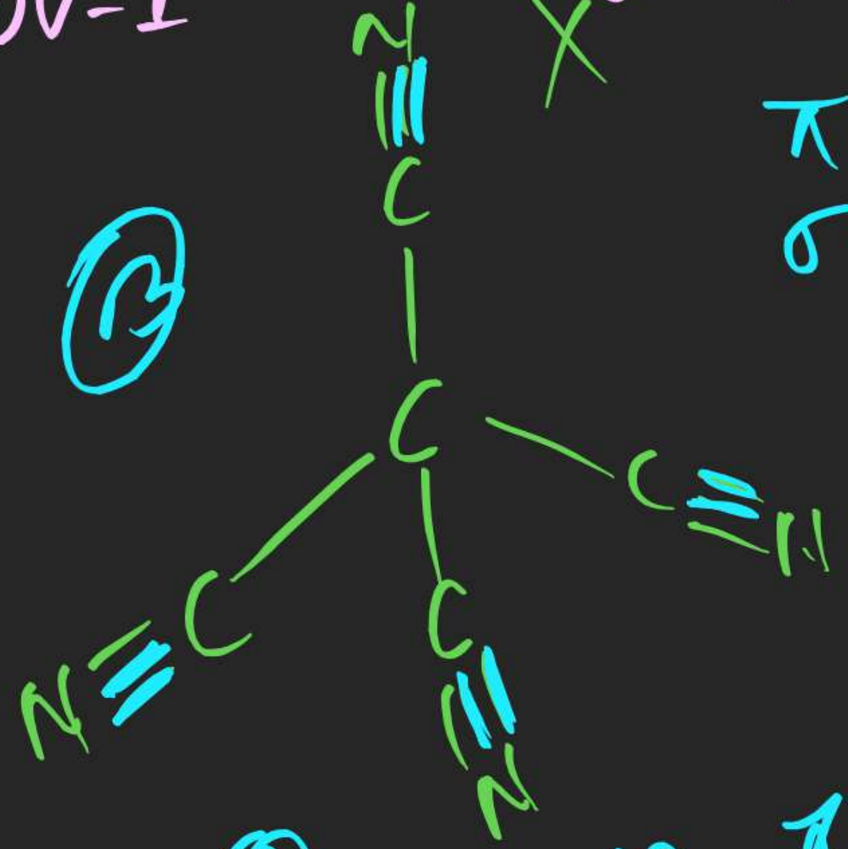
(86) $C_6H_{12}O_3$

DOV = 1



DOV = 2

(87) ③



$\pi = 8$

$\sigma = 8$

④ $\sigma = 12$, $\pi = 8$

(91) —NH2 & —NH diff Fgroups

(92) t-Butyl ✗ in IUPAC

NW (BB)

Nomenclature Chapter 101 – 150