

Organic Chemistry

→ Organic Chem is a branch of Chem, that deals with Compound where Carbon acts as a major atom or constituent with hydrogens, Halogens, Nitrogen, oxygen & some rare metals acting as minor components.

→ Carbon is very versatile atom

Carbon.

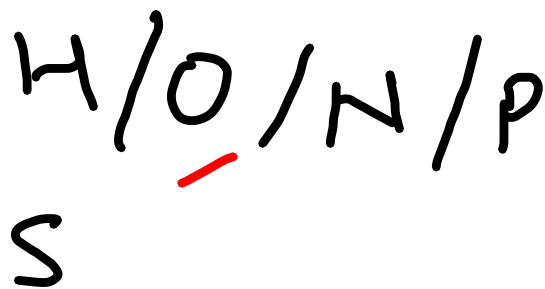
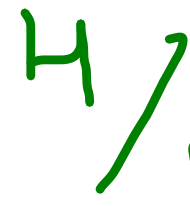
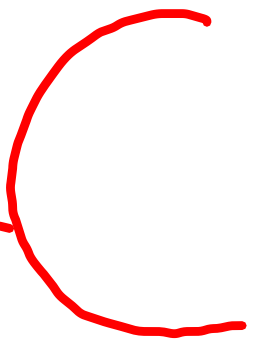
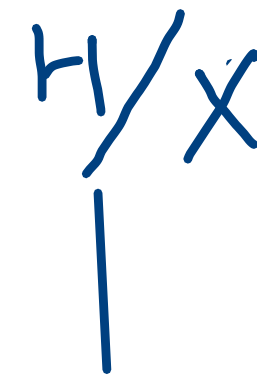
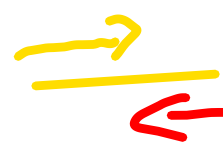
Electronic Config of

Carbon.

2, 4. ; $1s^2 2s^2 2p^2$

Valency: 4.

i.e. it needs $4e^-$ to be



Stable

∴ it is not possible to

take $4e^-$ Carbon forms
a class bond specifically
found in carbons covalent-
bond.

Covalent bond is a type of bond where e^- are shared

Carbon is a tetra valent atom

It can form single, double or triple i.e. one, two or 3 bonds with only one atom or form different bonds with different atoms all atoms

Carbons Can form bonds with itself

The valency of carbon can be satisfied with a shared or covalent bond which is formed with itself as well the other element

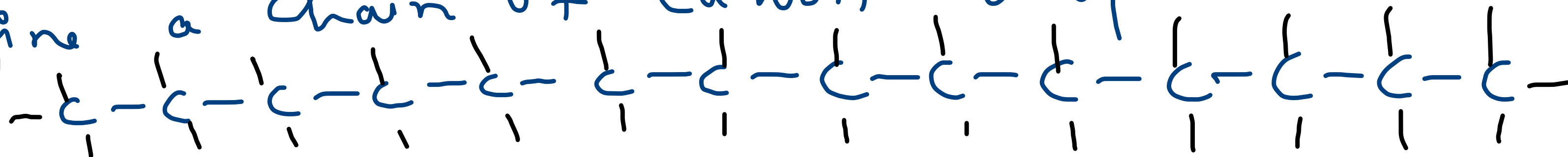
Single bonds



double
 $C = C$

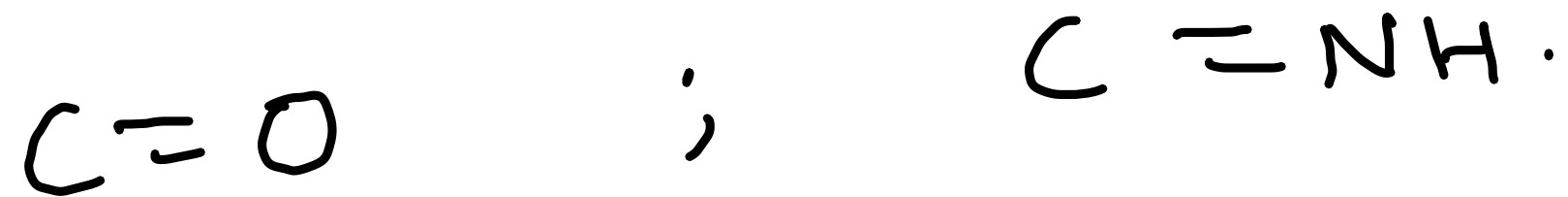
Triple
 $C \equiv C$

It can have as many carbon as possible i.e. imagine a chain of carbon only



Carbon can make bonds with other elements as

well



It can also make triple bonds with other elements as well.



Sigma & pi bonds.

all about overlapping of orbitals i.e. How an orbital overlaps during electron sharing

○ S-orbital

∞ → P-orbital.

○ ○ → S-S-overlap

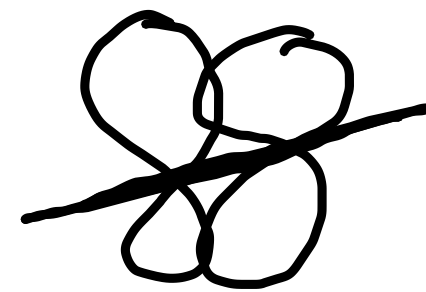
Sigma

○ ∞ — S-p orbital

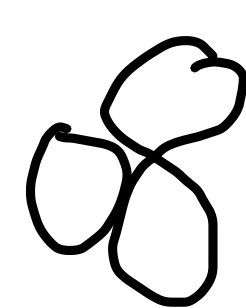
bonds.

∞ ∞

P-P-overlap



π bonds (pi)



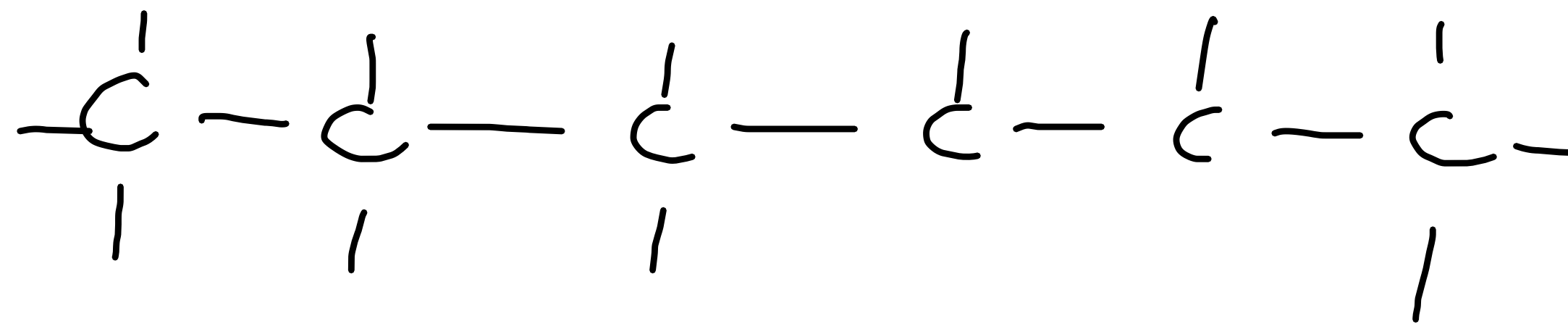
double & triple bonds

Single bonds ⇒ Sigma

double bonds ⇒ 1 sigma & 1 pi

Triple bonds ⇒ 1 sigma & 2 pi.

Complete, Condensed & Bond-line

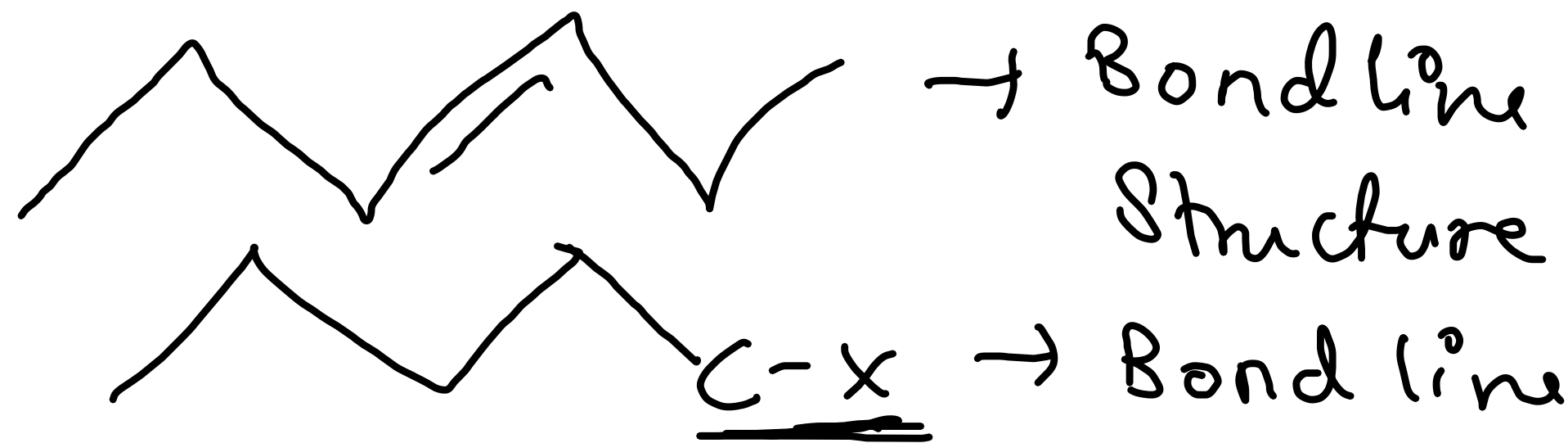
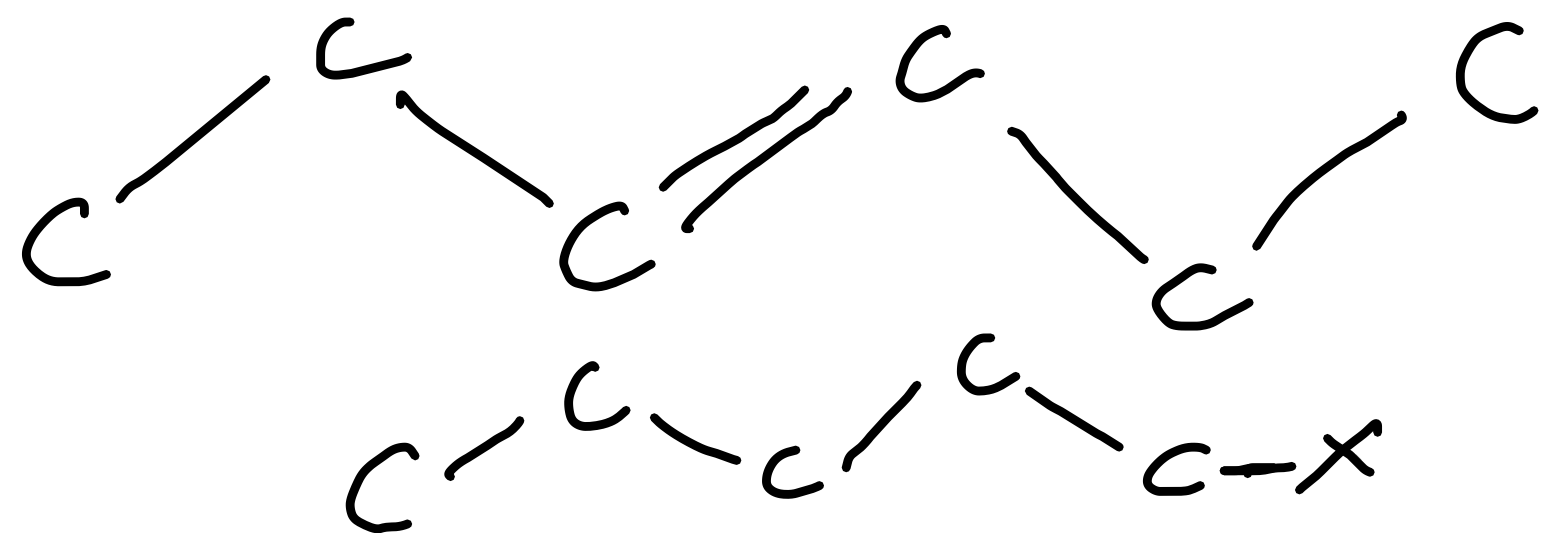


Complete Structural

6-carbons
14-hydrogens

$C_6H_{12} \rightarrow$ Condensed

$C_2H_4 = C_4H_8 \rightarrow$ Condensed Form

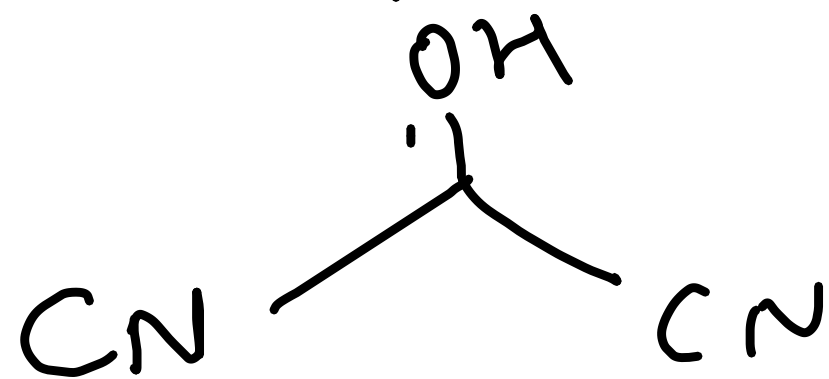


\rightarrow Bond line
Structure

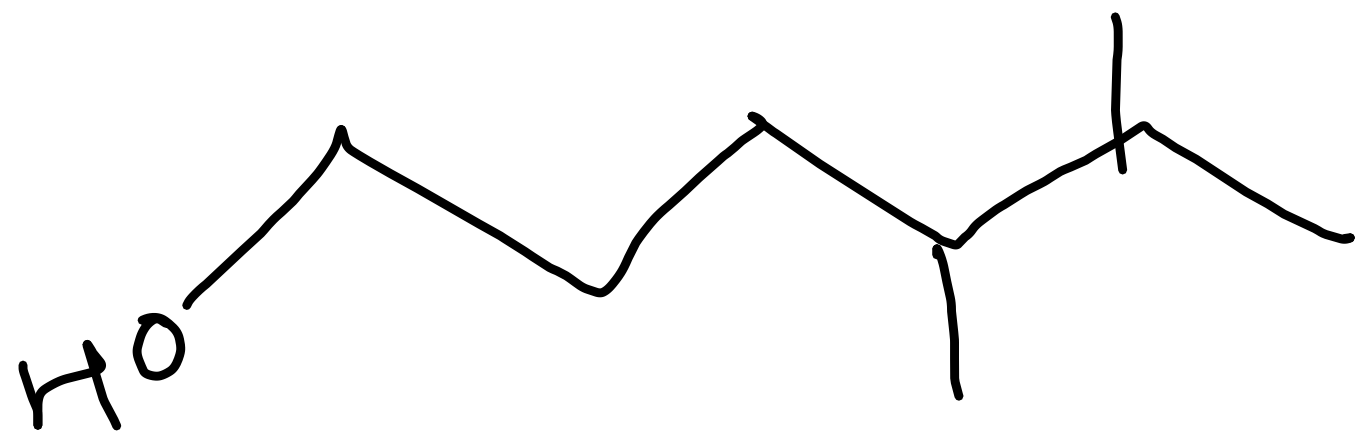
\rightarrow Bond line

In Bond line if there is substituents in place of hydrogen it should be mentioned

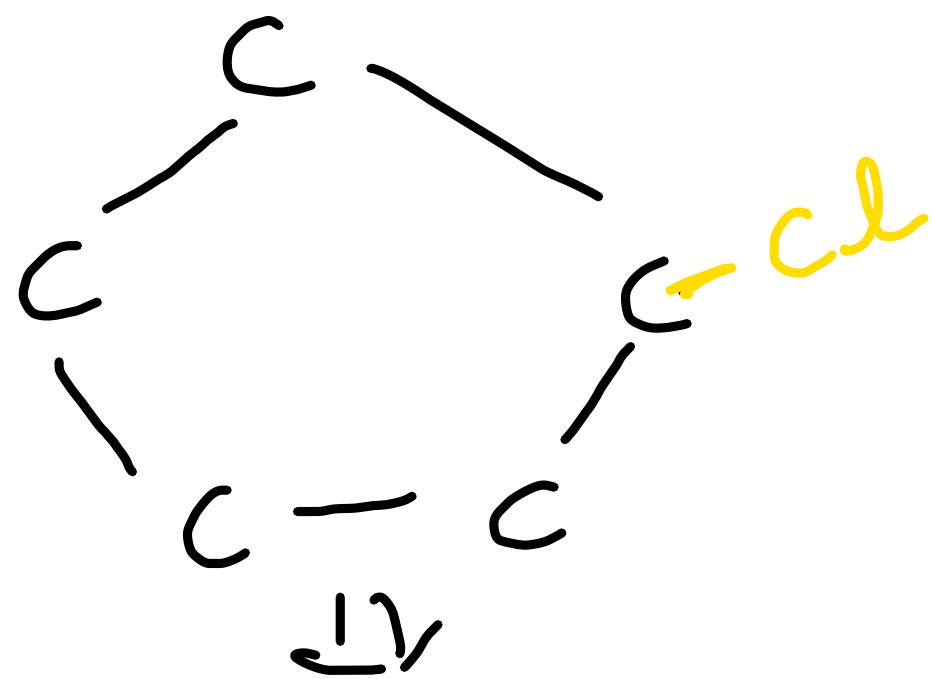
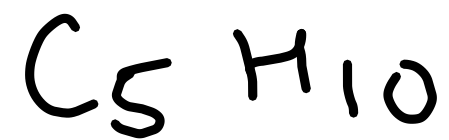
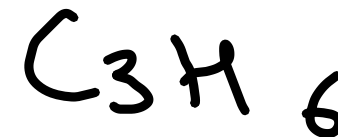
(b)



(a)

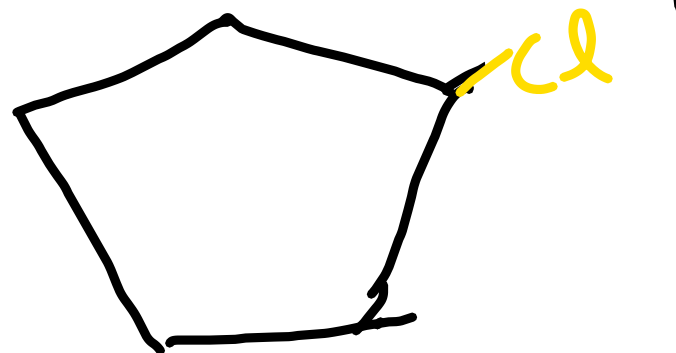


Ring or Closed Structures. (Bond line Structure)

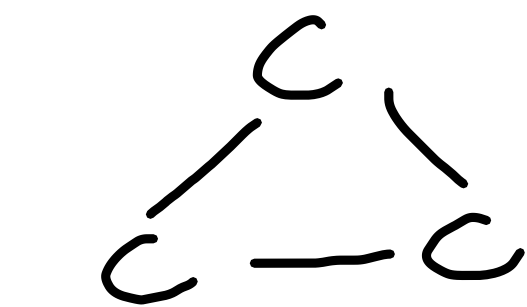


Complete

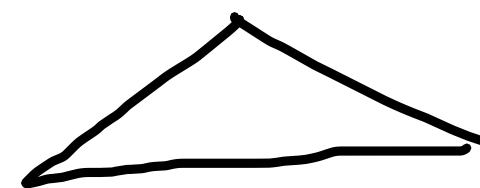
Pentane



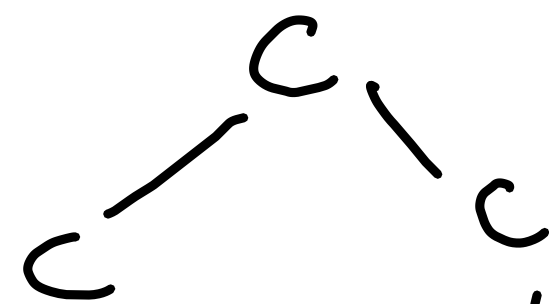
Bond line



Complete Propene

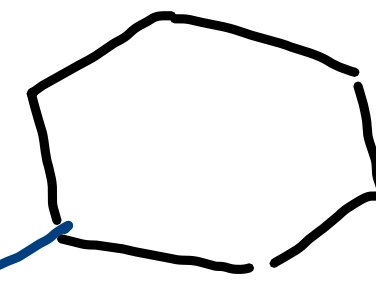


bondline



OH

Hexane



bondline