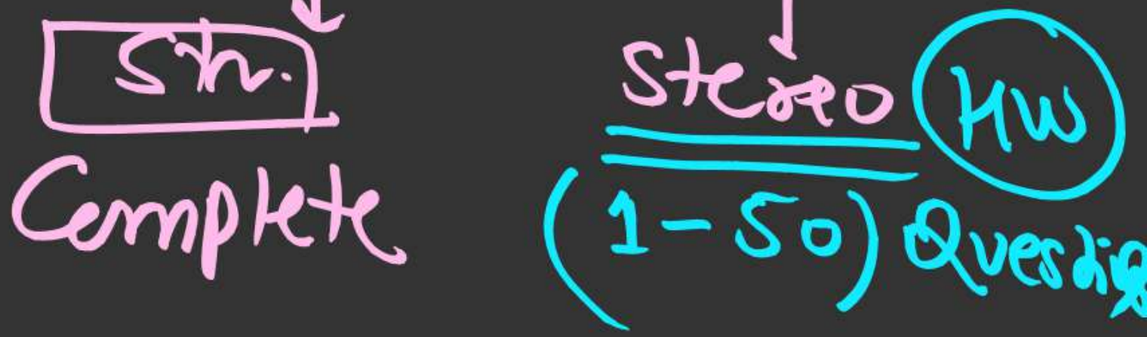
Nishant Jindal

Electrolysis.
Carbocation intro.
Germination

Discussion:

Isomerism
sheet



Complete

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(#)

Hard Nucleophile

⇒ Higher magnitude of electron density

⇒ Small in Size

⇒ Strong Base

⇒ Prefer charge interaction Reaction

⇒ Hard Prefer Hard

Ex: $H^{\ominus}$, $D^{\ominus}$, $T^{\ominus}$, $^{\ominus}OH$, $^{\ominus}OR$, $^{\ominus}NH_2$, $^{\ominus}CH_3$, $F^{\ominus}$ ---

$:NPh_3$

Soft Nucleophile

⇒ less magnitude of Electron density

⇒ large in Size

⇒ Weak Base

⇒ Prefer orbital interaction Reaction

⇒ Soft prefer Soft

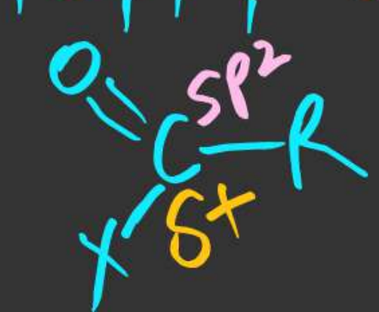
Ex: $I^{\ominus}$, $Br^{\ominus}$, $^{\ominus}SH$, $^{\ominus}SR$, $^{\ominus}Se-R$

$:PPh_3$, $^{\ominus}CN$ ----

Hard Electrophile

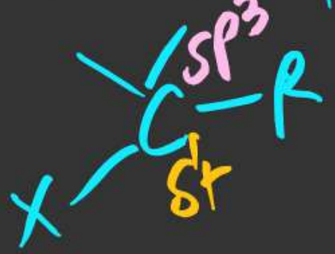
Soft Electrophile

Ex: $H^{\oplus}$, $D^{\oplus}$, $T^{\oplus}$, $CH_3^{\oplus}$, $NO_2^{\oplus}$, $NO^{\oplus}$ ...



$\delta > \delta'$

Ex: $I^{\oplus}$, $Br^{\oplus}$, $Cl^{\oplus}$, ...



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(1) $CH_3-O^{\ominus}\ {}^{\oplus}Na + CH_3-Cl \longrightarrow CH_3-O-CH_3 + NaCl$

NV E

(2) $CH_3-O^{\ominus}\ {}^{\oplus}Na + CH_3-C(=O)-Cl \longrightarrow CH_3-O-C(=O)-CH_3 + NaCl$

NV E

(3) $CH_3-S^{\ominus}\ {}^{\oplus}Na + CH_3-Cl \longrightarrow$

NV E

(4) $CH_3-S^{\ominus}\ {}^{\oplus}Na + CH_3-C(=O)-Cl \longrightarrow$

NV E

(5) $CH_3-O^{\ominus}\ {}^{\oplus}Na +$  $\longrightarrow$ 

HNV HE SE' (major) (minor)

(6) 

(7) 

Alkyl Halide : Carbocation :-

Carbon Intermidiate Containing positive charge & formed during a Reaction is know Carbocation.

: Carbonium Ion :-

$\Rightarrow CH_4 + H^{\oplus}_{(g)} \rightarrow CH_5^{\oplus}$

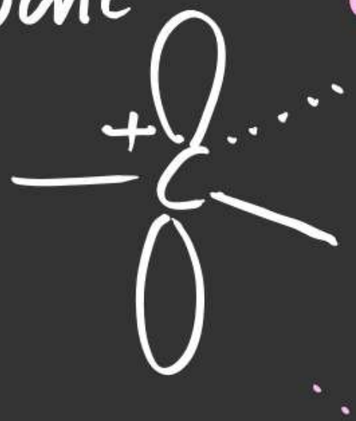
methane — methanonium Ion

⇒ Pentavalent
⇒ Complete octet
⇒ highly unstable
⇒ highly Reactive

: Carbenium-Ion :-

$\Rightarrow :CH_2 + H^{\oplus} \rightarrow CH_3^{\oplus}$

Carbene — Carbenium ion



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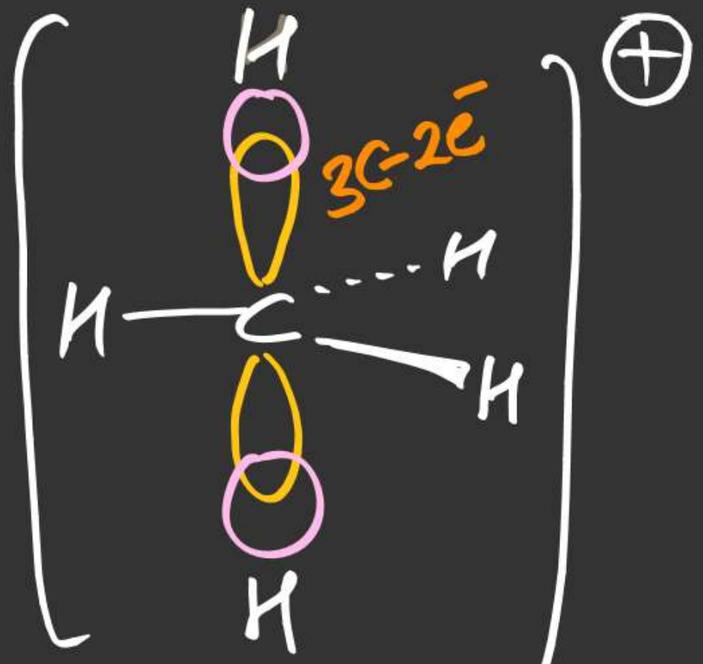

⇒ Trivalent in nature
⇒ Octet incomplete
⇒ Highly unstable
⇒ Highly Reactive
⇒ having V.O (vacant orbital)
⇒ lewis Acid
⇒ Electrophile

⇒ Trigonal Bypyramidal
⇒ sp^2 hybridised

⇒ Bond pair (BP) = 3
⇒ Un pair (UP) = 0
⇒ lone pair (LP) = 0
⇒ magnetic moment $(mm) = \sqrt{n(n+2)}$ $(n = UP)$
$= 0$

⇒ Dimagnetic

⇒ Spin multiplicity

$SM = 2|S| + 1$

$= 0 + 1$

$= 1$

⇒ Singlet C- intermidiate

- $UP = 0 \Rightarrow S = 0$
- $UP = 1 \Rightarrow S = \frac{1}{2}$
- $UP = 2 \Rightarrow S = \frac{1}{2} + \frac{1}{2}$
- $UP = 3 \Rightarrow S = \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

⇒ hybridisation = sp^2

⇒ Bond angle = 120°

⇒ Trigonal planer

⇒ Can be approched from Both Sides By a Nucleophile

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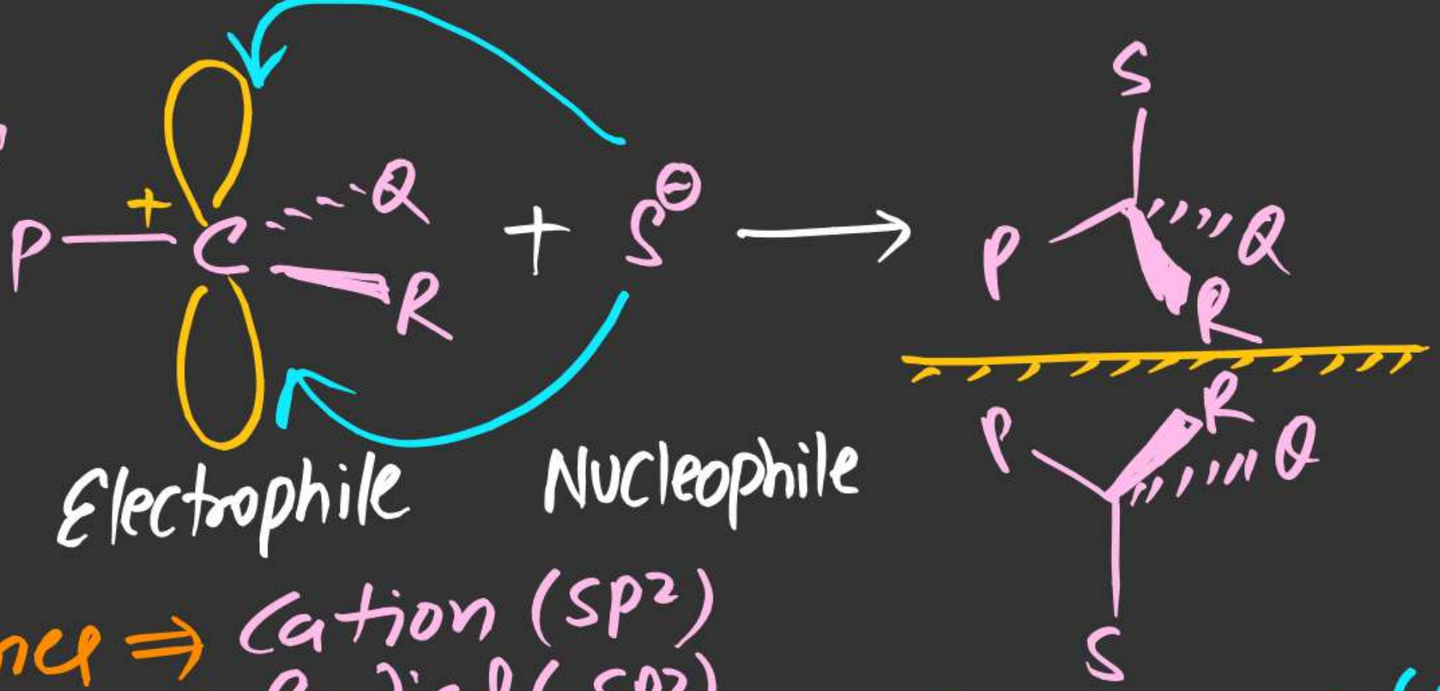
Ex:



Electrophile Nucleophile

planer ⇒ Cation (sp^2)
⇒ Radical (sp^2)
⇒ Alkene (sp^2)

(*) Enantiomers (P≠Q≠R≠S)
(*) identical (if any two out of P,Q,R,S is identical)

⇒ Stability order:

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(#) Generation of Carbocation:

Stereo Isomerism

EXERSICE - 1

Q.1 Compound CH_2Cl_2 contain :

(A) Plane of symmetry

(B) Centre of symmetry

(C) Axis of symmetry

(D) Both(A)&(C)