

M.H. Ichem D1(S) 20-4-20
topic - How find period, block and
group. Marwan college

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① Period $\rightarrow$ maximum value of p, d, f
(value written left side of subshell
s, p, d, f).

$\rightarrow$ Block: — subshell in which last
electron enter.

$\rightarrow$ Group for s-block $\rightarrow$ no. of electron
in last s-subshell.

For p-block: — old group = valence
e⁻

New group = 10 + old group.

for d-block = no. of e⁻ in last d-subshell
+ no. of e⁻ in last s-subshell.

example

$\rightarrow$ We use A for s and p-block and
B for d and f-block.

eg $Mg_{12} \rightarrow 1s^2 2s^2 2p^6 3s^2$

Period = 3rd, Block $\rightarrow$ s

Group $\rightarrow$ II A.

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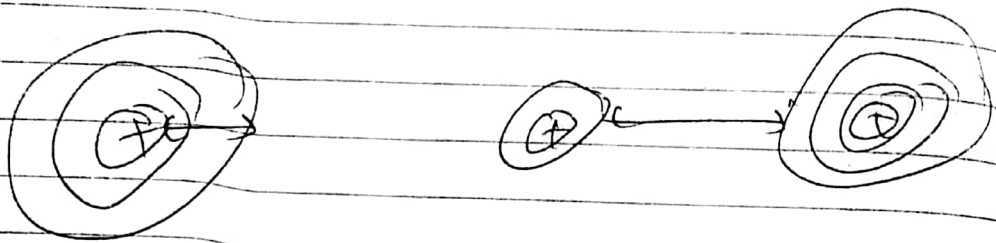
Topic - Atomic radii

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- ③ Atomic radii → Distance between outermost orbit and nucleus bonding r ,
→ Distance between outermost orbit of 2 atoms.



- Size of ions (cation, anion) = $\frac{r}{Z}$
Where r = no. of electrons, Z = atomic no.
→ Size (radius, length) → Always of anion > neutral > cation.



- Na^+ , Ne , F^- , Al^{3+} , Mg^{++} , O^{--} , N^{3-}
 $N^{3-} > O^{--} > F^- > Ne > Na^+ > Mg^{++} > Al^{3+}$

- ① Non-polar → Symmetrical, uncharged, $\delta^- \delta^+ = 0$
② Polar → unsymmetrical, charged, $\delta^- \delta^+ \neq 0$

Topic - Reactions of amine Marwari College

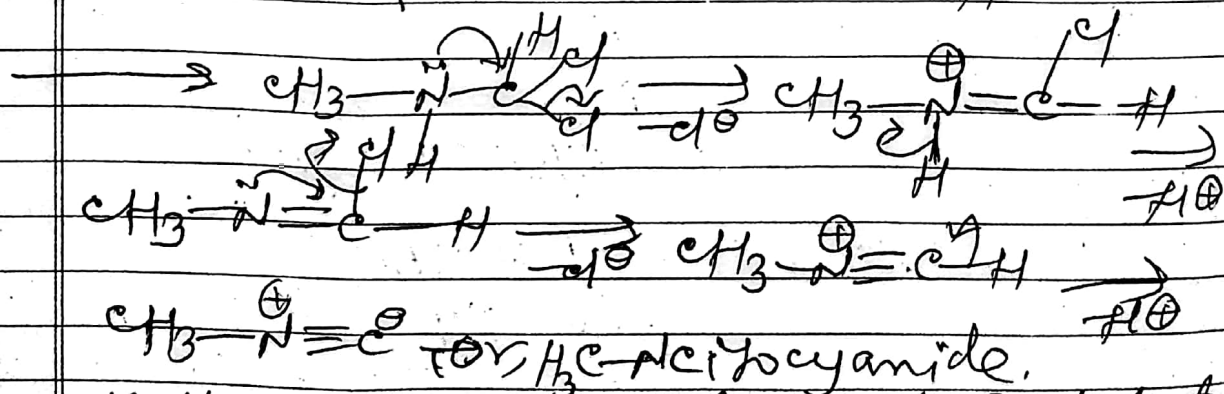
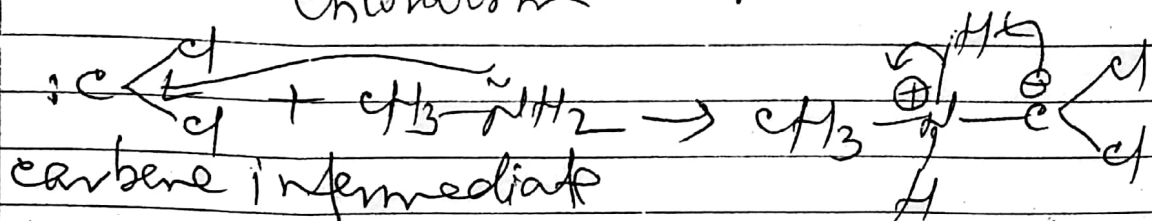
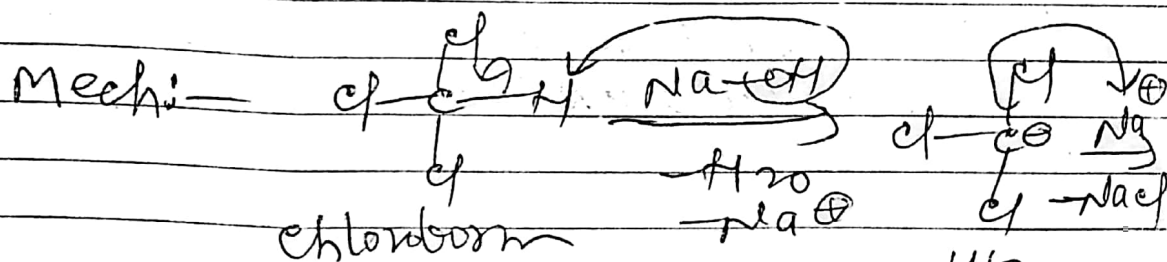
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8. Carbyl amine rxn (Isocyanide test): - when primary amine (1°) react with chloroform in presence of base then form alkyl isocyanide. It is test of primary amine (Aliphatic or Aromatic).
- in chain
in ring

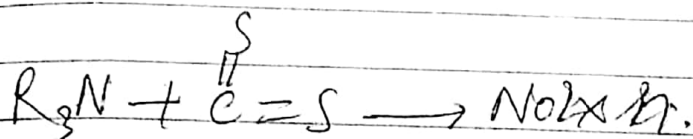
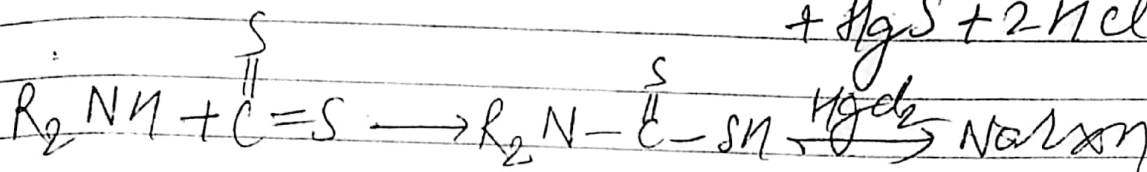
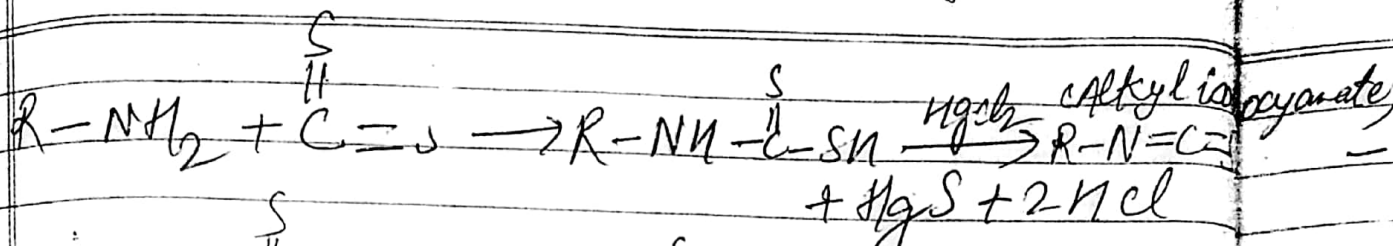
Here carbene intermediate is formed in between reactant and products it acts as Lewis acid as well as δ^+ due to octet deficiency on carbon atom.



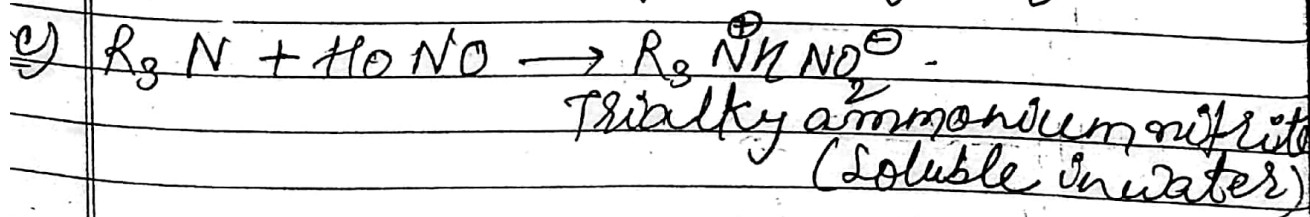
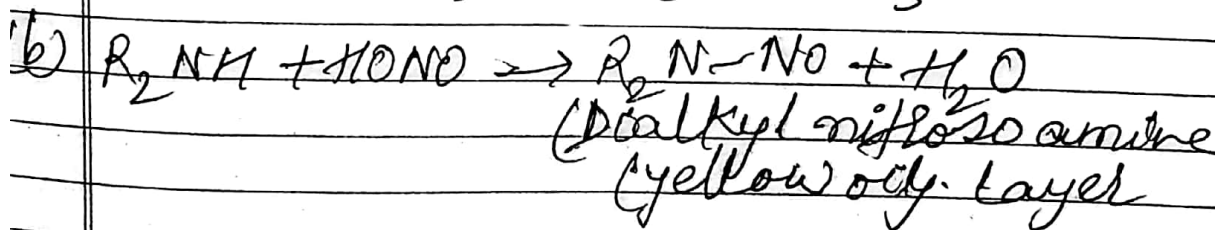
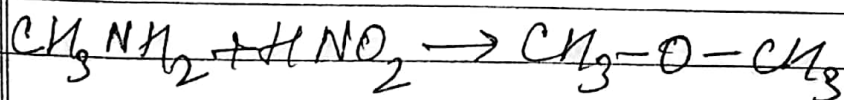
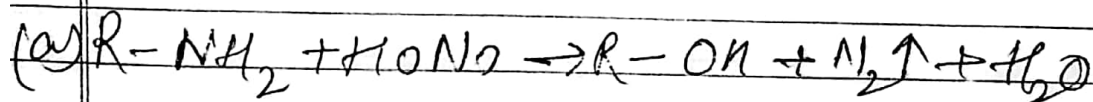
9. Hoffmann's Mustard oil test: - when 1° amine react with carbon disulphide (CS_2) in presence of HgCl_2 then form alkyl isothiocyanate having mustard oil smell.

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10. Rxn with Nitrous acid (HNO_2): when 1° amine react with Nitrous acid (HNO_2) then form alcohol and produce nitrogen gas as ~~base~~ bubbles.



Aniline

& It is an aromatic amine in which all atoms are coplanar cyclic and obey Huckel's rule of aromaticity.

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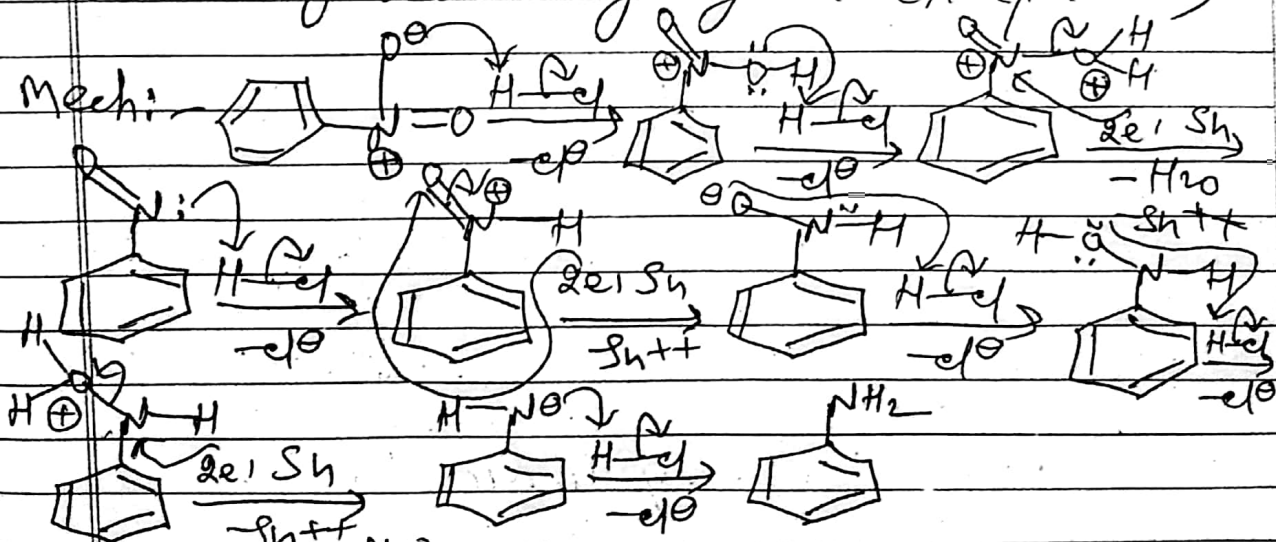
ate)

- It shows five different resonance structures, which indicate more e^- density at 2, 4 and 6 positions (ortho and para) hence E^+ attack here, but less e^- density at meta position (3, 5 position). Hence nucleophile attack here.
- It shows five different resonance structures, indicating it is more acidic than aliphatic amine.

- Synthesis or preparation of Aniline

1. Lab Method:-

When nitrobenzene undergoes reduction then forms Aniline in presence of reducing agent (HCl/Metal)



2. Industrial method:- when nitrobenzene undergoes reduction in presence of reducing agent (HCl/Metal) then forms Aniline.