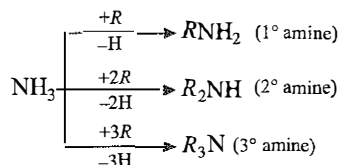


Unit
13

Organic Compounds Containing Nitrogen

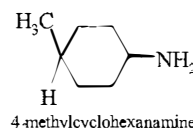
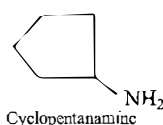
AMINES

- These are alkyl or aryl derivatives of ammonia hence may be classified into two categories:
 - Aliphatic amines** (where nitrogen atom is directly bonded to **one or more alkyl groups**)
 - Aromatic amines** (where nitrogen atom is directly bonded to one or more aryl groups).
- If one of the hydrogen atom of ammonia is replaced by alkyl or aryl group then it is RNH_2 and called as primary amine (1° amine).
- In similar way replacement of two hydrogen atoms by alkyl or aryl group results in secondary amine (R_2NH) and replacement of all the three hydrogen atoms by alkyl or aryl groups results in tertiary amine (R_3N). This can be represented as—

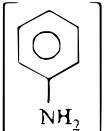


Nomenclature

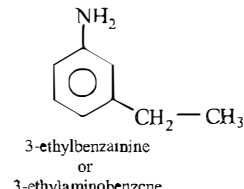
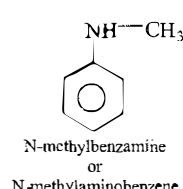
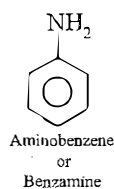
- Aliphatic amines are called as alkanamines in which 'e' of alkane is replaced by amine. For example—
 $CH_3 - CH_2NH_2$ $CH_3 - CH_2 - CH_2 - NH_2$
 Ethanamine Propan-1-amine or 1-propanamine



- The secondary and tertiary amines are named as nitrogen substituted primary amine *i.e.* N-alkylaminoalkanes (for 2° amine) and N, N-dialkylaminoalkanes (for 3° amine). The largest alkyl part is considered as a part of aminoalkane. N- and N, N- means that alkyl groups are linked to N-atom, not to carbon atom.
- The simplest aromatic amine is aniline and other aromatic amines are considered as aniline derivatives. According

to IUPAC system, aromatic amine  is called

as benzamine. Other aromatic amines are named as derivatives of benzamine and the positions of the other groups are indicated by the numbers.



Classification

