BASICITY OF AMINE

•– NH_2 (here N contain Lone pair of electrons)- which makes aminen basic in nature

BASICITY OF ALIPHATIC AMINES-

•Basicity of aliphatic amine is stronger than ammonia due to +I effect of alkyl groups

[BASIC] aliphatic 1^{o} amine < aliphatic 2^{o} amine

So if only inductive effect is considered aliphatic 3^{o} amine must be stronger base

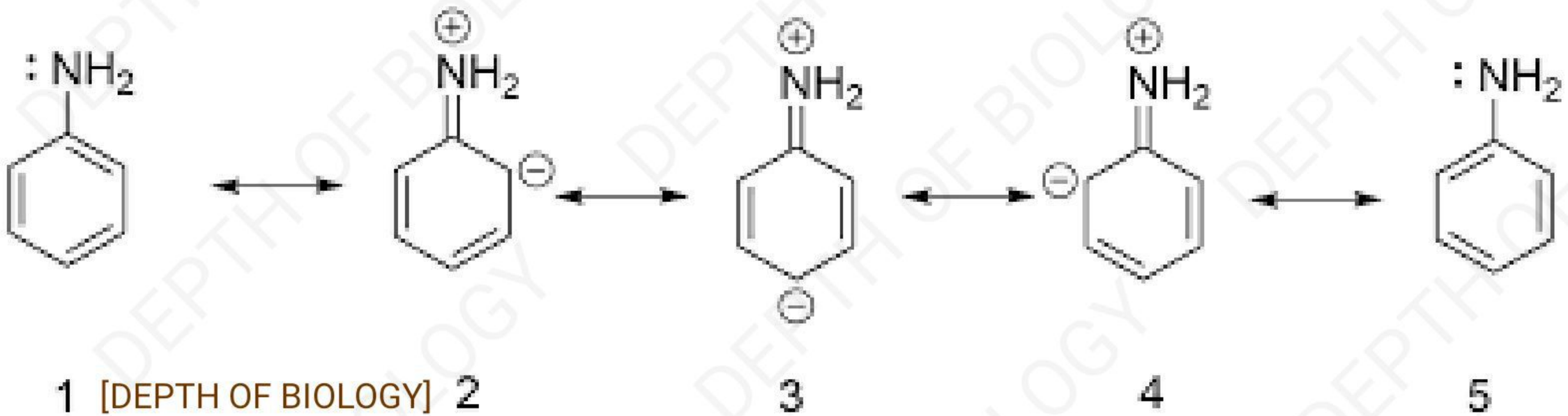
*but in aqueous state aliphatic 3^{o} is less basic than 2^{o} because they form H bonding in aqueous medium

- Ethylamine is more basic than methylamine
- Basicity of 3 ^{o} is more than that of 1 ^{o} & 2^{o} amine in gaseous state [DEPTH OF BIOLOGY]
- The basicity of aliphatic amine is also declined due to the presence of electron withdrawing group (eg- Cl)

[DEPTH OF BIOLOGY]

BASICITY OF AROMATIC AMINES-

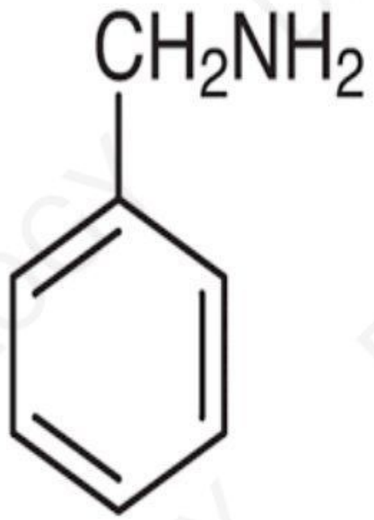
Aniline is a weaker base due to resonance



1 [DEPTH OF BIOLOGY] 2 3 4 5

#Basic strength of benzylamine is more than aniline

[DEPTH OF BIOLOGY]



BENZYLAMINE- because delocalisation of lone pair of electrons on nitrogen into benzene ring is possible by -CH2- group present between the amine group & aromatic ring itself. [DEPTH OF BIOLOGY]

[DEPTH OF BIOLOGY]

EFFECT OF SUBSTITUENT ON BASICITY

[DEPTH OF BIOLOGY]

1. Substituents present in the benzene ring influence the basicity of aniline

Electron releasing	Electron withdrawing
•Presence of CH3,OH, OCH3 at para position of benzene ring increase the basicity of aniline •They increase the basicity of aniline by increasing the electron density on its nitrogen [DEPTH OF BIOLOGY]	•Presence of NO2, CN; the benzene ring decrease the basicity of aniline •They reduce the basicity of aniline by decreasing the electron density on its nitrogen [DEPTH OF BIOLOGY]

2. ORTHO SUBSTITUTED ANILINE-

These bases are weaker than aniline (whether here E.D.G or E.W.G. attach)

This is ortho effect (occuring as a combined effecr of steric electric factor)

3.RELATIVE BASIC STRENGTH OF NITROANILINE-

Aniline > m-nitroaniline>p-nitroaniline>o-nitroaniline

4.RELATIVE STRENGTH OF METHOXY ANILINE (ANISIDINES)- [DEPTH OF BIOLOGY]

O-anisidine < aniline (basicity)

- Due to O- effect basicity ↓

P-anisidne> aniline [DEPTH OF BIOLOGY]

- Basicity ↑ due to +R effecr of OCH3 group at p-position [DEPTH OF BIOLOGY]

5.RELATIVE BASIC STRENGTH OF CHLOROANILINE-

- The +I effect of chlorine prevails over its +R effect
- Thus the basic strength of all chlroaniline is weaker than that of aniline [DEPTH OF BIOLOGY]