

Question 3. Amongst the following, the strongest base in aqueous medium is .

(a) CH_3NH_2 (b) NCCH_2NH_2 (c) $(\text{CH}_3)_2\text{NH}$ (d) $\text{C}_6\text{H}_5\text{NHCH}_3$

Solution: (c) 2° amine is more basic than 1° amine, i.e., $(\text{CH}_3)_2\text{NH}$ is more basic than CH_3NH_2 . Due to -I effect of CN group, $\text{NC-CH}_2\text{NH}_2$ is less basic than CH_3NH_2 . Further $\text{C}_6\text{H}_5\text{NHCH}_3$ is less basic than both CH_3NH_2 and $(\text{CH}_3)_2\text{NH}$ due to delocalization of lone pair of electrons present on the nitrogen atom into benzene ring. Hence, the decreasing order of amines is:

$(\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2 > \text{C}_6\text{H}_5\text{NHCH}_3 > \text{NC} - \text{CH}_2\text{NH}_2$