

AMINES QUESTION BANK

1. Why is an alkylamine more basic than ammonia?
2. Arrange the following compounds in an increasing order of basic strengths in their aqueous solutions : NH_3 , CH_3NH_2 , $(\text{CH}_3)_2\text{NH}$, $(\text{CH}_3)_3\text{N}$
3. Give the IUPAC name of $\text{H}_2\text{N} - \text{CH}_2 - \text{CH}_2 - \text{CH} = \text{CH}_2$.
4. For an amine RNH_2 write an expression to indicate its basic strength.
5. Give one use of quaternary ammonium salts.
6. Give one example of Hoffmann – Bromamide reaction.
7. Distinguish between ethylamine and aniline.
8. How can the reactivity of aromatic amines be controlled?
9. Name a reagent which can distinguish between primary, secondary and tertiary amine.
10. It is difficult to prepare pure amines by ammonolysis of alkylhalides.
11. Amines have higher boiling points than hydrocarbons of similar molecular mass.
12. Aniline is weaker base than cyclohexylamine.
13. Methylamine is a stronger base than aniline.
14. Before nitration, aniline is converted to acetanilide.
15. It is easier to brominate aniline as compared to benzene.
16. Reduction of nitro compound to aniline using iron scrap and HCl is preferred.
17. Aromatic amines cannot be prepared by Gabriel Phthalimide synthesis.
18. During acylation of amines, pyridine is added.
19. Aniline does not undergo Friedel – Craft's reaction.

20. Arrange the following compounds in an increasing order of their solubility in water : $C_6H_5NH_2$, $(C_2H_5)_2NH$, $C_2H_5NH_2$
21. Give a chemical test to distinguish between ethylamine and aniline.
22. Arrange the following in the decreasing order of their basic strength in aqueous solutions: CH_3NH_2 , $(CH_3)_2NH$, $(CH_3)_3N$ and NH_3
23. Arrange the following in increasing order of their basic strength in aqueous solution: CH_3NH_2 , $(CH_3)_3N$, $(CH_3)_2NH$
24. Arrange the following compounds in increasing order of solubility in water : $C_6H_5NH_2$, $(C_2H_5)_2NH$, $C_2H_5NH_2$
25. Arrange the following in increasing order of basic strength : $C_6H_5NH_2$, $C_6H_5NHCH_3$, $C_6H_5CH_2NH_2$
26. The conversion of primary aromatic amines into diazonium salts is known as....
27. Out of CH_3-NH_2 and $(CH_3)_3N$, which one has higher boiling point?
28. Give the chemical tests to distinguish between the following pairs of compounds :
- Ethyl amine and Aniline
 - Aniline and Benzylamine
29. Identify A and B in each of the following processes :
- (i) $CH_3CH_2Cl \xrightarrow{NaCN} A \xrightarrow[Ni/H_2]{\text{reduction}} B$ (ii) $C_6H_5NH_2 \xrightarrow{NaNO_2/HCl} A \xrightarrow[OH^-]{C_6H_5NH_2} B$
30. Give the chemical tests to distinguish between the following pairs of compounds :
- Methylamine and Dimethylamine
 - Aniline and N-methylaniline
31. Describe the following giving the relevant chemical equation in each case :
- Carbylamine reaction
 - Hofmann's bromamide reaction

32. Complete the following reaction equations : (All India 2012)
- (i) $\text{C}_6\text{H}_5\text{N}_2\text{Cl} + \text{H}_3\text{PO}_2 + \text{H}_2\text{O} \rightarrow$
 - (ii) $\text{C}_6\text{H}_5\text{NH}_2 + \text{Br}_2 (\text{aq}) \rightarrow$
33. How are the following conversions carried out :
- (a) Aniline to p-hydroxyazobenzene
 - (b) Ethanoyl chloride to Ethanenitrile
34. How are the following conversions carried out?
- (i) $\text{CH}_3\text{CH}_2\text{Cl}$ to $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$
 - (ii) Benzene to aniline
35. How would you account for the following :
- (a) Aniline is a weaker base than cyclohexyl amine.
 - (b) Methylamine in aqueous medium gives reddish-brown precipitate with FeCl_3 .
36. How would you account for the following :
- (a) Electrophilic substitution in case of aromatic amines takes place more readily than benzene.
 - (b) Ethanamide is a weaker base than ethanamine
37. Illustrate the following reactions :
- (a) Sandmeyer's reaction
 - (b) Coupling reaction
38. Give chemical tests to distinguish between the following pairs of compounds :
- (a) Aniline and Ethylamine
 - (b) Ethylamine and Dimethylamine
39. Give reasons :
- (a) Aniline is a weaker base than cyclohexyl amine.
 - (b) It is difficult to prepare pure amines by ammonolysis of alkyl halides.
40. Give reasons :
- (i) Electrophilic substitution in aromatic amines takes place more readily than benzene.
 - (ii) CH_3CONH_2 is weaker base than $\text{CH}_3\text{CH}_2\text{NH}_2$.
41. (i) Arrange the following compounds in an increasing order of basic strength :

$C_6H_5NH_2$, $C_6H_5N(CH_3)_2$, $(C_2H_5)_2NH$ and CH_3NH_2

(ii) Arrange the following compounds in a decreasing order of pK_b values :

$C_2H_5NH_2$, $C_6H_5NHCH_3$, $(C_2H_5)_2NH$ and C_6H_5NH

42. Give a chemical test to distinguish between each of the following pairs of compounds :

(i) Ethylamine and Aniline

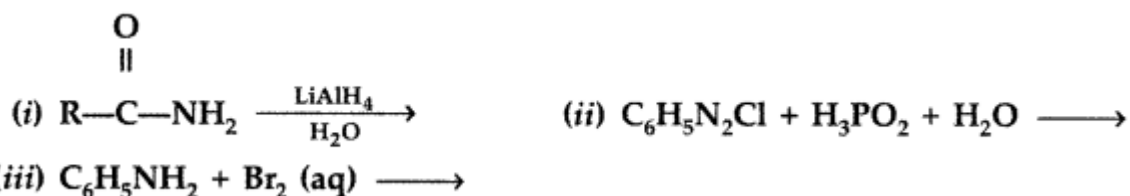
(ii) Aniline and Benzylamine

43. Write the chemical equations involved in the following reactions: (All India 2016)

(i) Hoffmann-bromamide degradation reaction

(ii) Carbylamine reaction

44. Complete the following reaction equations:



45. In the following cases rearrange the compounds as directed : (Delhi 2010)

(i) In an increasing order of basic strength :

$C_6H_5NH_2$, $C_6H_5N(CH_3)_2$, $(C_2H_5)_2NH$ and CH_3NH_2

(ii) In a decreasing order of basic strength :

Aniline, p-nitroaniline and p-toluidine

(iii) In an increasing order of pK_b values :

$C_2H_5NH_2$, $C_6H_5NHCH_3$, $(C_2H_5)_2NH$ and $C_6H_5NH_2$