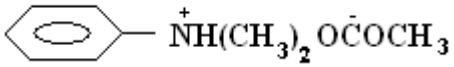
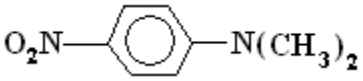
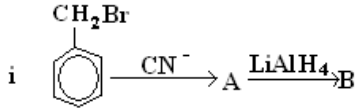
THE GURUKUL INSTITUTE

PLOT 5C, 2ND FLOOR, GANAPATI COMPLEX, SEC-13, OPP. JAIPURIA SCHOOL, VASUNDHRA, GHAZIABAD (U.P) PH NO. 9810780903

ORGANIC COMPOUNDS CONTAINING NITROGEN(AMINES)

1. Why do amines react as nucleophiles?
2. Give a chemical test to distinguish between aniline and N-methylaniline.
3. Why are aqueous solutions of amines basic in nature?
4. How is m-nitroaniline obtained from nitrobenzene?
5. State the reaction taking place when:
   Bromine water is added to the aqueous solution of aniline.
6. How is he basic strength of aromatic amines affected by the presence of an electron releasing group on the benzene ring?
7. How is aniline obtained from benzoic acid?
8. Write the IUPAC name of the following:
   a. 
   b. 
   c. $CH_3 - CH_2 - NH_2$
   d. $(CH_3)_2NH$
9. Give chemical test to distinguish between $C_6H_5CH_2NH_2$ and $C_6H_5NH_2$.
10. How is phenylaminomethane obtained from phenyl nitrile?
11. Of methylamine an daniline which is stronger base and why?
12. Account for the following:
    Ammonolysis of alkyl halide does not give a corresponding amine is pure state.
13. Write the chemical reaction occurring in the preparation of fluorobenzene from aniline.
14. For an amine RNH_2 write the expression for K_b to indicate its base strength..
15. What does K_b value for an amine stand for?
16. Write IUPAC name:
    
17. Account for the following:
    a. Amines are basic substances while amides are neutral.
    b. Aromatic amines are weaker bases than aliphatic amines.
    c. Methylamine is a stronger base than ammonia.
    d. Reactivity of $-NH_2$ group gets reduced in acetanilide.
18. (a) How will you convert : An alkyl halide to a primary amine whose molecule has one more carbon atom than the used alkyl halide molecule?
    (b) Why are amines more basic than the comparable alcohols?
19. Give reasons:
    a) Methylamine in water reacts with ferric chloride to precipitate ferric hydeoxide.
    b) Aromatic amines are less basic than aliphatic amines.
20. Explain the following observations:
    a. $Et_2NH > Et_3N > EtNH_2$
    b. Amines are more basic than comparable alcohols.
21. Give reasons for the following observations:
    a. It is difficult to prepare pure amines by ammonolysis of alkyl halides.
    b. Electrophilic amines takes place more readily than in benzene.
22. Write one chemical equation each to exemplify the following reactions:
    a. Carbylamines reaction
    b. Hofmann bromamide reaction.

23. Illustrate the following with an example of reaction in each case:
    a. Ambient nucleophile
    b. Hinsberg test.
24. What happens when:
    a. Nitroethane is treated with $LiAlH_4$.
    b. Diazonium chloride reacts with phenol in basic medium.
25. Write the chemical reaction equations for one example each of the following:
    a. A coupling reaction.
    b. Hofmann's bromamide reaction.
26. Describe the following processes giving a suitable example in each case:
    a) Diazotisation
    b) Acetylation.
27. State reactions for obtaining benzoic acid from aniline.
28. Before reacting aniline with HNO_3 for nitration, is converted to acetanilide. Why is this done and how is nitroaniline obtained subsequently?
29. Describe tests to distinguish between: Secondary amine and tertiary amine.
30. How will you bring about following conversions?
    a. Aniline to Benzonitrile?
    b. Aniline to p-nitroaniline?
31. How would you achieve the following conversions:
    a. Nitrobenzene to aniline
    b. An alkyl halide to a quaternary ammonium salt.
    c. Aniline to benzonitrile.
    Write the chemical equation with reaction conditions in each case.
32. a) Explain the following observations:
    i. Electrophilic substitution in case of aromatic amines takes place more readily than benzene.
    ii. Primary amines have higher boiling than comparable tertiary amines.
    b) Mention two important uses of N, N-Dimethylamine (DMA).
33. a) Stating the necessary reaction conditions write chemical reaction equations to obtain following:
    Chlorobenzene from aniline.
    b) Identify A and B in the following:

    i 

    ii. $RCO \xrightarrow{NH_3} A \xrightarrow{Ni/H_2} B$
34. What happens when (write reaction only):
    a. Nitropropane is treated with $LiAlH_4$.
    b. Ethyl isocyanide undergoes hydrolysis.
    c. Benzene diazonium chloride reacts with phenol in basic medium.
35. Account for the following :
    a. Silver chloride dissolves in aqueous methyl amine solution.
    b. Aniline readily reacts with bromine to give 2, 4, 6 tribromoaniline.
    c. Tertiary amines do no undergo acylation reaction.
36. Write reactions involved in obtaining p-aminodiazobenezene using only nitrobenzene as organic reagent to start with.
37. Give reasons:
    Sulphanilic acid is insoluble in water but is soluble in aqueous bases and aqueous mineral acids taken separately.
38. Mention two important uses of sulphanilic acid.
39. Write a chemical reaction of aniline which may distinguish it from ethylamine.