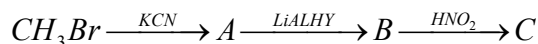
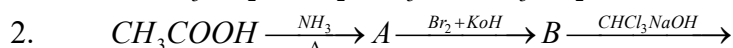


1 Give the structure of A B C in the following



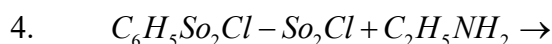
- 1) $CH_3CN, CH_3CH_2OH, CH_3CH_2-NH_2$
- 2) $CH_3-CH_2-NH_2, CH_3CH_2OH, CH_3CN$
- 3) $CH_3CN, CH_3CH_2-NH_2, CH_3CH_2-OH$
- 4) $CH_3CH_2-NH_2, CH_3CN, CH_3CH_2-OH$



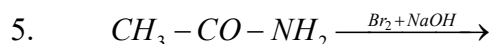
- 1) $CH_3CONH_2, CH_3NH_2, CH_3NC$
- 2) $CH_3NH_2, CH_3CONH_2, CH_3NC$
- 3) $CH_3CN, CH_3NH_2, CH_3CONH_2$
- 4) $CH_3NH_2, CH_3NC, CH_3CONH_2$



- 1) CH_3-OH
- 2) CH_3-CH_2-OH
- 3) $CH_3-\overset{CH_3}{C}-OH$
- 4) $CH_3-\overset{CH_3}{C}-OH$



- 1) $C_6H_5SO_2N(C_2H_5)_2$
- 2) $C_6H_5(SO_2)_2 \overset{NH}{C_2H_5}$
- 3) $C_6H_5(SO_2)_2 C_6H_5$
- 4) $C_6H_5SO_2-\overset{NH}{CH_3}$



- 1) CH_3-CH_2-OH
- 2) $CH_3-CH_2-NH_2$
- 3) CH_3-NH_2
- 4) CH_3-OH

6. Compare the boiling points among isomeric amines

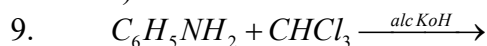
- 1) Primary amine > Secondary amine > Tertiary amines
- 2) Primary amines < Secondary amines < Tertiary amines
- 3) Secondary amines > Tertiary amines > Primary
- 4) Secondary amines < tertiary amines < Primary amines



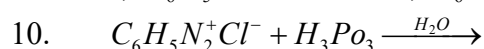
- 1) meta – amino benzene sulphenic acid
- 2) Para – amino benzene sulphenic acid
- 3) ortho – amino benzene sulphonic acid
- 4) Both 2 & 3

8. O – Nitro acetamide on hydrolysis gives

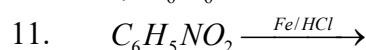
- 1) O – Nitro Iso cyanide
- 2) O – Nitro cyanide
- 3) O – Nitro aniline
- 4) O – Nitro carboxylic acid



- 1) C_6H_5CN
- 2) C_6H_5COOH
- 3) C_6H_5NC
- 4) Both 1 & 3



- 1) C_6H_6
- 2) H_3PO_3
- 3) $C_6H_5-NH_2$
- 4) Both 1 & 2



- 1) C_6H_5NC
- 2) C_6H_5CN
- 3) $C_6H_5N_2^+Cl^-$
- 4) $C_6H_5NH_2$

12. Arrange the following Pk_b values in increasing order
 $C_2H_5NH_2$ $C_6H_5NHCH_3$ $(C_2H_5)_3NH$ $C_6H_5NH_2$
 I II III IV
 1) $III > I > II > IV$ 2) $III < I < II < IV$ 3) $II > IV > III > I$ 4) $II < IV < III < I$
13. $C_6H_6 \xrightarrow[CanH_2SO_4]{ConHNO_3} A \xrightarrow{Sn/HCl} B$ write the products of A, B
 1) $C_6H_5NO_2, C_6H_5Cl$ 2) $C_6H_5NO_2, C_6H_5NH_2$
 3) $C_6H_5SO_3H, C_6H_5Cl$ 4) $C_6H_5SO_3H, C_6H_5NH_2$
14. $C_6H_5-Br \xrightarrow[ether]{Mg} A \xrightarrow[H_3O^+]{CO_2} B$ write the products of A & B
 1) C_6H_5-Mg, C_6H_5-OH 2) C_6H_5-MgBr, C_6H_5-OH
 3) C_6H_5-MgBr, C_6H_5-COOH 4) C_6H_5-Mg, C_6H_5-COOH
15. $C_6H_5COOH \xrightarrow{A} C_6H_5COCl \xrightarrow{B} C_6H_5CONH_2$ write the A & B
 1) $A-SOCl_2, B-Excess NH_3$ 2) $A-HCl, B-NH_3$
 3) $A-SOCl_2, B-NH_3$ 4) $A-PCl_3, B-Excess NH_3$
16. The product A is $A \xrightarrow{reduction} B \xrightarrow{CHCl_3+KOH} C \xrightarrow{reduction} N-Methylariline$ A is
 1) Formaldehyde 2) Tri chlord methane 3) Nitro benzene 4) Toluene
17. The product D would be $C_6H_5NH_2 \xrightarrow[HCl]{NaNO_2} A \xrightarrow{CuCN} B \xrightarrow[N]{H_2} C \xrightarrow{HNO_2} D$
 1) C_6H_5NHOH 2) $C_6H_5NHCH_2CH_3$ 3) $C_6H_5CH_2NH_2$ 4) $C_6H_5CH_2OH$
18. Replacement of $N_2^+Cl^-$ from benzene diazonium chloride by the iodine can be done by using
 1) HI 2) NaOI 3) PI_3 4) KI
19. High basicity of Me_2NH relative to Me_3N is attributed to
 1) effect of solvent 2) Inductive effect of Me 3) shape of Me_2NH 4) Shape of Me_3N
20. Which of the following reagents is lore used in the given reactions $C_6H_5NO_2 \rightarrow C_6H_5NH_2$
 1) $H_2 / Pd, ethanol$ 2) $Sn + HCl$ 3) $Fe + HCl$ 4) All of these
21. The IUPAC name of $C_2H_5 - \underset{C_2H_5}{N} - (CH_2)_3 - CH_3$ is
 1) N-ethyl butan-2-amine 2) N-diethyl-1-amine
 3) N,N-diethyl butan-1-amine 4) N,N-diethyl butan-2-amine
22. If one H-Atom of ammonia is replaced alkly group the amine thus obtained is known as
 1) Secondary amine 2) Primary amine
 3) Tertiary amine 4) quaternary amine
23. Identify X, Y and Z in the given reaction $CH_2=CH_2 \xrightarrow[ccl_4]{Br_2} X \xrightarrow[2moles]{NaCN} Y \xrightarrow{Lialhy} Z$
 X Y Z
 1) CH_2-BrCH_2Br $CH_3CH_2CH_2CN$ $CH_3CH_2-CH_2CH_2NH_2$
 2) CH_2BrCH_2Br CH_3CH_2CN $CH_3CH_2CH_2NH_2$
 3) CH_3CH_2Br CH_3CH_2CN $CH_3CH_2CH_2NH_2$
 4) CH_2BrCH_2Br $NCCH_2CH_2CN$ $H_2NCH_2CH_2CH_2CH_2NH_2$
24. The most convenient method to prepare on amine containing one carbon atom less is
 1) Gabriel phthalimide synthesis 2) Reduction amination of aldehydes
 3) Hofmann bromide reaction 4) Reduction of synthesis
25. Amine that cannot be prepared by Gabriel phthalimide synthesis
 1) Aniline 2) Benzyl amine 3) Methyl amine 4) iso-butyl amine

26. Identify the reagents X, Y and Z for the following Products
- Benzenedi azonium chloride* \xrightarrow{X} *Phenol*
 - Benzenedi diazonium chloride* \xrightarrow{Y} *iodo benzene*
 - Benzenedi azonium chloride* \xrightarrow{Z} *Cyno Benzene*
- | X | Y | Z |
|-------------------------------|---------------------------|------------------|
| 1) <i>NaOH, warm</i> | <i>I₂ warm</i> | <i>KCN warm</i> |
| 2) <i>KOH</i> | <i>CuI</i> | <i>NaCN</i> |
| 3) <i>H₂O warm</i> | <i>KI warm</i> | <i>CuCN</i> |
| 4) <i>KOH boil</i> | <i>AgI warm</i> | <i>AgCN warm</i> |
27. The best reagent for converting 2 – phenyl propagandize in to 1 – phenyl Ethen amide is
- Excess *H₂ / Pt*
 - NaOH / Br₂*
 - NaBH₄ / methanol*
 - LiAlH₄ / ether*
28. Which of the following is an aromatic amine
- Aniline
 - N – methyl aniline
 - 2 – Phenyl Ethan amine
 - None of the above
29. Which of the following reaction will not give a primary amine
- $CH_3CONH_2 \xrightarrow{Br_2/KOH}$
 - $CH_3CN \xrightarrow{LiAlH_4}$
 - $CH_3NC \xrightarrow{LiAlH_4}$
 - $CH_3CONH_2 \xrightarrow{LiAlH_4}$
30. Aliphatic amines are – basic than *NH₃* but aromatic amines are – basic than *NH₃*
- More, Less
 - Less, More
 - Both (1) and (2)
 - None of these

KEY

1-10	3	1	2	2	3	1	3	3	3	2
11-20	4	2	2	3	1	3	4	4	1	4
21-30	3	2	4	3	1	3	2	1	3	1

SOLUTIONS

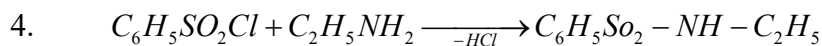
- $$CH_3^+ Br^- \xrightarrow{K^+ CN^-} CH_3CN$$

$$CH_3CN \xrightarrow[\text{addition of Hydrogens}]{LiAlH_4 \text{ Reduction}} CH_3CH_2NH_2$$

$$CH_3CH_2NH_2 \xrightarrow[HONO]{HNO_2} CH_3CH_2OH$$
- $$CH_3COOH \xrightarrow[\text{H-NH}_2, -H_2O]{NH_3, \Delta} CH_3-CO-NH_2$$

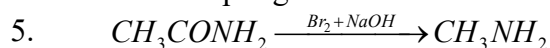
$$CH_3CO-NH_2 \xrightarrow[\text{Bromide}]{Br_2+KOH \text{ Hoff mon}} CH_3-NH_2$$

$$CH_3-NH_2 \xrightarrow[\text{forms isocyanides}]{CHCl_3+NaOH \text{ Corboyl a min e rex}^n} CH_3NC$$
- $$CH_3CH_2NH_2 \xrightarrow[O^0C]{HNO_2} CH_3CH_2-OH$$



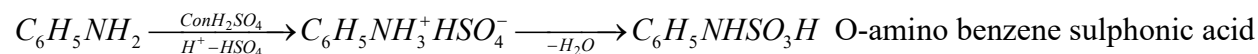
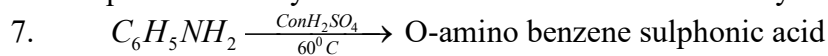
Hinsburg reagent

Hear coupling reaction is involved

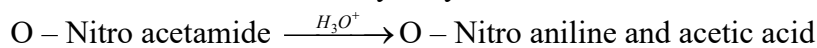


Hear Hoffmann's Bromide $rearrangement$ involved gives primary amines

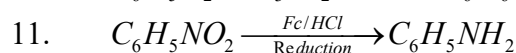
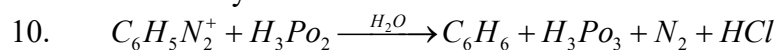
6. Due to intermolecular hydrogen bonding present in primary & Secondary amines at have more boiling point in tertiary amines absence of inter molecular hydrogen bonding less boiling point



8. O – Nitro acetamide under hydrolyses



Hear carbylamines reaction is involved

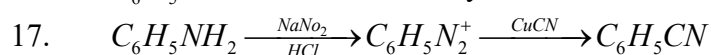
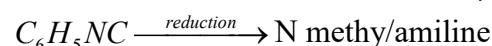
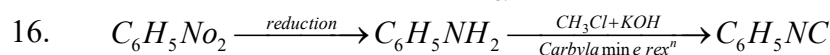
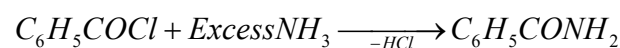
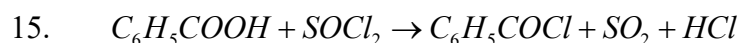
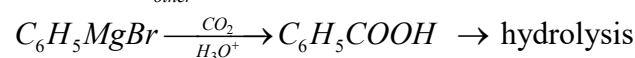
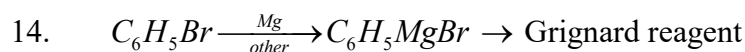
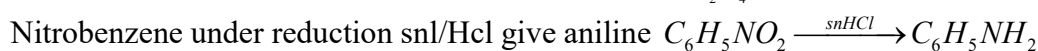
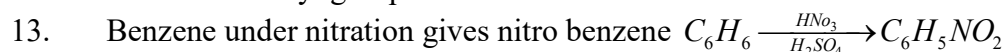


Hear Reduction takes place addition of 'H' atoms and removal of hydrogen's

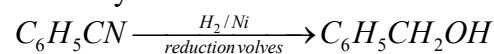
12. More no of alkyl groups present +I effect will increases + I effect \propto basicity (Kb)

Then +I effect $\propto \frac{1}{P^{K_b}}$

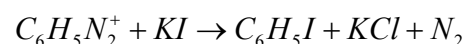
More no of alkyl groups increases then P^{K_b} values decreases



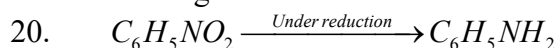
Sandmeyer reaction involves an above $rearrangement$



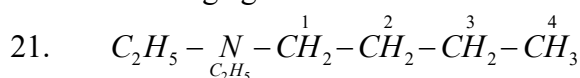
18. Replacement by iodide ion iodine is not easily introduced into the benzene ring directly but when the diazonium salt solution is treated with potassium iodide iodobenzene is formed



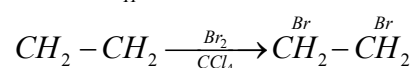
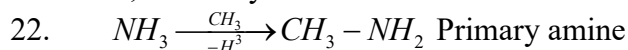
19. Secondary amines are more basic than tertiary amines due to stabilization of 2° amine by hydrogen bonding with solvent molecule



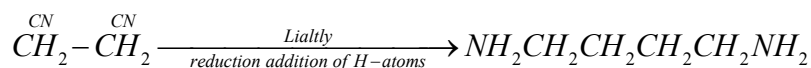
Nitro benzene under reduction gives aniline hear H_2 / Pd ethanol, $Sn + HCl$, $Fe + HCl$ all are reducing agents



N, N di ethyl but am 1 – amine

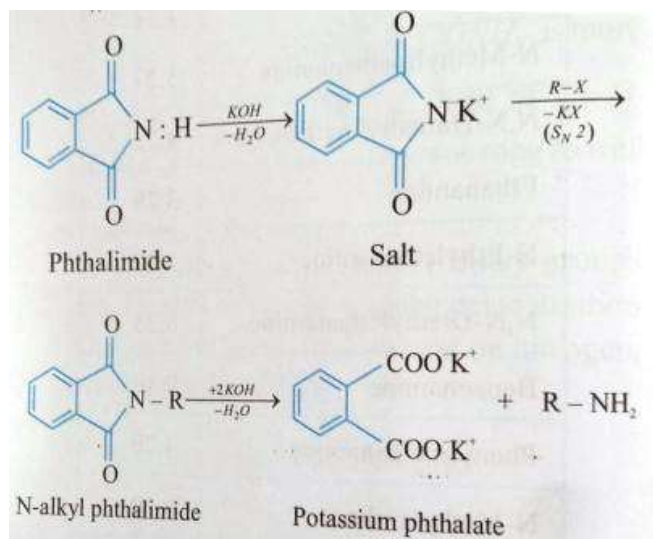


Bromination

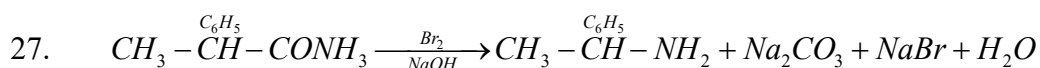
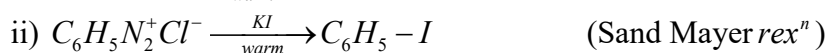
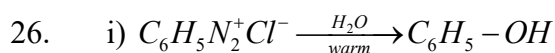


24. Hoffmann bromide reaction is best method

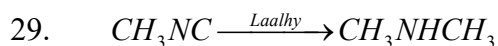
25.



In Gabriel phthalimide synthesis only aliphatic amines are prepared does not prepare aromatic amines
aniline is aromatic amine



28. Aromatic amine means the NH₂ group attaches to aromatic ring



Remaining all gives primary amines

30. Aliphatic amines are stronger base than ammonia due to +I effect of alkyl groups leading to high electron density on the nitrogen atom their *pK_b* values lie in the range of 3 to 4.22 on the other hand aromatic amines are weaker base than ammonia due to the electron withdrawing nature of the aryl group