DPP

DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : CHEMISTRY
DPP No. : 8

Topic :- Amines

1 **(a)**

Follow text.

4 **(a)**

$C_2H_5NC + H_2O \xrightarrow{H^+} HCOOH + C_2H_5NH_2$

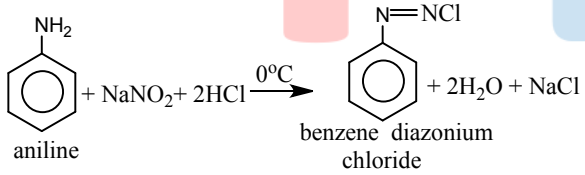
formic acid

$C_2H_5NH_2 + H^+ \rightarrow C_2H_2NH_3^+$

salt

5 **(b)**

It gives diazonium salt.



aniline

benzene diazonium chloride

It is known as diazotization reaction.

6 **(d)**

Aniline undergoes diazotisation.

7 **(b)**

$RCN \xrightarrow{\text{Hydrolysis}} RCOOH + NH_3$

$RCH = NOH \xrightarrow{\text{Reduction}} RCH_2NH_2 + H_2O$

$RCN + 2H_2O \xrightarrow{\Delta} RNH_2 + HCOOH$

$RCONH_2 \xrightarrow{\text{Hydrolysis}} RCOOH + NH_3$

9 **(a)**

Trimethyl amine is a tertiary amine. It dissolve in cold nitrous acid to form salts which decompose on warming to nitrosoamine and alcohol. It will not liberate nitrogen.

$(CH_3)_3N + HNO_2 \rightarrow [(CH_3)_3NH]^+NO_2^-$

trimethyl ammonium nitrite

11 **(a)**

Carbylamine reaction is given by aliphatic and aromatic primary amine hence, it can be used for the distinguish of primary amine with secondary and tertiary amine. In this reaction, a primary amine reacts with chloroform and alcoholic KOH to give poisonous substance isocyanide.

$RNH_2 + CHCl_3 + 3KOH(alc.) \xrightarrow{\Delta} RNC + 3KCl + 3H_2O$

Primary amine alkyl isocyanide

12 **(b)**

Nitrobenzene is reduced by Zn and alcoholic KOH into hydrazobenzene.

$2C_6H_5NO_2 + 10H \xrightarrow{Zn + alc.KOH} C_6H_5 - NH - NH - C_6H_5 + H_2O$

hydrazobenzene

13 **(b)**

Electron withdrawing groups (*e.g.*, benzyl) because the basicity of amines. Electron donating groups (*e.g.*, alkyl) increase the acidity of amines.

∴ The correct order of basicity of amines is

$C_2H_5NH_2 > CH_3NH_2 > NH_3 > C_6H_5NH_2$

14 **(b)**

Aliphatic amines (in which amino group is attached with alkyl group) are more basic than aromatic amines (in which amino group is bonded directly with benzene nucleus). Hence, $C_6H_5CH_2NH_2$ (benzyl amine), being an aliphatic amine, is the most basic among the given the compounds.

15 **(d)**

(a) $C_6H_5CONH_2 \xrightarrow[ether]{LiAlH_4} C_6H_5CH_2NH_2$

Benzylamine

(b) $C_6H_5CH_2CONH_2 \xrightarrow{Br_2/KOH} C_6H_5CH_2NH_2$

Benzylamine

(c) $C_6H_5CN \xrightarrow{LiAlH_4} C_6H_5CH_2NH_2$

Benzylamine

(d) $C_6H_5CH_2NC \xrightarrow{LiAlH_4} C_6H_5CH_2NHCH_3$

2°amine

16 **(b)**

Biuret formed gives violet colour with $CuSO_4$ in alkaline medium.

17 **(b)**

$CH_3 - C \equiv N \xrightarrow{Reduction} CH_3CH_2NH_2 \xrightarrow{HONO} CH_3CH_2OH$

methyl cyanide ethanamine ethanol

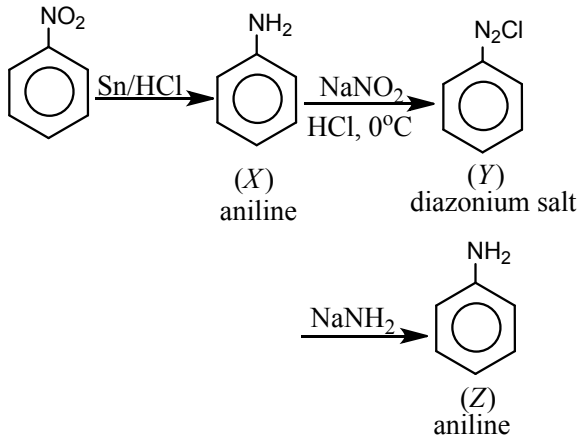
1. *(B)*

$CH_3CH_2NH_2 \xrightarrow{CHCl_3, KOH} CH_3CH_2N \overset{\rightarrow}{\equiv} C$

2. Ethyl isocyanide

(C)

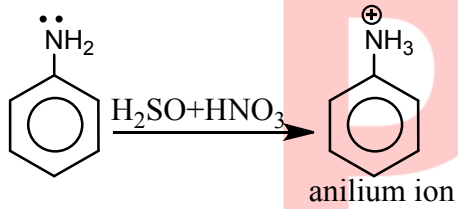
18 **(d)**



∴ *Z* is aniline

19 **(a)**

On direct nitration of aniline, lone pair of electrons present at nitrogen atom will accept proton from the nitrating mixture to give anilium ion which is *meta* directing.



ANSWER-KEY										
Q.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A.	**A**	**B**	**A**	**A**	**B**	**D**	**B**	**C**	**A**	**D**
Q.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A.	**A**	**B**	**B**	**B**	**D**	**B**	**B**	**D**	**A**	**B**