DPP

DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : CHEMISTRY
DPP No. : 1

Topic :- Amines

1 **(a)**

Hofmann bromamide reaction is used to prepare 1° amine form primary amides. In this method, amides are treated with bromine in presence of KOH.

$R-\mathrm{CONH_2}+4\mathrm{KOH}+\mathrm{Br_2}\xrightarrow{\Delta}R\mathrm{NH_2}+\mathrm{K_2CO_3}+2\mathrm{KBr}+2\mathrm{H_2O}$

4 **(d)**

The amines are basic in nature due to presence of lone pair of electron on nitrogen. The 2° amines are basic among 1°,2° and 3°amines because of steric effect and hydration effect

5 **(a)**

This is carbylamine reaction.

6 **(c)**

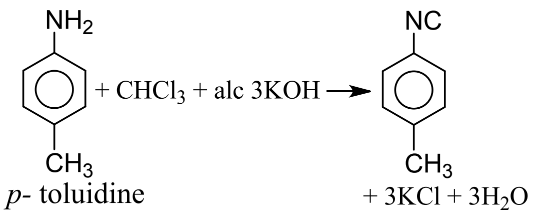
p–amine forms alcohol; *s*–amine forms only nitrosoamine.

7 **(a)**

$\mathrm{CH_3NH_2}+\mathrm{C_6H_5SO_2Cl}\rightarrow\mathrm{C_6H_5SO_2NHCH_3}\xrightarrow[\text{(alkali)}]{\mathrm{NaOH}}\mathrm{C_6H_5SO_2N(Na)CH_3}$

1° amine	hinsberg's Reagent	N-methyl benzene sulphonamide	soluble sodium salt

8 **(d)**



it is a example of carbylamines reaction

9 **(a)**

Cyanides are hydrolysed either by alkali or acid to give carboxylic acid.

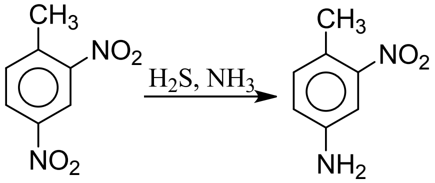
$R-\mathrm{CN}+2\mathrm{H_2O}\xrightarrow{\mathrm{NaOH}}R-\mathrm{COOH}+\mathrm{NH_3}$

10 **(a)**

$C_2H_5NH_2 + NOCl \longrightarrow C_2H_5Cl + N_2 + H_2O$

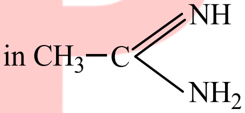
11 **(b)**

By using H_2S, NH_3 as reagent, selective reduction takes place



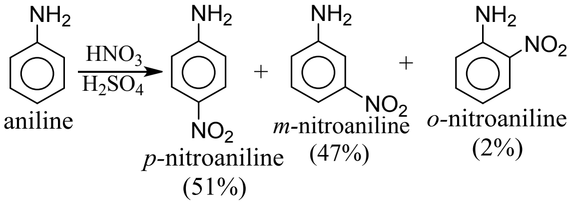
12 **(b)**

2 amines are more basic than 1 amines due to +ve *IE* of $—CH_3$ gp. In amide the resonance give rise to less availability to electron pair for coordination and thus less basic. The negative

charge developed on N in  $CH_3-C(=NH)NH_2$

due to resonance makes it more basic.

14 **(c)**



Nitration of aniline also gives *m*-nitro aniline in strong acidic medium because in strong acidic condition protonation of $-NH_2$ group gives anilinum ion $(+NH_3)$ which is deactivating in nature and of *m*-directive nature

15 **(a)**

Grabriel's synthesis : Phthalimide is reacted with KOH to form potassium phthalimide. The potassium salt is treated with an alkyl halide. The product N-alkyl phthalimide is put to hydrolyse with hydrochloric acid, then primary amine is formed.

16 **(b)**

$$C_6H_5NO_2 \xrightarrow[{[H]}]{Sn/HCl} C_6H_5NH_2$$

Nitrobenzene Aniline

Nitrobenzene in reduction with Sn and HCI produce aniline. Hence, ‘X’ is identified as $-NH_2$ group.

17 **(d)**

$$CH_3CHO \xrightarrow{H_2NOH} CH_3CH=NOH \xrightarrow{Reduction} CH_3CH_2NH_2 \xrightarrow[\substack{-N_2 \\ -H_2O}]{NOCl} CH_3CH_2Cl$$

Acetaldehyde ethyl amine ethyl chloride

(A) (B) (C)

19 **(b)**

$CH_3CH_2-O-N=O$ is a nitrite derivative, hence it is not a nitro derivative.

20 **(c)**

Basic nature of an amine depends upon availability of lone pair on nitrogen atom. If lone pair is easily available the compound would be more basic.

Dut to +I effect of methyl group, methyl amine is more basic than ammonia and dimethyl amine is more basic than methyl amine. While aniline is a weaker base than ammonia due to delocalization of lone pair of nitrogen atom at different position.

ANSWER-KEY

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