

INDIAN SCHOOL MUSCAT
CLASS 12
CHEMISTRY
AMINES

- 1 Which one of the following can be prepared by Gabriel phthalimide synthesis?
 - (a) Aniline
 - (b) o-Toluidine
 - (c) Benzylamine
 - (d) N-Methyl ethanamine

- 2 The order of basic strength of amines in aqueous solution is
 - (a) $(\text{CH}_3)_3\text{N} > (\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2 > \text{NH}_3$
 - (b) $\text{CH}_3\text{NH}_2 > (\text{CH}_3)_2\text{NH} > (\text{CH}_3)_3\text{N} > \text{NH}_3$
 - (c) $\text{NH}_3 > (\text{CH}_3)_3\text{N} > (\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2$
 - (d) $(\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2 > (\text{CH}_3)_3\text{N} > \text{NH}_3$

- 3 Which of the following is a 3° amine?
 - (a) 1-methylcyclohexylamine
 - (b) Triethyl amine
 - (c) tert-butylamine
 - (d) N-methylaniline

- 4 The correct IUPAC name for $\text{CH}_2 = \text{CHCH}_2\text{NHCH}_3$ is
 - (a) Allylmethylamine
 - (b) 2-amino-4-pentene
 - (c) 4-aminopent-1-ene
 - (d) N-methylprop-2-en-1-amine

- 5 Which of the following reagents would not be a good choice for reducing an aryl nitro compound to an amine?
 - (a) H_2 (excess)/Pt
 - (b) LiAlH_4 in ether
 - (c) Fe and HCl
 - (d) Sn and HCl

- 6 Aniline is less basic than ethylamine. This is due to
 - (a) Conjugation of lone pair of nitrogen with the ring
 - (b) The insoluble nature of aniline
 - (c) More K_fc value of aniline
 - (d) Hydrogen bonding

- 7 Hinsberg's reagent is
- (a) $\begin{array}{c} \text{COOC}_2\text{H}_5 \\ | \\ \text{COOC}_2\text{H}_5 \end{array}$ (b) $\text{C}_6\text{H}_5\text{SO}_2\text{Cl}$
- (c) $\text{C}_6\text{H}_5\text{SO}_2\text{NH}_2$ (d) $\text{CH}_3\text{COCH}_2\text{COOC}_2\text{H}_5$
- 8 NH_2 group in aniline is
- (a) Ortho and meta directing
 (b) ortho, para and Meta directing
 (c) Ortho and para directing
 (d) Para directing
- 9 An organic compound A on reduction gives compound B which on reaction with chloroform and potassium hydroxide forms C. The compound C on catalytic reduction gives N-methylaniline. The compound A is
1. nitrobenzene
 2. nitromethane
 3. methylamine
 4. aniline
- 10 An aromatic primary amine with cold nitrous acid leads to the formation of:
- (a) alcohol
 (b) nitrite
 (c) diazonium salt
 (d) benzene
- 11 The nitration of benzene with fuming HNO_3 will give:
- (a) Trinitrobenzene
 (b) 1,3-dinitrobenzene
 (c) picric acid
 (d) 1,4-dinitrobenzene
- 12 The compound obtained by heating a mixture of primary amine and chloroform with ethanolic potassium hydroxide (KOH) is
- (a) an alkyl isocyanide
 (b) an alkyl halide
 (c) an amide
 (d) an amide and nitro compound
- 13 Aromatic amines are ____ bases than ammonia, due to the ____ nature of the aryl group.
- a) stronger, electron donating
 - b) weaker, electron donating
 - c) stronger, electron withdrawing
 - d) weaker, electron withdrawing
 - e)

- 14 Pick out the correct statement regarding Gabriel phthalimide synthesis.
- Gabriel synthesis is used for the preparation of secondary amines.
 - Potassium phthalimide, on heating with alkyl halide gives N-alkylphthalimide.
 - N-Alkylphthalimide, on acidic hydrolysis gives the primary amine.
 - Aryl halides undergo nucleophilic substitution with potassium phthalimide to form the aromatic primary amine.
- 15 The order of basicity of amines in the gaseous phase is ____.
- 3° amine $> 2^\circ$ amine $> 1^\circ$ amine $> \text{NH}_3$
 - $\text{NH}_3 > 3^\circ$ amine $> 2^\circ$ amine $> 1^\circ$ amine
 - 3° amine $< 2^\circ$ amine $< 1^\circ$ amine $< \text{NH}_3$
 - 3° amine $< 2^\circ$ amine $< \text{NH}_3 < 1^\circ$ amine

FILL IN THE BLANKS

- The pK_b of N,N-Dimethyl aniline is _____ than aniline
- $\text{CH}_3\text{CH}_2\text{NH}_2$ has _____ boiling point than $(\text{CH}_3)_2\text{NH}$.
- _____ is the reagent used in Hoffmann Bromamide Degradation reaction
- The gas evolved when methylamine reacts with nitrous acid is _____
- Reduction of aromatic nitro compounds using Fe and HCl gives _____
- Aniline reacts with hydrochloric acid to form _____
- The amides, on reduction with LiAlH_4 , give _____
- Amines have an unshared pair of electrons on nitrogen atom due to which they behave as _____.
- _____ the value of K_b or _____ the value of pK_b , stronger is the base.
- The IUPAC name of $\text{NH}_2\text{-CH}_2\text{-CH}=\text{CH}_2$ is _____.

ASSERTION REASON QUESTIONS

- Assertion: Acetanilide is less basic than aniline.
Reason: Acetylation of aniline results in decrease of electron density on nitrogen.
- Assertion: Only a small amount of HCl is required in the reduction of nitro compounds with iron scrap and HCl in the presence of steam.
Reason: FeCl_2 formed gets hydrolysed to release HCl during the reaction.

MATCH THE FOLLOWING:

1

Column I	Column II
(i) Benzene sulphonyl chloride	(a) Zwitter ion
(ii) Sulphanilic acid	(b) Hinsberg reagent
(iii) Alkyl diazonium salts	(c) Dyes
(iv) Aryl diazonium salts	(d) Unstable

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Column I	Column II
(i) Ammonolysis	(a) Amine with lesser number of carbon atoms
(ii) Gabriel phthalimide synthesis	(b) Detection test for primary amines.
(iii) Hoffmann Bromamide reaction	(c) Reaction of phthalimide with KOH and RX
(iv) Carbylamine reaction	(d) Reaction of alkylhalides with NH ₃