

QB365

Important Questions - Organic Compounds containing Nitrogen (Amines)

12th Standard CBSE

Chemistry

Reg.No. :

--	--	--	--	--	--

Time : 01:00:00 Hrs

Total Marks : 1

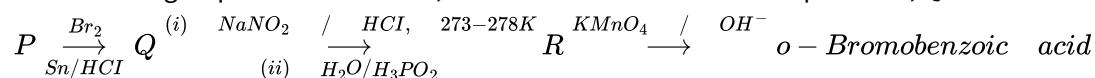
Section - A

- 1) Which of the following is most basic? 1
(a) Benzylamine (b) Aniline (c) Acetanilide (d) p-Nitroaniline
- 2) The source of nitrogen in Gabriel synthesis of amines is..... 1
(a) Sodium azide, NaN_3 (b) Sodium nitrite, NaNO_2 (c) Potassium cyanide, KCN
(d) Potassium phthalimide, $\text{C}_6\text{H}_4(\text{CO})_2\text{N}^-\text{K}^+$
- 3) Nitrobenzene on reaction with conc. $\text{HNO}_3/\text{H}_2\text{SO}_4$ at $80-100^\circ\text{C}$ forms which one of the following products? 1
(a) 1, 4-Dinitrobenzene (b) 1, 2, 4-Trinitrobenzene (c) 1,2-Dinitrobenzene (d) 1, 3-Dinitrobenzene
- 4) Butylamine (I), diethylamine (II) and N, N-dimethylethylamine (III) have the same molar mass. The increasing order of their boiling points is 1
(a) $\text{III} < \text{II} < \text{I}$ (b) $\text{I} < \text{II} < \text{III}$ (c) $\text{II} < \text{III} < \text{I}$ (d) $\text{II} < \text{I} < \text{III}$ (e) $\text{III} < \text{I} < \text{II}$
- 5) The final product in the following sequence of reactions is 1
$$\text{C}_6\text{H}_5\text{NH}_2 \xrightarrow[273-278]{\text{NaNO}_2 / \text{HCl}} \text{A} \xrightarrow{\text{C}_6\text{H}_6/\text{NaOH}} \text{B}$$

(a) $\text{C}_6\text{H}_5\text{N}_2\text{Cl}$ (b) $\text{C}_6\text{H}_5\text{OH}$ (c) $\text{C}_6\text{H}_5 - \text{C}_6\text{H}_5$ (d) $\text{C}_6\text{H}_5\text{N} = \text{NOH}$
- 6) Secondary amines react with aldehydes and ketones containing α -hydrogens to form..... 1
- 7) Carbylamine reaction 1
(1) detection test for primary amines.
- 8) Benzenesulphonyl chloride 1
(2) Hinsberg reagent
- 9) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$ 1
(3) With KOH (alcohol) and CHCl_3 produces bad smell
- 10) $\text{CH}_3\text{C} \equiv \text{CH}$ 1
(4) Gives white ppt. with ammoniacal AgNO_3
- 11) $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$ 1
(5) With Lucas reagent cloudiness appears after 5 minutes

Section - B

- 12) How will you bring about the following conversions? (i) Nitrobenzene to Phenol. (ii) Aniline to Chlorobenzene. 3
- 13) Amino group is o, p-directing for aromatic electrophilic substitution. Why does aniline on nitroaniline? 3
- 14) In the following sequence of reactions, write the structures of the compounds P, Q and R. 3



Section - C

- 15) Give reasons: 2
(i) Electrophilic substitution in aromatic amines takes place more readily than benzene.
(ii) CH_3CONH_2 is a weaker base than $\text{CH}_3\text{CH}_2\text{NH}_2$.

- 16) A compound 'X' having molecular formula C_3H_7NO , reacts with Br_2 in presence of KOH to give another compound 'Y'. The compound Y reacts with NHO_2 to form ethanol and N_2 gas. Identify the compounds X and Y and write the reactions involved. 2
- 17) How will you convert: (i) Benzene into aniline? (ii) Benzene into N, N-dimethylaniline? (iii) $Cl-(CH_2)_4-Cl$ into hexan-1,6-diamine? 2
- 18) Write the structures of A, B and C in the following: 2
- (i) $C_6H_5-CONH_2$
- (ii) $CH_3 - Cl \xrightarrow{KCN} A \xrightarrow{LiAlH_4} b \xrightarrow{CHCl_3+alc.KOH} C$.
- 19) A hydrocarbon 'A' (C_4H_8) on reaction with HCl gives a compound 'B', ($C_4H_{11}N$). On reacting with $NaNO_2$ and HCl followed by treatment with water, compound 'C'. Ozonolysis of 'A' gives 2 moles of acetaldehyde. Identify compounds 'A' to 'D'. Explain the reactions involved. 2

Section - D

- 20) How is 2, 4-dinitrophenylhydrazine prepared from chlorobenzene? 5
- 21) (a) Write the structures of main products when aniline reacts with the following reagents: 5
- (i) Br_2 water
- (ii) HCl
- (iii) $(CH_3CO)_2O$ / pyridine
- (b) Arrange the following in the increasing order of their boiling point:
 $C_2H_5NH_2$, C_2H_5OH , $(CH_3)_3N$
- (c) Give a simple chemical test to distinguish between the following pair of compounds:
 $(CH_3)_2NH$ and $(CH_3)_3N$
- 22) Predict the reagent or the product in the following reaction sequence: 5
- 23) The leakage of the vapors of a highly poisonous gas in Union Carbide India Ltd in Bhopal about 30 years ago was one of the dreadful disaster which people of Bhopal had faced. Thousands lost their lives and many more got crippled for rest of their lives. 5
- (i) What is the chemical name of the poisonous vapours?
- (ii) How it can be synthesized in the laboratory?
- (iii) How did it damage human system?
- (iv) As a student of chemistry what remedial measures do you suggest?
