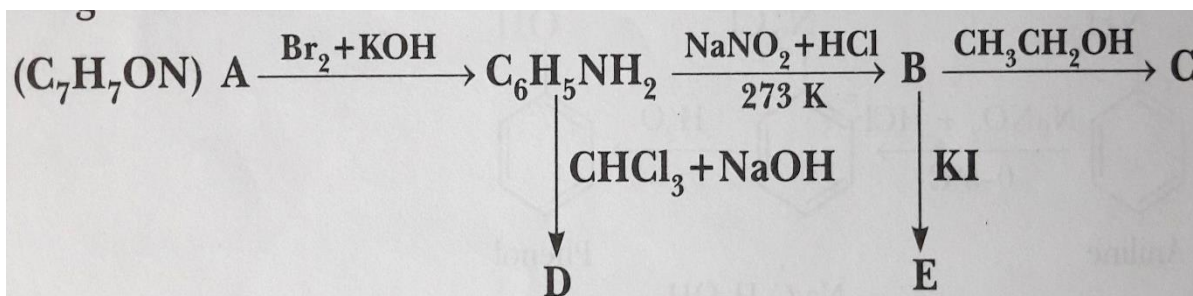


St. Mary's School, Dwarka
Holiday Homework
Class XII
Subject: Chemistry (043)

- Q1. The conversion of primary aromatic amines into diazonium salts are known as 1
- Q2. Write the structure of N-methylethanamine. 1
- Q3. Write the IUPAC name of $\text{H}_2\text{N} - \text{CH}_2 - \text{CH}_2 - \text{CH} = \text{CH}_2$ 1
- Q4. Arrange the following in the decreasing order of basic strength in the gas phase
 $\text{C}_2\text{H}_5\text{NH}_2$, $(\text{C}_2\text{H}_5)_2\text{NH}$, $(\text{C}_2\text{H}_5)_3\text{N}$ and NH_3 . 1
- Q5. Methyalamine in water reacts with ferric chloride to precipitate hydrated ferric oxide.Explain. 2
- Q6. Arrange the following compounds in an increasing order of basic strength in their aqueous solutions
 (i) NH_3 , CH_3NH_2 , $(\text{CH}_3)_2\text{NH}$, $(\text{CH}_3)_3\text{N}$
 (ii) NH_3 , $\text{C}_2\text{H}_5\text{NH}_2$, $(\text{C}_2\text{H}_5)_2\text{NH}$, $(\text{C}_2\text{H}_5)_3\text{N}$ 2
- Q7. Give the structures of products
 $\text{CH}_3\text{CH}_2\text{Br} \xrightarrow{\text{KCN}}$ A $\xrightarrow{\text{LiAlH}_4}$ B $\xrightarrow{\text{HNO}_2, 0^\circ\text{C}}$ C $\xrightarrow{\text{Na}}$ D 2
- Q8. Write the IUPAC name of compounds
 (i) $\text{CH}_3 - \text{CHOH} - \text{CO} - \text{CH}_3$
 (ii) $\text{CH}_3 - \text{CH}(\text{NH}_2) - \text{CH}_2 - \text{CHO}$ 2
- Q9. How do you convert the following?
 (i) $\text{C}_6\text{H}_5\text{NH}_2$ to $\text{C}_6\text{H}_5\text{NH}_2$
 (ii) Aniline to phenol
 (iii) Ethanenitrile to ethanamine 3
- Q10. Write the chemical equations involved when aniline is treated with the following reagents :
 (i) Br_2 water
 (ii) $\text{CHCl}_3 + \text{KOH}$
 (iii) HCl 3
- Q11. Give reasons for the following:
 (i) Aniline does not undergo Friedel-Crafts reaction.
 (ii) p-methylaniline is more basic thanp-nitroaniline.
 (iii) Acetylation of $-\text{NH}_2$ group is done in aniline before preparing its ortho and para compounds. 3

- Q12. Write the structures of the main products when benzene diazonium chloride reacts with the following reagents:
 (i) $\text{H}_3\text{PO}_2 + \text{H}_2\text{O}$ (ii) CuCN/KCN (iii) Cu/HBr 3
- Q13. Illustrate the following reactions giving suitable example in each case:
 (i) Gabriel phthalimide synthesis
 (ii) Balz-Schiemann reaction
 (iii) Sulphonation of aniline 3
- Q14. Give chemical equations for the following conversions:
 (i) Nitrobenzene to benzoic acid
 (ii) Benzyl chloride to 2-phenylethanamine.
 (iii) Aniline to benzyl alcohol 3
- Q15. State reasons for the following:
 (i) pK_b value for aniline is more than that for methylamine.
 (ii) Ethyl amine is soluble in water whereas aniline is not soluble in water.
 (iii) Primary amines have higher boiling points than tertiary amines. 3
- Q16. Give one chemical test to distinguish between the compounds in the following pairs:
 (i) Methylamine and dimethylamine
 (ii) Aniline and benzylamine
 (iii) Ethylamine and aniline 3
- Q17. Vedanta is a student of Chemistry. One day, his supervisor sent him to perform an experiment for the preparation of primary and secondary amines using alkyl halide as a starting material. He started the experiment and completed the reaction properly, but he did not get a good yield of primary and secondary amines. He chose another method and found the desired result.
 Answer the following questions.
 (i) Which type of reaction was Vedanta going to perform?
 (ii) Write all the possible products of the above reaction.
 (iii) Can you choose a more precise method for the preparation of primary amine as a product mainly?
 (iv) What values did you obtain? 4

Q18. Write the structures of A, B, C, D and E in the following reactions:



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Q19. (a) In the following cases rearrange the compounds as directed

(i) In an increasing order of basic strength

$\text{C}_6\text{H}_5\text{NH}_2$, $\text{C}_6\text{H}_5\text{N}(\text{CH}_3)_2$, $(\text{C}_2\text{H}_5)_2\text{NH}$ and CH_3NH_2

(ii) In a decreasing order of basic strength

Aniline, p-nitroaniline and p-toluidine

(iii) In an increasing order of pK_b values

$\text{C}_2\text{H}_5\text{NH}_2$, $\text{C}_6\text{H}_5\text{NHCH}_3$, $(\text{C}_2\text{H}_5)_2\text{NH}$ and $\text{C}_6\text{H}_5\text{NH}_2$

(b) Why is benzene diazonium chloride not stored and is used immediately after its preparation?

(c) Diazonium salts of aromatic amines are more stable than those of aliphatic amines.

Explain.

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