Saitech Informatics

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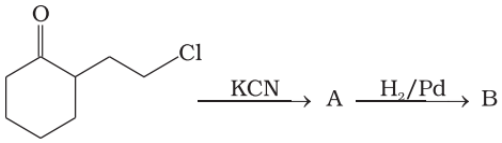
AMINES - CENTUM CYCLIC UNIT TEST

Class 12 - Chemistry

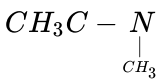
Time Allowed: 1 hour and 30 minutes **Maximum Marks: 45**

1. Draw the structure of prop-2-en-1-amine. **[1]**
2. Choose the primary amine from the following compounds: **[1]**

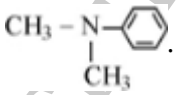
   $(C_2H_5)_2CHNH_2$, $(C_2H_5)_2NH$, $(CH_3)_3N$
3. Identify A and B in the following reaction. **[1]**



4. Write the IUPAC name of the following compound: **[1]**



5. Why are amines less acidic than alcohols of comparable molecular masses? **[1]**
6. Why does amino group in aniline act as a powerful activator and ortho and para directing towards electrophilic substitution? **[1]**
7. Arrange the following in increasing order of their basic strength in aqueous solution: **[1]**

   CH_3NH_2, $(CH_3)_3N$,$(CH_3)_2NH$.
8. Write the IUPAC name of  . **[1]**
9. Accomplish the following conversion: Aniline to p-bromoaniline. **[1]**
10. Primary amines have higher boiling points than tertiary amines. **[1]**
11. How will you convert:: **[3]**
    i. Benzene diazonium chloride to nitrobenzene.
    ii. Aniline to benzene diazonium chloride.
    iii. Ethyl amide to methylamine.
12. Write equations involved in the following reactions: **[3]**
    i. Ethanamine reacts with acetyl chloride.
    ii. Aniline reacts with bromine water at room temperature.
    iii. Aniline reacts with chloroform and ethanolic potassium hydroxide.
13. Arrange the following compounds as directed: **[3]**
    i. In increasing order of solubility in water:
    $(CH_3)_2NH$, CH_3NH_2, $C_6H_5NH_2$
    ii. In decreasing order of basic strength in aqueous solution:
    $(CH_3)_3N$, $(CH_3)_2NH$, CH_3NH_2

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iii. In increasing order of boiling point:

$(C_2H_5)_2NH$, $(C_2H_5)_3N$, $C_2H_5NH_2$

14. Give reasons: **[3]**

i. Ammonolysis of alkyl halides is not a good method to prepare pure primary amines.

ii. Aniline does not give Friedel-Crafts reaction.

iii. Although $-NH_2$ group is o/p directing in electrophilic substitution reactions, yet aniline on nitration gives good yield of m-nitroaniline.

15. A compound **A** on reduction with iron scrap and hydrochloric acid gives compound **B** with molecular formula C_6H_7N. Compound **B** on reaction with $CHCl_3$ and alcoholic KOH produces an obnoxious smell of carbylamine due to the formation of **C**. Identify **A**, **B** and **C** and write the chemical reactions involved. **[3]**

16. How will you convert: **[5]**

i. Ethanoic acid into methanamine

ii. Hexanenitrile into 1-aminopentane

iii. Methanol to ethanoic acid

iv. Ethanamine into methanamine

v. Ethanoic acid into propanoic acid

17. Draw structure for the following compounds: **[5]**

a. p-toluidine

b. N-isopropylaniline

c. t-butylamine

d. p-fluoroaniline

e. P-tert-butylaniline

18. i. Illustrate the following reactions giving suitable example in each case: **[5]**

a. Ammonolysis

b. Coupling reaction

c. Acetylation of amines

ii. Describe Hinsberg method for the identification of primary, secondary and tertiary amines. Also, write the chemical equations of the reactions involved.

19. i. Tert-Butylamine cannot be prepared by the action of NH_3 on tert-butyl bromic. Explain why? **[5]**

ii. Suggest a convenient method for the preparation of tert-butylamine.

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