Class 12 Chemistry · Chapter 9: Amines

Worksheet · 20 marks · about 40 minutes · based on NCERT

Name _____ Class and section _____ Date _____

Scan for the free Class 12 Chemistry test

1. Which of these amines can be prepared by the Gabriel phthalimide synthesis? [1]

(a) 2-phenylethanamine (b) N-methylpropan-1-amine
(c) 4-methylaniline (d) N,N-dimethylethanamine

2. Which of the following isomers of $C_5H_{13}N$ has the highest boiling point? [1]

(a) N,N-dimethylpropan-1-amine (b) N-methylbutan-1-amine
(c) pentan-1-amine (d) N-ethyl-N-methylethanamine

3. Pentanamide, $CH_3(CH_2)_3CONH_2$, is warmed with bromine and aqueous sodium hydroxide. The organic product is [1]

(a) butan-1-amine (b) pentan-1-amine
(c) butanenitrile (d) sodium pentanoate

4. An aromatic amine C_7H_9N has $-NH_2$ and $-CH_3$ on the benzene ring, para to each other. Its IUPAC name is [1]

(a) phenylmethanamine (b) 2-methylaniline
(c) N-methylaniline (d) 4-methylaniline

5. The IUPAC name of $CH_3CH_2CH_2-NH-CH_2CH_3$ is [1]

(a) N-propylethanamine (b) N-ethylpropan-2-amine
(c) ethylpropylamine (d) N-ethylpropan-1-amine

6. (a) Draw the structure of N-ethyl-N-methylpropan-1-amine and classify it as primary, secondary or tertiary. (b) A primary amine isomeric with it has an unbranched six-carbon chain with the $-NH_2$ group on the third carbon. Write its structure and IUPAC name. [2]

7. The $-NHCOCH_3$ group of acetanilide activates the benzene ring less than the $-NH_2$ group of aniline. Explain, showing the resonance involved. [2]

8. Using the stability of the cation formed, explain why ethanamine is a stronger base than ammonia. [2]

Every question original, written from NCERT, checked by a second reviewer · photocopy freely for your class

9. Starting from 1-bromopropane: (a) write equations to prepare propan-1-amine free of secondary and tertiary amines; (b) state what heating 1-bromopropane with ethanolic ammonia in a sealed tube would give, and why. (c) To make the reaction in (b) go faster, would you replace 1-bromopropane by 1-chloropropane or by 1-iodopropane? Give the order of reactivity on which you decide. [3]

10. In water, trimethylamine is a weaker base than methanamine, but triethylamine is a stronger base than ethanamine. Show how the inductive effect, solvation and steric hindrance bear on this, and write the order of basic strength in water of the three ethylamines and ammonia. [3]

11. How would you obtain each of the following from 4-chloroaniline? Give reagents and conditions. (a) 1,4-dichlorobenzene (b) 4-chlorophenol (c) chlorobenzene [3]

Every question original, written from NCERT, checked by a second reviewer · photocopy freely for your class