

Class 12 Chemistry Chapter 13 Amines MCQs

1. What is the most basic aromatic amine's common name?

- a) Benzenamine
- b) Benzylamine
- c) Aniline
- d) Aminobenzene

Answer: c

Explanation: The simplest amine is aniline, which has the formula $C_6H_5NH_2$. This name is also recognised by the IUPAC. The IUPAC designation for it is benzenamine, although it's also known as aminobenzene.

2. What is the correct name for a molecule that has two amino groups in opposing (para) locations around a benzene ring?

- a) Benzenediamine
- b) Benzene-1,4-diamine
- c) p-Aminoaniline
- d) 4-Aminobenzenamine

Answer: b

Explanation: Both amino groups (in para positions to one other) are given equal weight and the primary complex is given the prefix di. The prefix is also numbered 1 and 4, indicating the places in the benzene ring where amino groups are present.

3. When acetamide is converted to methylamine, what is the name of the reaction?

- a) Friedel-Crafts reaction
- b) Hofmann reaction
- c) Hofmann bromamide reaction

d) Hinsberg reaction

Answer: c

Explanation: When bromine is added to an amide in an aqueous or ethanolic sodium hydroxide solution, the amide degrades, resulting in the creation of primary amine. Hoffmann bromamide degradation reaction is a reaction that involves the degradation of an amide.

4. For which of the following is the Hinsberg approach used?

- a) Preparation of primary amines
- b) Separation of amine mixtures
- c) Preparation of tertiary amines
- d) Preparation of secondary amines

Answer: b

Explanation: The Hinsberg reaction is a test for primary, secondary, and tertiary amine detection. The amine is thoroughly shaken with Hinsberg reagent in the presence of aqueous alkali in this test (either KOH or NaOH). A substrate is treated with a reagent containing an aqueous sodium hydroxide solution and benzenesulfonyl chloride.

5. Which of the following is the IUPAC name of the chemical in which an ethyl group replaces one hydrogen of ammonia?

- a) Ethanamine
- b) Aminoethane
- c) Ethylamine
- d) Ethane amine

Answer: a

Explanation: According to the common system and the second system, $\text{CH}_3\text{CH}_2\text{NH}_2$ is known as ethylamine and aminoethane, respectively. In the IUPAC system, the amine is substituted for the 'e' of the alkane.

6. The aromatic primary amine with the formula $\text{C}_7\text{H}_9\text{N}$ has an incorrect name.

- a) Phenylaminomethane
- b) Benzylamine
- c) Benzenamine
- d) Phenylmethanamine

Answer: c

Explanation: The phenyl group C_6H_5 must be present with CH_4N because it is an aromatic molecule. Because it's a primary amine, the NH_2 group can be separated, leaving CH_2 . The compound's formula is $C_6H_5CH_2NH_2$, which stands for benzylamine. $C_6H_5NH_2$ is the formula for benzenamine.

7. Which test can tell the difference between p-chloroaniline and anilinium hydrochloride?

- a) Sandmeyer reaction
- b) Carbylamine test
- c) $AgNO_3$
- d) $NaHCO_3$

Answer: d

Explanation: An acid salt, anilinium hydrochloride, liberates CO_2 from $NaHCO_3$. However, because p-chloro aniline is basic rather than acidic, it does not release CO_2 . Because p-chloro aniline lacks ionic chlorine, it does not produce white ppt when combined with $AgNO_3$.

8. By reacting with which of the following, primary amines can be separated from secondary and tertiary amines?

- a) Chloroform alone
- b) Methyl iodide
- c) Chloroform and alcoholic KOH
- d) Zinc dust

Answer: c

Explanation: Secondary and tertiary amines do not react with CHCl_3 and alc. KOH generates isocyanide, whereas primary amine does.

9. Which of the following statements concerning methylamine is correct?

- a) Methyl amine is stronger base than NH_3
- b) Methyl amine is less basic than NH_3
- c) Methyl amine is slightly acidic
- d) Methyl amine forms salts with alkali

Answer: a

Explanation: Due to the +I effect, the presence of an alkyl group enhances the electron density on the nitrogen atom. As a result, basic nature grows.

10. Which of these substances has a lower melting point than amine?

- a) Alcohol
- b) Ether
- c) Carboxylic acid
- d) Phosphine

Answer: d

Explanation: The characteristics of primary and secondary amines are influenced by hydrogen bonding. As a result, amines have greater melting and boiling points than the comparable phosphines, but are often lower than the corresponding alcohols and carboxylic acids, ether.