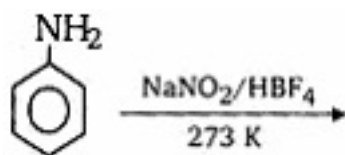
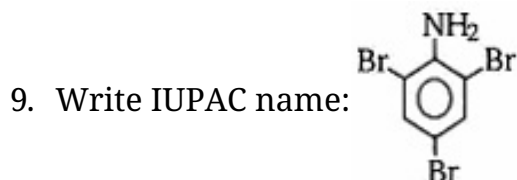


CBSE Test Paper - 04
Class - 12 Chemistry (Amines)

1. Which of the following is a tertiary amine _____
 - a. N-ethyl-1-propanamine
 - b. 3-pentanamine
 - c. N,N-dimethylaniline
 - d. cyclohexylamine
2. Diazonium salts are used in the preparation of
 - a. Proteins
 - b. Hormones
 - c. Vitamins
 - d. Dyes
3. When a 1° amine reacts with an alkyl sulfonyl chloride, the major organic product is _____.
 - a. a sulfoxide
 - b. None of these
 - c. a sulphonamide
 - d. a nitrile
4. p – toluenesulphonyl chloride does not react with
 - a. Secondary amine
 - b. Tertiary amines
 - c. Primary amine
 - d. None of these
5. Which of the following compound give dye test?
 - a. Diphenylamine
 - b. Methylamine
 - c. N-ethylpropan-1-amine
 - d. Aniline
6. Give one use of quaternary ammonium salts.
7. Complete the following reaction:



8. Write the IUPAC name of : $\text{C}_6\text{H}_5 - \text{CH}_2\text{CH}_2\text{NH}_2$



10. Why do primary amines have higher boiling point than tertiary amines?
11. Why aromatic primary amines cannot be prepared by Gabriel phthalimide synthesis?
12. How will you convert:
 - i. Benzene diazonium chloride to nitrobenzene.
 - ii. Aniline to benzene diazonium chloride.
 - iii. Ethyl amide to methylamine.
13. Explain the following observations:
 - a. Electrophilic substitution in case of aromatic amines takes place more readily than benzene.
 - b. Mention two important uses of N, N- Dimethylamine (DMA).
14. How would you achieve the following conversion:
 - i. Nitrobenzene to aniline
 - ii. An alkyl halide to a quarternary ammonium salt.
 - iii. Aniline to benzonitrile.
15. Write structures of different isomers corresponding to the molecular formula, $\text{C}_3\text{H}_9\text{N}$.
Write IUPAC names of the isomers which will liberate nitrogen gas on treatment with nitrous acid.

CBSE Test Paper - 04
Class - 12 Chemistry (Amines)
Solutions

1. (c) N, N-dimethylaniline

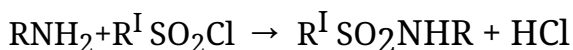
Explanation: In N,N-dimethylaniline, the Nitrogen atom is connected to 3 carbon atoms, therefore it is a tertiary amine.

2. (d) Dyes

Explanation: Diazonium salt on reaction with other aromatic compounds produces dyes.

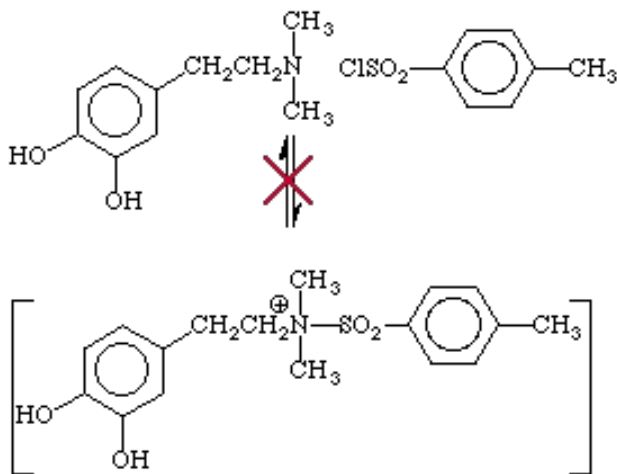
3. (c) a sulphonamide

Explanation: Sulphonyl chloride reacts with the primary amine to form sulphonamide.



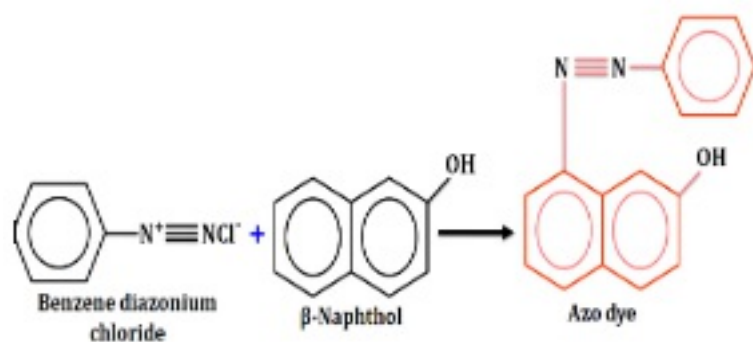
4. (b) Tertiary amines

Explanation: This is because there is no hydrogen in tertiary amine to be substituted by sulphonyl group.

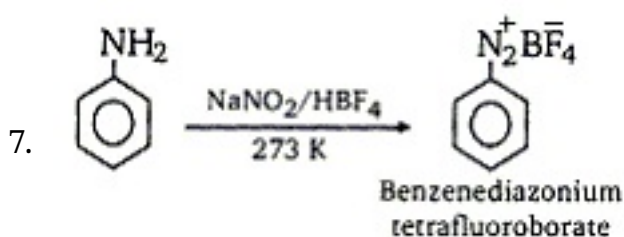


5. (d) Aniline

Explanation: Azo-dye test is given by primary aromatic amines. Primary aromatic amines react with nitrous acid to form diazonium salt which undergoes a coupling reaction with beta-naphthol to give orange dye.



6. Quaternary ammonium salts are used as surfactants.

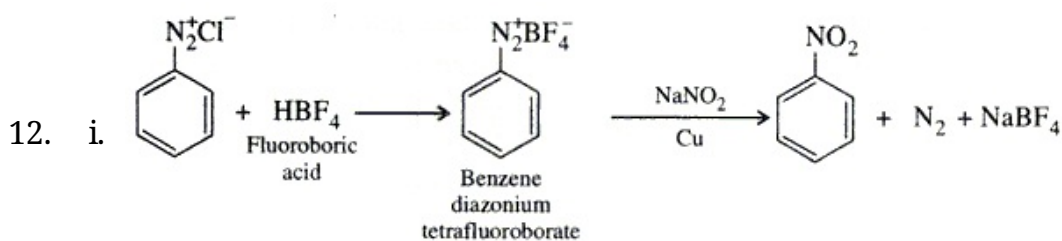


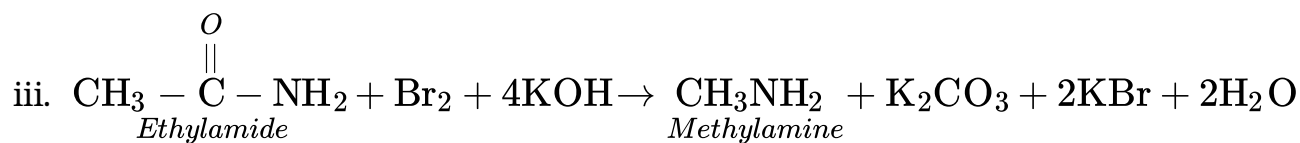
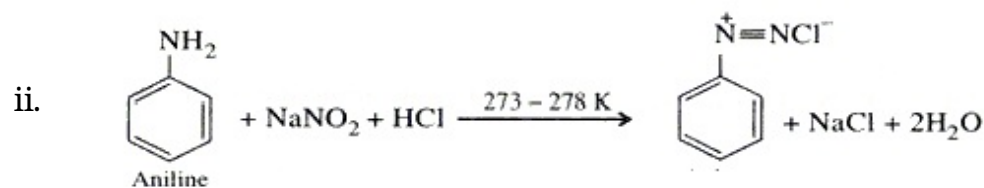
8. 2-phenylethanamine

9. 2, 4, 6-Tribromobenzamine.

10. Due to the presence of two hydrogen atoms with nitrogen atom of primary amines, they undergo extensive intermolecular hydrogen bonding while tertiary amines due to absence of the hydrogen atoms with the nitrogen atom do not undergo hydrogen bonding. As a result, primary amines have higher boiling points than tertiary amines of comparable molecular masses.

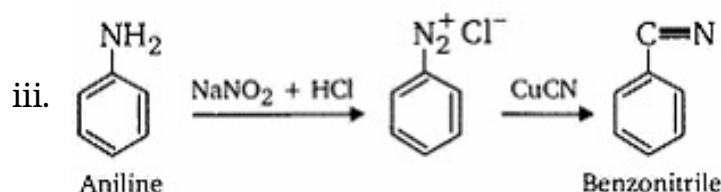
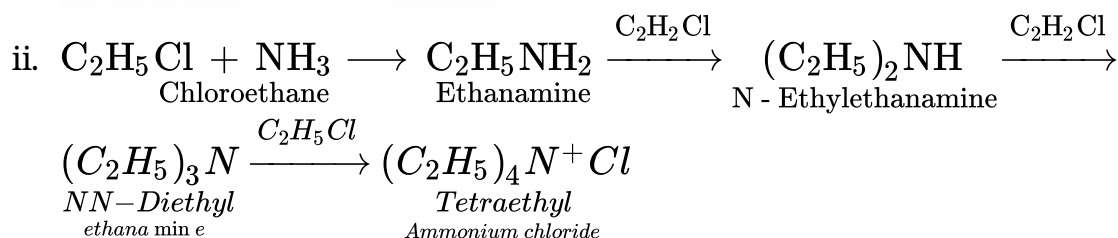
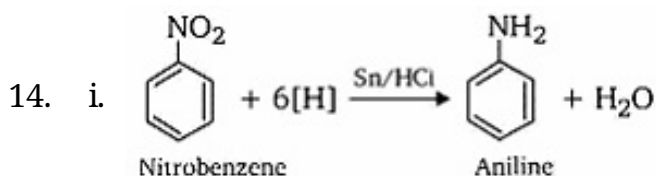
11. Aromatic primary amines cannot be prepared by Gabriel phthalimide synthesis because aryl halides do not undergo nucleophilic substitution with the anion formed by phthalimide.





13. a. It is because $-\text{NH}_2$ group is electron releasing group which increases electron density on a benzene ring and there is more electron density at o- and p- position in resonating structures of aniline. Thus, it activates the benzene ring for electrophilic substitution.

- b. i. It is used for the manufacture of dyes.
 ii. It is used for the manufacture of drugs.



15. The structures of different isomers corresponding to the molecular formula $\text{C}_3\text{H}_9\text{N}$ are given below:

Primary amines, (a) propan-1-amine, and (b) Propan-2-amine will liberate nitrogen gas on treatment with nitrous acid.

