

CBSE Class 12 Chemistry Chapter 13 Amines Worksheet – Set 3

Q1. How many isomeric amines can have the formula $C_4H_{11}N$?

- (a) Five
- (b) Six
- (c) Seven
- (d) None of the above

Q2. What is the hybridisation of the nitrogen atom in piperidine?

- (a) sp
- (b) sp²
- (c) sp³
- (d) None of the above

Q3. Dimethyl amine reacts with nitrous acid to produce

- (a) (CH₃)₂NNO
- (b) CH₃OH
- (c) $N_2^+CH_3OH$
- (d) None of the above

Q4. Benzene diazonium chloride reacts with hypophosphorous acid to produce

- (a) Phenol
- (b) Benzene
- (c) Cyano benzene
- (d) None of the above

Q5. Aniline produces a Schiff base on reaction with

- (a) Ammonia
- (b) Acetyl chloride
- (c) Benzaldehyde
- (d) None of the above

Q6. Write the IUPAC and common name of the following compound.

$$C_2H_5 \longrightarrow CH_3 \\ | CH_3$$

Q7. Draw the structure of N-Ethyl-4- isopropyl- N- methyl aniline.

Q8. Complete the following reaction.

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Q9. Convert p- toluidine diazonium chloride to p- toluic acid.

Q10. Why can tertiary butyl amine not be prepared by the action of ammonia on tertiary butyl bromide?

Q11. Why is aryldiazonium ion more stable than alkyl diazonium ion?

Q12. Why is p-methoxy aniline a stronger base than aniline but p-nitroaniline is a weaker base than aniline?

Q13. Why can't we prepare aniline by the Gabriel Phthalimide reaction?

Q14. Why are sulphanilic salts insoluble in water and organic solvents?

Q15. Why is an amide more acidic than an amine?

Q16. Which is a more basic PhNH₂ or Ph₂NH?

Q17. An optically inactive compound (A) having the molecular formula $(C_4H_{11}N)$ on treatment with HNO₂ gave alcohol (B). (B) on heating at 410 K gave an alkene (C). (C) on treatment with HBr gave an optically active compound (D) having the molecular formula C_4H_9Br . Identify A, B, C and D and write down their structural formulae. Also, write the equations involved.

Q18. An organic compound A (C_3H_5N) on boiling with alkali gives ammonia and sodium salt of an acid B ($C_3H_6O_2$). A on reduction gives C (C_3H_9N) which with nitrous acid gives D (C_3H_8O). Give the structural formulae of A, B, C and D and the reactions involved.

Q19. Identify A, B and C in the following reaction.

 $\begin{array}{c} (i) \ CH_{3}Br \xrightarrow{KCN} A \xrightarrow{LiAlH_{4}} B \xrightarrow{HNO_{2}} C \\ (ii) \ CH_{3}COOH \xrightarrow{NH_{3}} A \xrightarrow{Br_{2}+KOH} B \xrightarrow{CHCl_{3}+NaOH} C \\ (iii) \ CH_{3}CN \xrightarrow{H_{2}O/OH^{-}} A \xrightarrow{NH_{3}} B \xrightarrow{Br_{2}+KOH} C \end{array}$

Q20. How will you convert?

(a) Benzene to Aniline

(b) Benzoic acid to Aniline

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