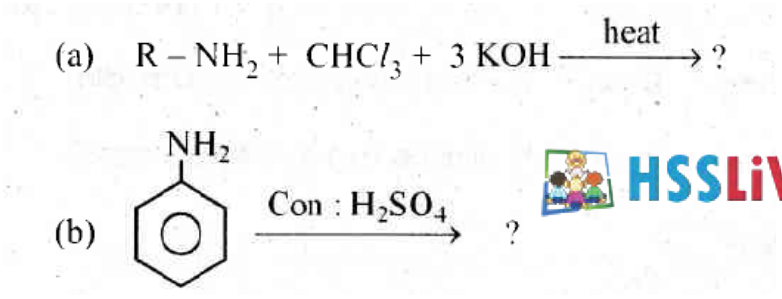
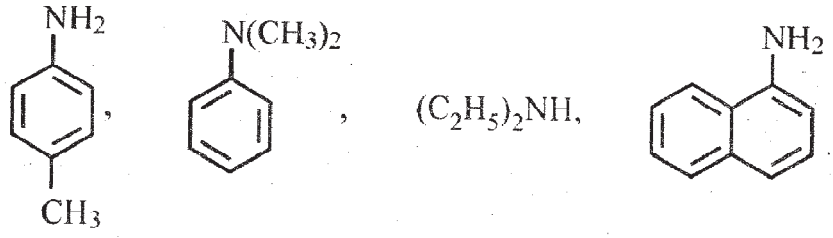
Previous HSE questions from the chapter " Amines"

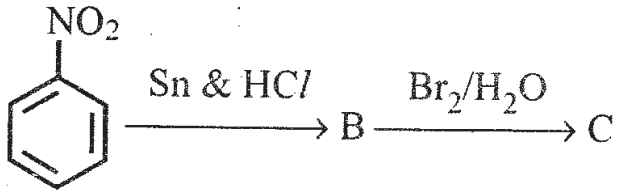
1. Gabriel synthesis is used for the preparation of which type of amines?
   i) Primary ii) Secondary iii) Tertiary iv) Quaternary (1)
2. Complete the following equations:



   (2) [SAY 2018]
3. Name the test used to identify primary amines using $CHCl_3$ and ethanolic KOH. (1)
4. How can it convert methyl iodide to ethanamine? (2) [March 2018]
5. a) The most basic compound among the following is:
   i) $C_2H_5NH_2$ ii) $C_6H_5NH_2$ iii) NH_3 iv) $(C_2H_5)_2NH$ (1)
   b) Compound A is treated with Ethanolic NaCN to give the compound C_2H_5CN (B). Compound B on reduction gives compound C. Identify compounds A and C. (2) [SAY 2017]
6. a) Classify the following amines as primary, secondary and tertiary:



   (1)
   b)



   Identify the products B and C write their formulae. (2) [March 2017]
7. Amines are basic in nature.
   a) Arrange the following compounds in the increasing order of their basic strength.
   NH_3, $C_2H_5NH_2$, $C_6H_5NH_2$, $(C_2H_5)_2NH$ (1)
   b) How will you convert aniline to chlorobenzene? (2) [SAY 2016]
8. Amines are classified as primary, secondary and tertiary amine.
   a) Represent the structure of secondary and tertiary amine. (1)
   b) How will you convert nitrobenzene to aniline? (1)
   c) Aniline does not undergo Friedel-Crafts reaction. Why? (1) [March 2016]
9. a) Aromatic and aliphatic amines are basic in nature like ammonia. Arrange the following compounds in the increasing order of their basic strength: CH_3-NH_2, $(CH_3)_2NH$, NH_3, C_6H_5-NH_2 (1)

b) How will you carry out the following reactions?

i) Hoffmann bromamide reaction ii) Carbyl amine reaction (2) [SAY 2015]

10. Amines are classified as primary, secondary and tertiary.

a) Write the IUPAC name of the following compound: $H_2N\text{-}(CH_2)_6\text{-}NH_2$ (1)

b) Which is stronger base: $CH_3\text{-}NH_2$ or $C_6H_5\text{-}NH_2$? Why? (2) [March 2015]

11. a) Write a method of preparation of primary amines. (1)

b) Describe a chemical reaction given only by primary amines. (1)

c) What is diazotization?(1) [March 2014]

12. a) Amines are basic. Arrange the following amines in the increasing order of base strength.

$CH_3\ NH_2$, $(CH_3)_2NH$, $(CH_3)_3N$, $C_6H_5NH_2$. (1)

b) Two well known reactions are given below:

Suggest the main product of each reaction.

i) $CH_3NH_2 \xrightarrow{CHCl_3 + \text{alc. KOH}}$

ii) $CH_3CONH_2 \xrightarrow{Br_2 + NaOH}$ (1 X 2 = 2) [SAY 2014]

13. Amines can be considered as derivatives of ammonia.

a) Arrange the following amines in increasing order of their basic strength.

$C_6H_5NH_2$, $C_2H_5NH_2$, $(C_2H_5)_2NH$, NH_3. (1)

b) Represent a reaction to explain the basic character of aniline. (1)

c) Name the reagents used in the Hoffmann bromamide reaction. (½)

d) What is the significance of the above reaction? (½)

e) Give one chemical test to distinguish between methyl amine and dimethyl amine. Write down the chemical reaction. (1) [SAY 2013]

14. Amines are basic in nature.

a) Arrange the following compounds in the increasing order of their basic strength.

NH_3, $C_6H_5\ NH_2$, $CH_3\text{ - }NH_2$, $(CH_3)_2NH$, $(CH_3)_3N$. (1)

b) How will you convert aniline ($C_6H_5NH_2$) to chlorobenzene? (2) [March 2013]

15. Primary, secondary and tertiary amines can be distinguished by using Hinsberg's reagent.

i) What is Hinsberg's reagent?

ii) How will you distinguish primary, secondary and tertiary amines using this reagent? (3) [March 12]

16. a) Carbyl amines have an offensive smell.

i) Write the carbyl amine reaction. (1)

ii) How will you convert aniline to phenol? (1)

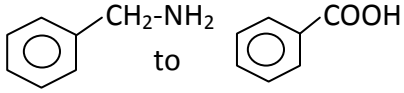
b) How will you convert an amide into following?

i) An amine with one carbon atom less than that of the amide. (1)

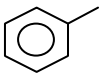
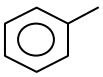
ii) An amine containing same number of carbon atom as that in the amide. (1) [SAY 2012]

17. Amines are versatile functional group useful in the preparation of many organic compounds.

How can you convert?

i) 

(1)

ii)  COOH to  NH_2 (2) [March 2011]

18. a) A student tried to prepare p-nitroaniline by nitrating Aniline with Conc. HNO_3 – Conc. H_2SO_4 mixture. But he got only m-nitroaniline. Why? (1½)
    b) Explain how he should proceed to get p-nitroaniline from aniline. (1½) [March 2011]
19. Aniline is an aromatic primary amine. Starting with aniline a number of organic compounds can be prepared.
    a) How is aniline converted to benzene diazonium chloride? (1)
    b) How are the following obtained from benzene diazonium chloride?
    i) Chlorobenzene ii) Phenol (2) [SAY 2011]
20. Aromatic amines are important synthetic intermediates.
    a) What are the products obtained when aniline is treated with bromine water? (1)
    b) How will you convert nitrobenzene to aniline? (1)
    c) Write down the isocyanide test for the primary amines. (1) [March 2010]
21. A student was asked to convert nitrobenzene to benzene. Teacher suggested that he should first treat nitrobenzene with Sn and HCl and then proceed with the product obtained to get benzene. Write down the reaction involved in the above process. (3) [March 2009]

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