

Amines

1. In order to prepare a 1° amine from an alkyl halide with simultaneous addition of one CH₂ group in

the carbon chain, the reagent used as source of nitrogen is:

- (a) Sodium amide, NaNH₂
- (b) Sodium azide, NaN₃
- (c) Potassium cyanide, KCN
- (d) Potassium phthalimide, C₆H₄(CO)₂N-K⁺

Answer: (c) Potassium cyanide, KCN

2. Which of the following is formed when an alkyl primary amine reacts with nitrous acid?

- (a) Alkyl nitrite
- (b) Secondary amine
- (c) Nitroalkane
- (d) Alcohol

Answer: (d) Alcohol

3. Which of the following reagents would not be a good choice for reducing an aryl nitro compound to

an amine?

- (a) H₂ (excess)/Pt
- (b) LiAlH₄ in ether
- (c) Fe and HCl
- (d) Sn and HCl

Answer: (b) LiAlH₄ in ether

4. The conversion of benzene diazonium chloride to bromobenzene can be accomplished by

- (a) Reimer-Tiemann reaction
- (b) Friedel-Crafts reaction
- (c) Gattermann reaction
- (d) Azo-Coupling reaction

Answer:(c) Gattermann reaction

5.Which of the following amines are insoluble in water?

- (a) Methanamine
- (b) Ethanamine
- (c) Propanamine
- (d) Benzenamine

Answer:(d) Benzenamine

6.The best reagent for converting 2-phenylpropanamide into 2-phenylpropanamine is:

- (a) excess H_2
- (b) Br_2 in aqueous NaOH
- (c) iodine in the presence of red phosphorus
- (d) $LiAlH_4$ in ether

Answer:(d) $LiAlH_4$ in ether

7.Amongst the given set of reactants, the most appropriate for preparing 2° amine is:

- (a) 2° $R-Br + NH_3$
- (b) 2° $R-Br + NaCN$ followed by H_2/Pt
- (c) 1° $R-NH_2 + RCHO$ followed by H_2/Pt
- (d) 1° $R-Br$ (2 mol) + potassium phthalimide followed by H_3O^+ /heat

Answer:(c) 1° $R-NH_2 + RCHO$ followed by H_2/Pt

8.Which of the following statements about primary amines is 'false'?

- (a) Alkylamines are stronger bases than arylamines.
- (b) Alkylamines are stronger bases than ammonia.

(c) Alkylamines react with nitrous acid to produce alcohols.

(d) Arylamines react with nitrous acid to produce phenols

Answer:(d) Arylamines react with nitrous acid to produce phenols

9.Reduction of $\text{CH}_3\text{CH}_2\text{NC}$ with hydrogen in presence of Ni or Pt as catalyst gives

(a) $\text{CH}_3\text{CH}_2\text{NH}_2$

(b) $\text{CH}_3\text{CH}_2\text{NHCH}_3$

(c) $\text{CH}_3\text{CH}_2\text{NHCH}_2\text{CH}_3$

(d) $(\text{CH}_3)_3\text{N}$

Answer:(b) $\text{CH}_3\text{CH}_2\text{NHCH}_3$

10.The correct IUPAC name for $\text{CH}_2=\text{CHCH}_2\text{NHCH}_3$ is

(a) Allylmethylamine

(b) 2-amino-4-pentene

(c) 4-aminopent-1-ene

(d) N-methylprop-2-en-1-amine

Answer:(d) N-methylprop-2-en-1-amine

11.The best reagent for converting, 2-phenylpropanamide into 1-phenylethanamine is:

(a) excess H_2/Pt

(b) NaOH/Br_2

(c) $\text{NaBH}_4/\text{methanol}$

(d) $\text{LiAlH}_4/\text{ether}$

Answer:(b) NaOH/Br_2

12.Amongst the following, the strongest base in aqueous medium is:

(a) CH_3NH_2

(b) NCCH_2NH_2

(c) $(\text{CH}_3)_2\text{NH}$

(d) $\text{C}_6\text{H}_5\text{NHCH}_3$

Answer:(c) $(\text{CH}_3)_2\text{NH}$

13.Hoffmann bromamide degradation is used for the preparation of

- (a) primary amines
- (b) secondary amines
- (c) tertiary amines
- (d) secondary aromatic amines

Answer:(a) primary amines

14.Which of the following does not react with Hinsberg reagent?

- (a) $\text{C}_2\text{H}_5\text{NH}_2$
- (b) $(\text{CH}_3)_2\text{NH}$
- (c) $(\text{CH}_3)_3\text{N}$
- (d) $\text{CH}_3\text{CH}(\text{NH}_2)\text{CH}_3$

Answer:(c) $(\text{CH}_3)_3\text{N}$

15.The source of nitrogen in Gabriel synthesis of amines is:

- (a) Sodium azide, NaN_3
- (b) Sodium nitrite, NaNO_2
- (c) Potassium cyanide, KCN
- (d) Potassium phthalimide, $\text{C}_6\text{H}_4(\text{CO})_2\text{N-K}^+$

Answer:(d) Potassium phthalimide, $\text{C}_6\text{H}_4(\text{CO})_2\text{N-K}^+$