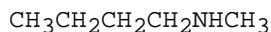
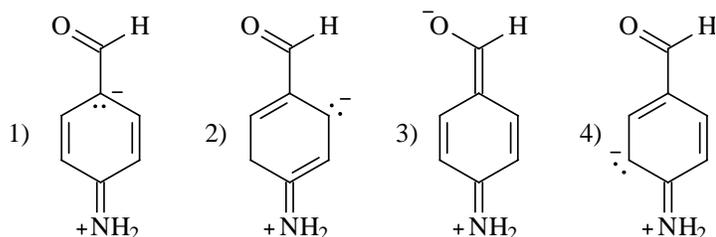


1. What is an acceptable name of the following compound?



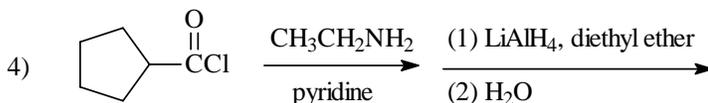
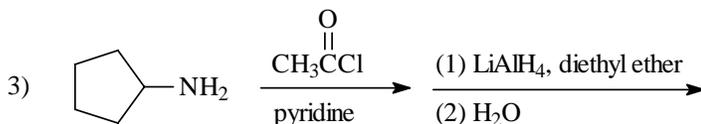
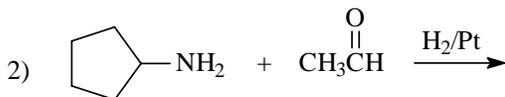
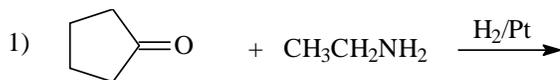
- 1) *N*-methylbutylamine                      2) 1-methyl-1-butylamine  
3) *N*-butylmethylamine                    4) 2-pentylamine

2. Which one of the following is not a resonance form of *para*-aminobenzaldehyde?



- 1) 1                      2) 2                      3) 3                      4) 4

3. Which one of the following does not give *N*-ethylcyclopentylamine as the major product?

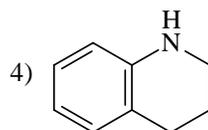
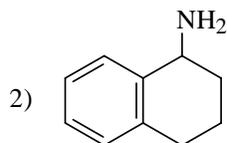
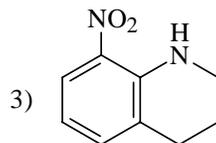
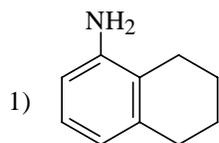


- 1) 1                      2) 2                      3) 3                      4) 4

4. Which one of the following amines gives an *N*-nitrosoamine on treatment with nitrous acid,  $\text{HNO}_2$ ?

- 1) 2,4-dimethylaniline                      2) 3,5-dimethylaniline  
3) *N*,4-dimethylaniline                    4) *N,N*-dimethylaniline

5. Which one of the following is the strongest base?



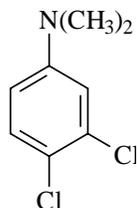
1) 1

2) 2

3) 3

4) 4

6. Which of the following is the correct IUPAC name of the compound shown below?



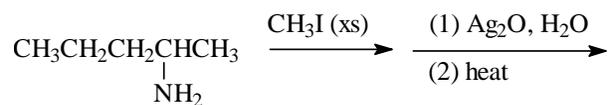
1) 1,2-dichloro-4-(*N,N*-dimethyl)aniline

2) dimethyl-(3,4-dichlorophenyl)amine

3) 3,4-dichloro-*N,N*-dimethylaniline

4) *N,N*-dimethylamino-3,4-dichlorobenzene

7. What is the major product of the reaction sequence below?



1)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}=\text{CH}_2$

3)  $\text{CH}_3\text{CH}_2\text{CH}_2\underset{\text{OH}}{\text{CH}}\text{CH}_3$

2)  $\text{CH}_3\text{CH}_2\text{CH}=\text{CHCH}_3$

4)  $\text{CH}_3\text{CH}_2\underset{\text{NH}_2}{\text{CH}}=\text{CCH}_3$

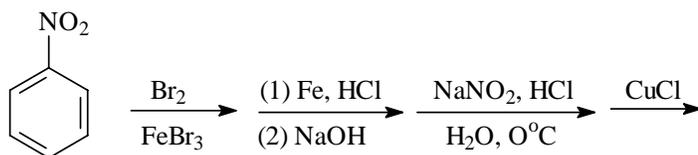
1) 1

2) 2

3) 3

4) 4

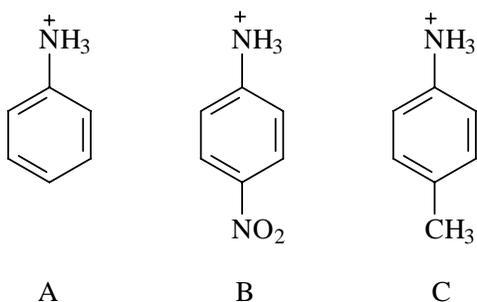
8. Which of the following is the product of the reaction sequence shown below?



- 1) *meta*-bromochlorobenzene
  - 2) 1,3,5-tribromobenzene
  - 3) 1,3-dibromo-5-chlorobenzene
  - 4) mixture of *ortho* and *para*-bromochlorobenzene
9. Which pair of reagents would be used to make the following amine by reductive amination?
- $$? + ? \xrightarrow{\text{H}_2/\text{Pd}} \text{CH}_3\text{CH}_2\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\text{NHCH}_3$$
- 1) methylamine and 2-methylbutanoic acid
  - 2) methylamine and 2-methylbutanal
  - 3) ammonia and 3-methyl-2-pentanone
  - 4) dimethylamine and 2-butanone
10. Among the isomeric  $\text{C}_4\text{H}_{11}\text{N}$  amines below, the one with the lowest boiling point is:

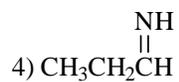
- |  |   |
|--|---|
| 1) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$ | 2) $(\text{CH}_3\text{CH}_2)_2\text{NH}$    |
| 3) $(\text{CH}_3)_2\text{CHNHCH}_3$                          | 4) $(\text{CH}_3)_2\text{NCH}_2\text{CH}_3$ |

11. Rank the following three compounds in order of decreasing acidity.



- |          |          |          |          |
|----------|----------|----------|----------|
| 1) B>C>A | 2) B>A>C | 3) C>A>B | 4) C>B>A |
|----------|----------|----------|----------|

12. Which one of the following compounds gives propylamine,  $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$ , upon hydrolysis?



1) 1

2) 2

3) 3

4) 4

13. Reaction of an *N,N*-dialkylaniline with nitrous acid yields:

1) a diazonium salt.

2) a *para*-nitroso compound.

3) an *N*-nitroso compound.

4) an azo compound.