



CHEMISTRY

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AMINES

Example

1. Mention one commercial use of N,N Dimethylaniline.



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2. The amine which will not liberate nitrogen on reaction with nitrous acid is

A. t-butyl amine

B. ethyl amine

C. methyl amine

D. none of these

Answer:



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3. Gabriel synthesis is used for the synthesis of

A. acids

B. primary amines

C. aldehydes

D. secondary amines

Answer:



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4. Give the IUPAC name of



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5. The unshared pair of electrons on a cyanide ion can act as

A. catalytic centre

B. cataionic centre

C. amido centre

D. nucleophilic centre

Answer:



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6. The most basic amine is

A. o-nitroaniline

B. p-toluidine

C. p-nitroaniline

D. none of these

Answer:



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

What is Hinsberg's reagent?



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8. Gabriel synthesis is used for the synthesis of





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9. Benzene diazonium chloride on heating in water gives mainly



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10. The unshared pair of electrons on a cyanide ion can act as



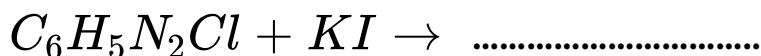
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11. The indicator that is obtained by coupling the diazonium salt of sulphanilic acid with N, N - dimethyl aniline is



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12. Complete the following reaction.



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13. Which one of the will be most basic ?

A. Aniline

B. p-methoxy aniline

C. p-nitroaniline

D. Benzylamine

Answer:



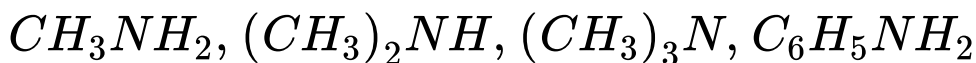
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14. The amine which will not liberate nitrogen on reaction with nitrous acid is



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15. Amines are basic. Arrange the following amines in the increasing order of base strength:



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16. Which of the following compounds exist as a Zwitter ion ?

A. p-aminophenol

B. sulphanilic acid

C. salicylic acid

D. ethanolamine

Answer:



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17. A primary amine that can be obtained both by the reduction of cyanides and amides is.....



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18. In secondary and tertiary amines when two or more alkyl groups are different, then they are called.....



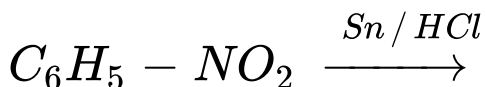
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19. Observe the relationship between the first two terms and fill in the blanks. Methylamine : Methanamine ,Dimethylamine



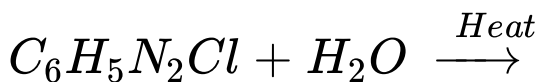
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20. Complete the following reactions.



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21. Complete the following reactions.



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22. Ammonia is a base because it has a lone pair of electrons. Predict the change in basicity in the following cases and give reason for each. a) When one hydrogen of ammonia is replaced by methyl group. b) When one

hydrogen of ammonia is replaced by phenyl group.



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23. Ammonia is a base because it has a lone pair of electrons. Predict the change in basicity in the following cases and give reason for each. a) When one hydrogen of ammonia is replaced by methyl group. b) When one hydrogen of ammonia is replaced by phenyl group.



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24. Identify the main product and name the reactions. When ethylamine treated with chloroform and alc. KOH.



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25. Identify the main product and name the reactions. When amide treated with bromide and alkali.



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26. A compound which exists as a Zwitter ion is formed when aniline is treated with conc. H_2SO_4 . Identify the compound and justify the statement.



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27. Give one chemical test to distinguish between $CH_3CH_2NH_2$ and $(CH_3)_2NH$.



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28. Give the structure of following compounds:

N-Methylethanamine



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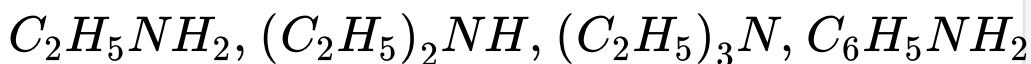
29. Give the structure of following compounds:

4-Bromobenzenamine



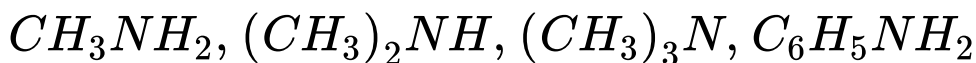
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30. Arrange the following in increasing order of basic strength:



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31. Amines are basic. Arrange the following amines in the increasing order of base strength:



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32. Using Gabriel phthalimide synthesis aromatic primary amines cannot be prepared.

Do you agree with this statement? Justify.



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33. Illustrate coupling reaction with example.



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34. Alcoholic AgCN , CH_3CI , alc. KCN and LiAlH_4 are good friends. One day CH_3CI tells friends about its two desires: (i) to become ethylamine (ii) to become dimethylamine. The friends are ready to help methylchloride. Is it possible to fulfill the desires of methylchloride?



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35. Alcoholic AgCN , CH_3CI , alc. KCN and LiAlH_4 are good friends. One day CH_3CI tells friends about its two desires: (i) to become ethylamine (ii) to become dimethylamine. The friends are ready to help methylchloride. Is it possible to fulfill the desires of methylchloride? Justify your answer.



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36. Identify the main product and name the reactions. When ethylamine treated with chloroform and alc. KOH.



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37. Identify the main product and name the reactions. When amide treated with bromide and alkali.



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38. How will you bring about the following conversions :- Benzene diazonium chloride to phenol.



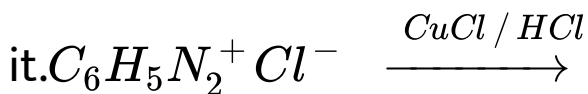
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39. Convert benzene diazonium chloride to p-amino azobenzene.



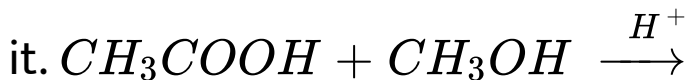
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40. Complete the following reaction and name



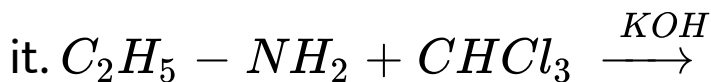
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41. Complete the following reaction and name



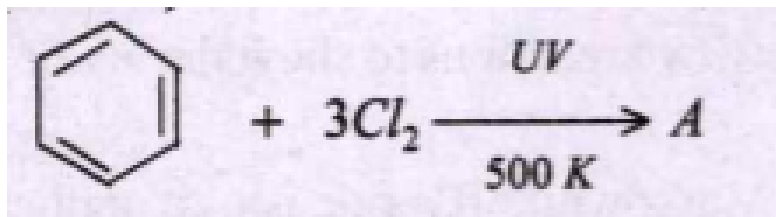
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42. Complete the following reaction and name



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43. Name the product A.



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44. Starting from benzene diazonium chloride

prepare: Benzene



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45. Starting from benzene diazonium chloride

prepare: Iodobenzene



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46. Starting from benzene diazonium chloride
prepare: Fluorobenzene



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47. $(CH_3)_3N$ boils at lower temperature than
the corresponding primary amine although
both are isomeric in nature. Explain.



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48. If you treat aniline with fuming H_2SO_4 at 475K it gives a compound which is used for the preparation of sulpha drugs. Identify the compound obtained.



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49. If you treat aniline with fuming H_2SO_4 at 475K it gives a compound which is used for the preparation of sulpha drugs. Write the chemical equation.





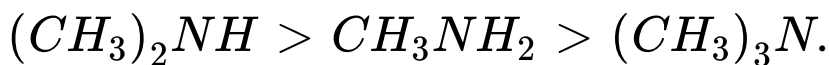
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50. Although amino group is o- and p-directing in aromatic electrophilic substitution reactions, aniline on nitration gives a substantial amount of m-nitro aniline. Why?



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51. The basicity of amines depends on Inductive effect, extent of H-bonding and steric effect order of basicity of amines.



Explain.



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52. Benzene sulphonyl chloride and aqueous NaOH can be used to distinguish 1° , 2° and 3° amines. How will you distinguish them?



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53. Benzene sulphonyl chloride and aqueous NaOH can be used to distinguish 1° , 2° and 3° amines. Give reactions involved.



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54. During a lab work a student is given 1° , 2° and 3° aliphatic amines in unlabelled test tubes. To distinguish the amines, student uses a mixture of sodium nitrite and dil. HCl. Can

the student distinguish the amines by using the reagent? Justify your answer.



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55. During a lab work a student is given 1° , 2° and 3° aliphatic amines in unlabelled test tubes. To distinguish the amines, student uses a mixture of sodium nitrate and dil. HCl. Illustrate Hinsberg test to distinguish the above amines.



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56. Nitration of aniline is an electrophilic substitution reaction. A student proposes that aniline reacts with conc.HNO₃ to form m-nitro-aniline. Do you agree with the student ? Justify.



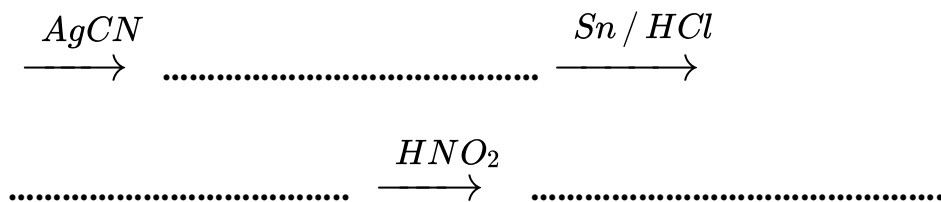
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57. Give the names of two possible amines that can be obtained from benzamide. How are these amines obtained?



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58. Complete the following reaction. C_2H_5Cl



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59. Give the structure of following compounds:

N-Methylethanamine



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60. Give the structure of following compounds: 4-Bromobenzenamine



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61. A compound A(CH_4O) on treatment with KCN gives a compound B(C_2H_3N) which is acyanide. The compound 'B' on partial hydrolysis gives C(C_2H_5ON) which is a neutral compound. 'C' on treatment with Br_2 and NaOH gives D(CH_5N) which turns red litmus

blue. 'D' on reaction with nitrous acid gives back 'A'. Identify A, B, C and D.



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62. A compound A(CH_4O) on treatment with KCN gives a compound B(C_2H_3N) which is acyanide. The compound 'B' on partial hydrolysis gives C(C_2H_5ON) which is a neutral compound. 'C' on treatment with Br_2 and NaOH gives D(CH_5N) which turns red litmus blue. 'D' on reaction with nitrous acid

gives back 'A'. Name the conversion of 'C' into 'D'.



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63. Alcoholic AgCN, CH_3CI , alc.KCN and $LiAlH_4$ are good friends. One day CH_3CI tells friends about its two desires: (i) to become ethylamine (ii) to become dimethylamine. The friends are ready to help methylchloride. Is it possible to fulfill the desires of methylchloride?



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65. Carbylamines have an offensive smell.

Write the carbylamine reaction.



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66. Carbylamines have an offensive smell.

How will you convert aniline into phenol?



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67. How will you convert an amide into following?

An amine with one carbon atom less than that of the amide.



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68. How will you convert an amide into following?

An amine containing the same number of carbon atoms as that in the amide.





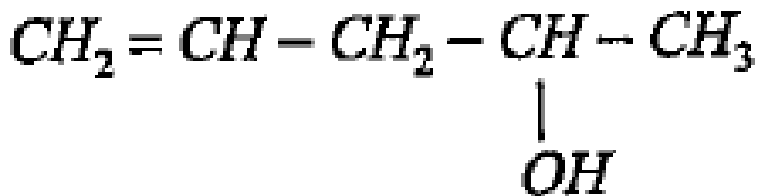
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69. Write IUPAC names of the following compounds. $(CH_3)_2CHNH_2$



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70. Write the IUPAC names of the following compounds:





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71. How will you bring about the following conversion? Ethanoic acid to methanamine.



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72. How will you convert ? Hexanenitrile into 1-aminopentane.



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73. How will you convert methanamine into ethanamine ?



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74. Write short note on Gabriel phthalimide synthesis.



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75. Aniline does not undergo friedel-crafts reaction. Why?



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76. Account for the following. Methylamine in water reacts with Ferric chloride to precipitate hydrated ferric oxide.



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77. Complete the following table

n	$n!$	$(n-1)!$	$(n-2)!$
4	----	----	----
5	----	----	----
6	----	----	----
7	----	----	----



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78. The reaction in which an amide is converted into a primary amine by the action of Br_2 and alcoholic NaOH is known as

.....





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79. How is a primary amine distinguished from a secondary amine using a chemical test?



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80. Name the test used to identify primary amines using $CHCl_3$ and ethanolic KOH.



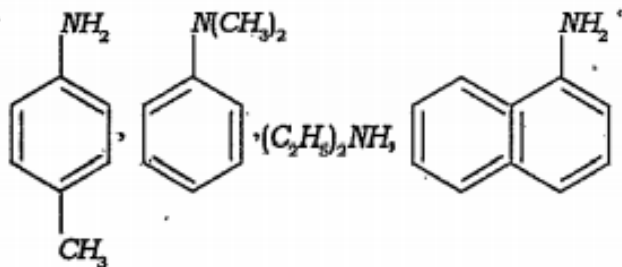
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81. How can it convert methyl iodide to ethanamine?



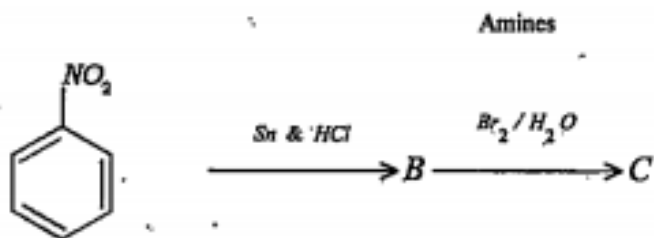
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82. Classify the following amines as primary, secondary and tertiary.



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83..



Identify the products B and C and write their formulae.



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84. Amines are classified as primary, secondary and tertiary amine.

represent the structure of secondary and tertiary amine.



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85. Amines are classified as primary, secondary and tertiary amine. How will you convert nitrobenzene to aniline?



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86. Aniline does not undergo Friedel-Crafts reaction. Why?



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87. Amines are classified as primary, secondary and tertiary

Write the IUPAC name of the following compound: $NH_2 - (CH_2)_6 - NH_2$



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88. Which is stronger base-

CH_3NH_2 or $C_6H_5NH_2$? Why?



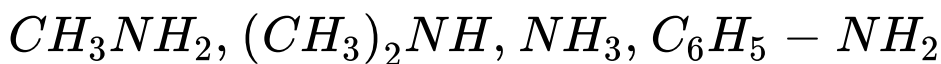
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89. How will you convert aniline ($C_6H_5NH_2$) to chlorobenzene?



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90. Aromatic and aliphatic amines are basic in nature like ammonia. Arrange the following compounds in the increasing order of their basic strength:



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91. Carbylamines have an offensive smell.

Write the carbylamine reaction.



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92. Carbylamines have an offensive smell.

How will you convert aniline into phenol?



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93. How will you convert an amide into following?

An amine with one carbon atom less than that of the amide.



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94. How will you convert an amide into following?

An amine containing the same number of carbon atoms as that in the amide.



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

What is Hinsberg's reagent?



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

How will you distinguish Primary, secondary and tertiary amines using Hinsberg's reagent?



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97. Aniline is an aromatic primary amine. Starting from aniline a number of organic compounds can be prepared.

How is aniline converted to benzenediazonium chloride?



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98. How are the following obtained from benzenediazonium chloride?

Chlorobenzene



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99. How are the following obtained from benzenediazonium chloride?

Phenol



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100. Amines are versatile functional groups useful in the preparation of many organic compounds. How can you convert.



to





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101. A student try to prepare p-nitroaniline by nitrating aniline with con. HNO_3 – con. H_2SO_4 mixture but he got m-nitroaniline from aniline. Why?



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102. Explain how he should proceed to get p-nitroaniline from aniline.



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103. An orange dye, p-hydroxyazobenzene may be synthesized from diazonium chloride by



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104. Which of the following is the least basic amine?

A. Ethylamine

B. diethylamine

C. Aniline

D. Benzylamine

Answer:



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105. Benzene sulphonyl chloride and aqueous NaOH can be used to distinguish three classes of amines such as primary, secondary and

teritary

Name the above test



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106. Benzene sulphonyl chloride and aqueous NaOH can be used to distinguish three classes of amines such as primary, secondary and tertiary. A..... amine does not react with Hinsberg reagent.



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107. Phenol is useful in preparing many drugs. What happens when phenol is boiled with CCl_4 and alkali and the mixture acidified?



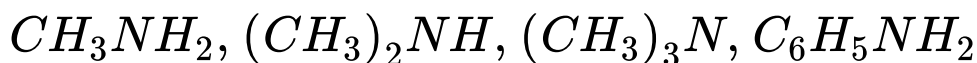
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108. Phenol is useful in preparing many drugs. What is the name of the reaction?



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109. Amines are basic. Arrange the following amines in the increasing order of base strength:



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110. Aniline is an aromatic primary amine. Starting from aniline a number of organic compounds can be prepared.

How is aniline converted to benzenediazonium chloride?



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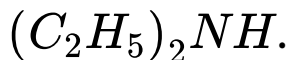
111. Aniline is an aromatic primary amine. Starting from aniline a number of organic compounds can be prepared. How is the phenol obtained from benzene diazonium chloride?



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112. Amines are basic. Arrange the following amines in the increasing order of base

strength



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113. Amines are basic in nature. How will you convert aniline to chlorobenzene?



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