



CHEMISTRY

BOOKS - JMD CHEMISTRY (PUNJABI ENGLISH)

ALCOHOLS, PHENOLS AND ETHERS

Example

1. Acidic strength of primary (1°), secondary (2°) and tertiary (3°) alcohols follow the

sequence:

A. $1^\circ > 2^\circ > 3^\circ$

B. $2^\circ > 3^\circ > 1^\circ$

C. $3^\circ > 2^\circ > 1^\circ$

D. $3^\circ > 1^\circ > 2^\circ$

Answer: A



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2. Carbolic acid is

A. Salol

B. Phenol

C. Aniline

D. Resorcinol.

Answer: B



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3. Phenol reacts with bromine water in CS_2 at low temperature to give

A. o-Bromophenol

B. o and p-Bromophenol

C. p-Bromophenol

D. 2,4,6-Tribromophenol

Answer: D



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4. Alcohols are

A. weaker acid than water

B. stronger acid than phenol

C. stronger acid than carboxylic acid

D. stronger acid than carbonic acid.

Answer: A



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5. Picric acid is

A. Trinitrotoluene

B. Trinitroaniline

C. 2,4,6-Trinitrophenol

D. 2, 4. 6-Trimethylphenol.

Answer: C



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6. Phenol reacts with bromine in CS_2 , to give:

A. o-Bromophenol

B. o and p-Bromophenol

C. p-Bromophenol

D. 2,4,6-Tribromophenol

Answer: B



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7. Spirit is 95% solution of

A. Methanol

B. Acetone

C. Benzene

D. Ethanol.

Answer: D



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8. Nitration of phenol in the presence of conc.

H₂SO₄ forms

A. o-Nitrophenol

B. m-Nitrophenol

C. p-Nitrophenol

D. 2,4,6-Trinitrophenol

Answer: D



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9. The correct order of boiling points for primary (1°), secondary (2°) and tertiary (3°) alcohols is

A. $1^\circ > 2^\circ > 3^\circ$

B. $3^\circ > 2^\circ > 1^\circ$

C. $2^\circ > 1^\circ > 3^\circ$

D. $2^\circ > 3^\circ > 1^\circ$

Answer: A



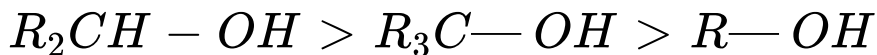
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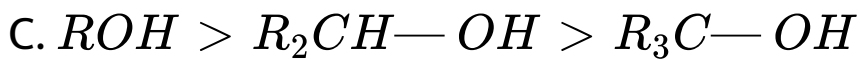
10. Correct order of acidic strength of alcohols is :

A.

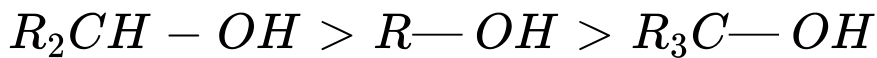


B.





D.



Answer: C



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11. Which of the following (having comparable molecular masses) has highest boiling point ?

Alcohols, Ethenes, Phenols, Hydrocarbons.

A. Alcohols

B. Ethens

C. Phenols

D. Hydrocarbons

Answer: A



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12. Phenol reacts with bromine in CS_2 , to give:

A. o-Bromophenol

B. m-Bromophenol

C. o and p-Bromophenol

D. 2,4,6-Tribromophenol

Answer: C



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13. How does phenol react with:



A. o-Nitrophenol

B. p-Nitrophenol

C. m-Nitrophenol

D. Picric acid

Answer: D



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14. Phenol reacts with Br_2 water to give

A. o-Bromophenol

B. m-Bromophenol

C. o and p-Bromophenol

D. 2,4,6-Tribromophenol

Answer: D



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15. Dehydration of tertiary alcohols with Cu at

573 K gives:

A. Aldehydes

B. ketons

C. Alkenes

D. None of these

Answer: C



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16. Dehydration of alcohols to give alkenes is catalysed by :

A. Cone. H_2SO_4 at 413 K

B. Cone. H_2SO_4 at 443 K

C. Cone. H_2SO_4 at 483 K

D. None of these

Answer: B



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17. Dehydration of alcohols on give ethers is catalyzed by :

A. Cone. H_2SO_4 at 413 K

B. Cone. H_2SO_4 at 443 K

C. Cone. H_2SO_4 at 483 K

D. None of these

Answer: A



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18. Which of the following statement is incorrect?

A. Phenol liberates CO_2 from $NaHCO_3$

B. Phenol is a weak acid

C. Phenol is aromatic compound

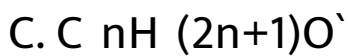
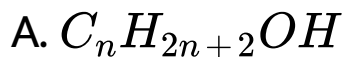
D. Phenol is soluble in NaOH.

Answer: A



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19. Molecular formula of Ethers is :



D. None of these

Answer: D



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20. Iodoform test is not given by :

A. 2-Pentanol

B. 3-pentanol

C. Ethanol

D. Ethanal

Answer: B



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21. Williamsons synthesis is an example of :

- A. Nucleophilic substitution reaction
- B. Nucleophilic addition
- C. Electrophilic substitution
- D. None of these

Answer: A



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22. Grignard reagent can be prepared in:

A. Diethyl ether

B. Alcohol

C. Benzene

D. None of these

Answer: A



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23. Intermolecular H-bonding is strongest in:

A. Methylamine

B. Phenol

C. Formaldehyde

D. Methanol

Answer: D



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24. Which of the following has highest boiling point ?

A. Methanol

B. Ethanol

C. Propan-1-ol

D. Butan-1-ol

Answer: D



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25. Which of the following is strongest acid ?

A. o-Nitrophenol

B. m-Nitrophenol

C. p-Nitrophenol

D. Ethanol.

Answer: C



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26. Which has highest pK_a value?

A. Phenol

B. Ethanol

C. o-Nitrophenol

D. o-Cresol

Answer: D



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27. Which of the following is most acidic?

A. Benzyl alcohol

B. Cyclohexanol

C. Phenol

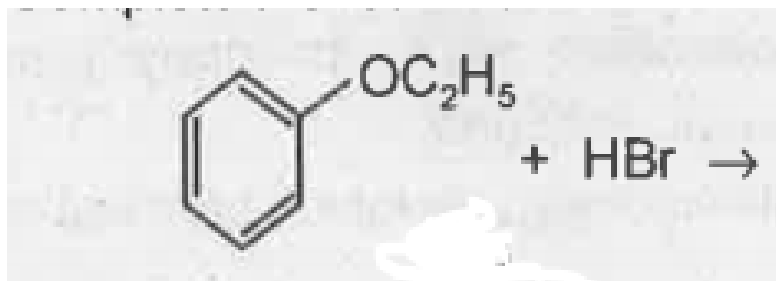
D. m-Chlorophenol

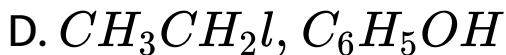
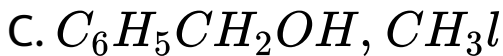
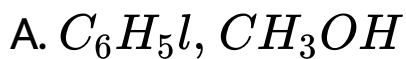
Answer: D



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28. Complete the reaction :



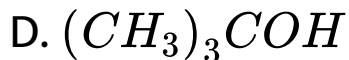
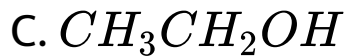
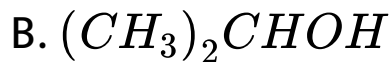
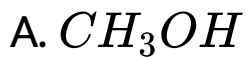


Answer: B



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29. Which is weakest acid in the following? CH_3OH , $(CH_3)_2CHOH$, CH_3CH_2OH , $(CH_3)_3COH$.

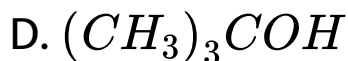
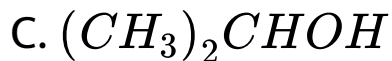
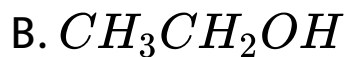
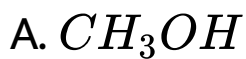


Answer: D



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30. In the following which is the strongest acid?

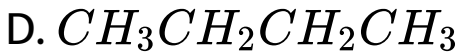
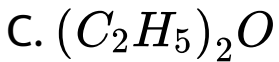
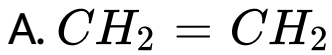
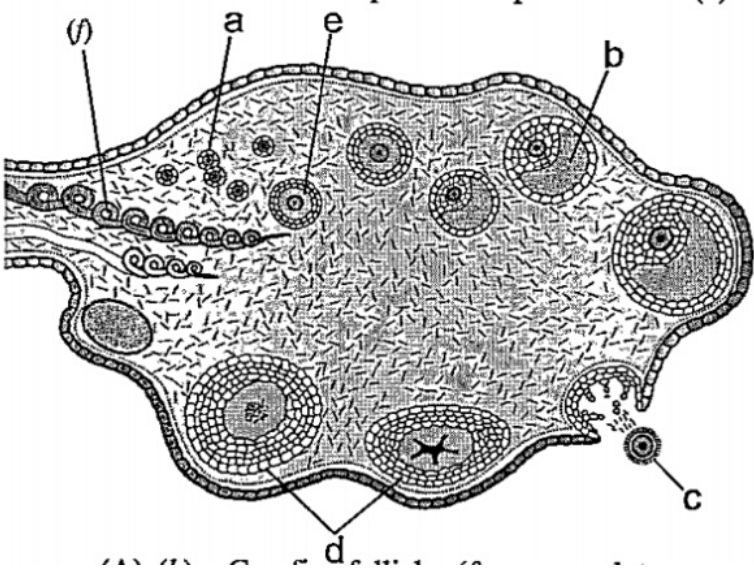


Answer: A



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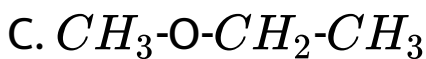
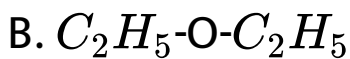
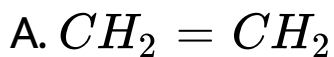
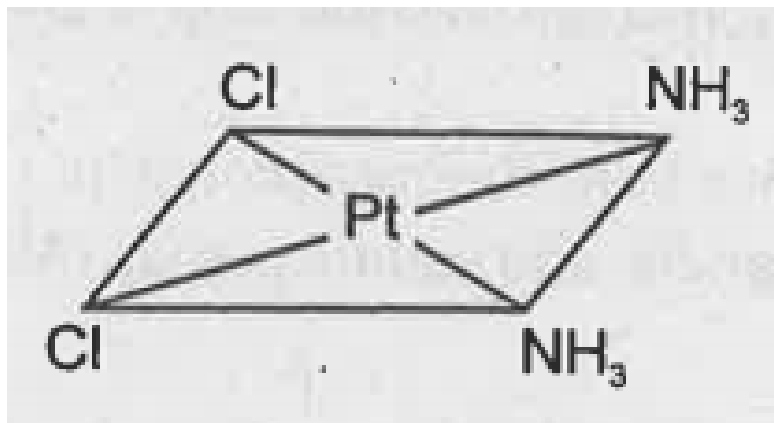
31. Choose the correct option from parts labelled (a) -



Answer: C



32. Express geometrical isomerism in

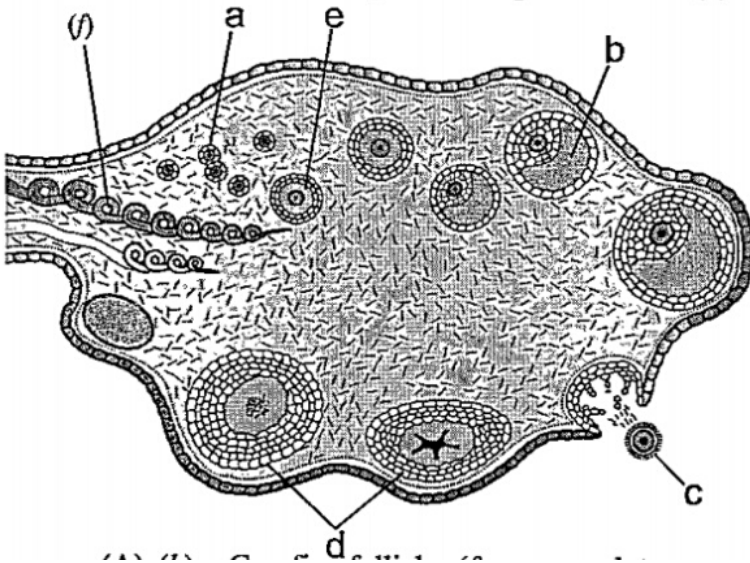


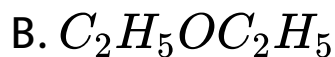
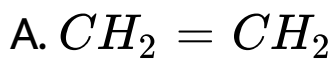
Answer: B



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33. Choose the correct option from parts labelled (a) -



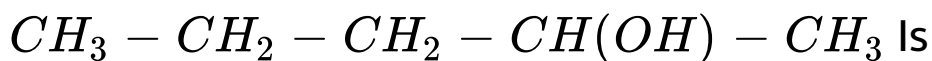


Answer: A



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34. The IUPAC name of



A. Pentan-2-ol

B. Pentan-4-ol

C. Pentan-1-ol

D. Pentanol

Answer: A



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35. Glycerol is a tertiary alcohol.



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36. Cresol and benzyl alcohol are isomers.



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37. Common name of ethoxybenzene, is anisole



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38. Monocarboxylic acid on reduction with H_2 /Ni gives 1° alcohol.



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39. Oxidation of ethanol with acidified $KMNO_4$, gives acetic acid.



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40. Reduction of an aldehyde with H_2 /Pd gives a 1° alcohol.



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41. Reduction of a ketone with H_2 /Pd gives a 3° alcohol.



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42. Carboic acid is



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43. Water is more acidic than alcohol



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44. true/False Water is more acidic than a phenol



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45. Cumene is isopropyl benzene.



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46. How is Benzene Diazonium chloride prepared and give its reaction with water ?



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47. Acidic strength of primary (1°), secondary (2°) and tertiary (3°) alcohols follow the sequence:



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48. Out of three isomeric nitrophenols, the p-nitrophenol is most acidic.



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49. Phenols turn blue litmus red



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50. Alcohols reacts with sodium metal to release hydrogen gas True/False



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51. C-O-C bond angle in ethers is higher than H-O-H bond angle in water through O is sp^3 - hybridised in both the cases.



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52. Write the mechanism of hydration of ethene to yield ethanol.



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53. How will you convert Methanol into Ethanol ?



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54. How will you get primary, secondary and tertiary alcohols from suitable carbonyl compound by action of Grignard reagent?



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55. Give equations of reactions for the preparation of phenol from cumene (Cumene Process)



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56. Write short note on Dow's process.



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57. How will you convert chlorobenzene into phenol ?



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58. Explain why propanol has higher boiling point than that of the hydrocarbon, butane?



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59. Why do alcohols have higher boiling points than halo-alkanes of the same molecular mass ?



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60. Alcohols are soluble in water while alkyl halides are not, although both are polar compounds. Explain.



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61. Why are alcohols higher boiling point than hydrocarbons of corresponding molecular masses ?



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62. Why solubility of alcohols in water decreases with increase in molecular mass ?



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63. Why boiling point of phenols are higher than the boiling point of aromatic hydrocarbons of similar molecular mass?



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64. Why alcohols are weaker acids than water ?



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65. Explain with an example:

Kolbe's reaction or Kolbe's Schmidt reaction.



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66. Write following name reactions :

Riemer Tiemann reaction.



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67. How will you convert phenol to salicylic acid ?



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68. Discuss the reaction and mechanism of acidic dehydration of ethyl alcohol to prepare ethene.



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69. Why is phenol stronger acid than the alcohols ? Explain in detail.



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70. Why primary alcohols are more acidic than secondary alcohols?

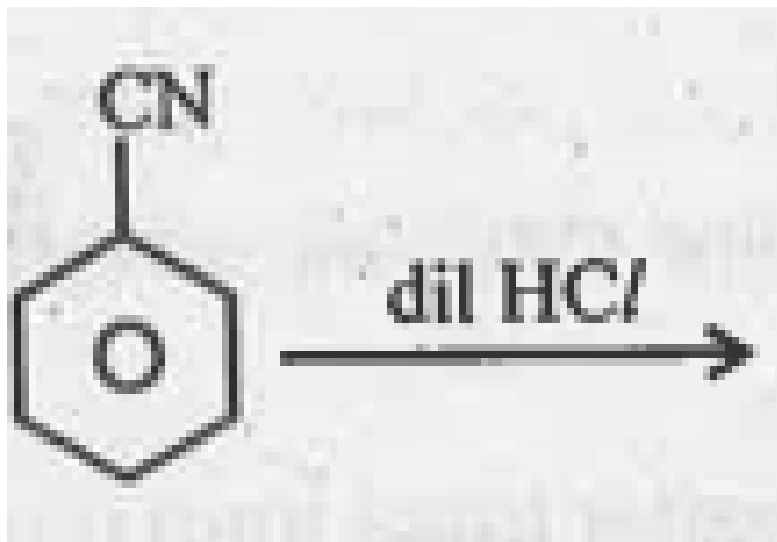


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71. Why -OH group in phenol is ortho and para directing in nature ?

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72. Complete the reaction



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73. Write short note on :

Schotten Baumann reaction



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74. Write esterification reaction.



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75. What is Coupling reaction ?



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76. How is phenol converted into picric acid ?



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77. How is phenol converted into phenolphthalein ?



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78. Explain Lucas test to distinguish between 1° , 2° and 3° alcohols.



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79. Distinguish between primary, secondary and tertiary alcohols by chemical test.



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80. Write short note on Victor Meyer's test to distinguish between 1° , 2° and 3° alcohols.



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81. Discuss oxidation of primary, secondary and tertiary alcohols.



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82. Compare the acidic characters of primary, secondary and tertiary alcohols.



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83. Discuss the acidic dehydration of alcohols at different temperatures.



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84. What happens when 1° , 2° and 3° alcohols are passed over red hot copper ? Give equations.



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85. Explain Williamson's synthesis.



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86. Ethers possess a dipole moment even if the alkyl groups in the molecule are identical. Explain.



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87. Dimethyl ether is completely soluble in water but diethyl ether is soluble in water to a small extent. Explain.



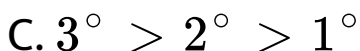
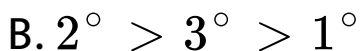
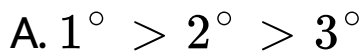
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88. The Boiling Point of ethers are lower than isomeric alcohols why ?



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89. Acidic strength of primary (1°), secondary (2°) and tertiary (3°) alcohols follow the sequence:



D. $3^\circ > 1^\circ > 2^\circ$

Answer: A



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90. Carboic acid is

A. Salol

B. Phenol

C. Aniline

D. Resorcinol.

Answer: B



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91. Phenol reacts with Br_2 water to give

- A. o-Bromophenol
- B. o and p-Bromophenol
- C. p-Bromophenol
- D. 2,4,6-Tribromophenol

Answer: D



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92. Alcohols are

- A. weaker acid than water
- B. stronger acid than phenol
- C. stronger acid than carboxylic acid
- D. stronger acid than carbonic acid.

Answer: A



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93. Picric acid is

A. Ttinitrotoluene

B. Trinitroaniline

C. 2,4,6-Trinitrophenol

D. 2, 4. 6-Trimethylphenol.

Answer: C



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94. Phenol reacts with bromine in CS_2 , to give:

- A. o-Bromophenol
- B. o and p-Bromophenol
- C. p-Bromophenol
- D. 2,4,6-Tribromophenol

Answer: B



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95. Spirit is 95% solution of

A. Methanol

B. Acetone

C. Benzene

D. Ethanol.

Answer: D



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96. Nitration of phenol in the presence of conc. H_2SO_4 forms

A. o-Nitrophenol

B. m-Nitrophenol

C. p-Nitrophenol

D. 2,4,6-Trinitrophenol

Answer: D



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97. The correct order of boiling points for primary (1°), secondary (2°) and tertiary (3°) alcohols is

A. $1^\circ > 2^\circ > 3^\circ$

B. $3^\circ > 2^\circ > 1^\circ$

C. $2^\circ > 1^\circ > 3^\circ$

D. $2^\circ > 3^\circ > 1^\circ$

Answer: A



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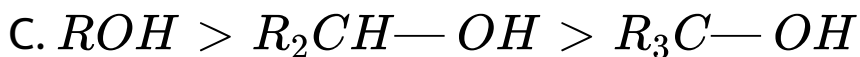
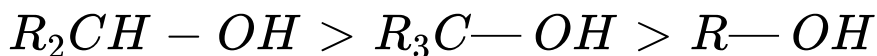
98. Correct order of acidic strength of alcohols

is :

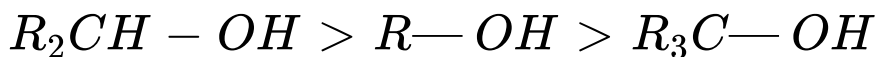
A.



B.



D.



Answer: C



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99. Which of the following (having comparable molecular masses) has highest boiling point ?

Alcohols, Ethenes, Phenols, Hydrocarbons.

A. Alcohols

B. Ethenes

C. Phenols

D. Hydrocarbons

Answer: A



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100. Phenol reacts with bromine in CS_2 , to give:

- A. o-Bromophenol
- B. m-Bromophenol
- C. o and p-Bromophenol
- D. 2,4,6-Tribromophenol

Answer: C



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101. How does phenol react with:



- A. o-Nitrophenol
- B. p-Nitrophenol
- C. m-Nitrophenol
- D. Picric acid

Answer: D



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102. Phenol reacts with Br_2 water to give

- A. o-Bromophenol
- B. m-Bromophenol
- C. o and p-Bromophenol
- D. 2,4,6-Tribromophenol

Answer: D



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103. Dehydration of tertiary alcohols with Cu at 573 K gives:

- A. Aldehydes
- B. ketons
- C. Alkenes
- D. None of these

Answer: C



104. Dehydration of alcohols to give alkenes is catalysed by :

A. Cone. H_2SO_4 at 413 K

B. Cone. H_2SO_4 at 443 K

C. Cone. H_2SO_4 at 483 K

D. None of these

Answer: B



105. Dehydration of alcohols on give ethers is catalyzed by :

A. Cone. H_2SO_4 at 413 K

B. Cone. H_2SO_4 at 443 K

C. Cone. H_2SO_4 at 483 K

D. None of these

Answer: A



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106. Which of the following statement is incorrect?

A. Phenol liberates CO_2 from $NaHCO_3$

B. Phenol is a weak acid

C. Phenol is aromatic compound

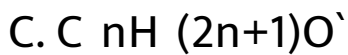
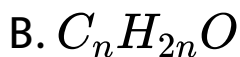
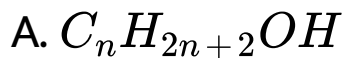
D. Phenol is soluble in NaOH.

Answer: A



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107. Molecular formula of Ethers is :



D. None of these

Answer: D



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108. Iodoform test is not given by :

A. 2-Pentanol

B. 3-pentanol

C. Ethanol

D. Ethanal

Answer: B



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109. Williamsons synthesis is an example of :

A. Nucleophilic substitution reaction

B. Nucleophilic addition

C. Electrophilic substitution

D. None of these

Answer: A



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110. Grignard reagent can be prepared in:

A. Diethyl ether

B. Alcohol

C. Benzene

D. None of these

Answer: A



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111. Intermolecular H-bonding is strongest in:

A. Methylamine

B. Phenol

C. Formaldehyde

D. Methanol

Answer: D



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112. Which of the following has highest boiling point ?

A. Methanol

B. Ethanol

C. Propan-1-ol

D. Butan-1-ol

Answer: D



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113. Which of the following is strongest acid ?

A. o-Nitrophenol

B. m-Nitrophenol

C. p-Nitrophenol

D. Ethanol.

Answer: C



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114. Which has highest pK_a value?

- A. Phenol
- B. Ethanol
- C. o-Nitrophenol
- D. o-Cresol

Answer: D



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115. Which of the following is most acidic?

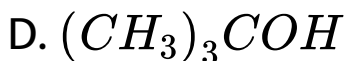
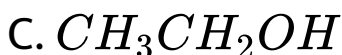
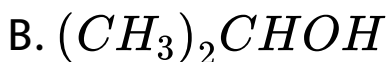
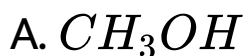
- A. Benzyl alcohol
- B. Cyclohexanol
- C. Phenol
- D. m-Chlorophenol

Answer: D



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116. Which is weakest acid in the following? CH_3OH , $(\text{CH}_3)_2\text{CHOH}$, $\text{CH}_3\text{CH}_2\text{OH}$, $(\text{CH}_3)_3\text{COH}$.

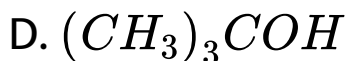
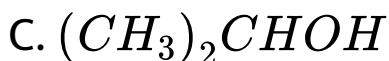
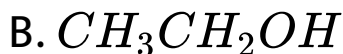
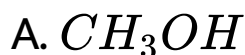


Answer: D



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117. In the following which is the strongest acid?

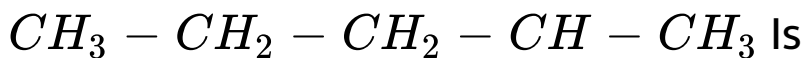


Answer: A



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118. The IUPAC name of



A. Pentan-2-ol

B. Pentan-4-ol

C. Pentan-1-ol

D. Pentanol

Answer: A



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119. Glycerol is a tertiary alcohol.



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120. Cresol and benzyl alcohol are isomers.



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121. Common name of ethoxybenzene, is
anisole



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122. Monocarboxylic acid on reduction with H_2 /Ni gives 1° alcohol.



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123. Oxidation of ethanol with acidified $KMNO_4$, gives acetic acid.



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124. Reduction of an aldehyde with H_2 /Pd gives a 1° alcohol.



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125. Reduction of a ketone with H_2 /Pd gives a 3° alcohol.



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126. Carboic acid is



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127. Water is more acidic than alcohol



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128. true/False Water is more acidic than a phenol



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129. Cumene is isopropyl benzene.



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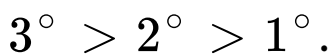
130. How does benzene diazonium chloride react with :

Water



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131. T/F Acidic character of alcohols follows the order ,



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132. Out of three isomeric nitrophenols, the p-nitrophenol is most acidic.



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133. Phenols turn blue litmus red



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134. Alcohols reacts with sodium metal to release hydrogen gas True/False



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135. C-O-C bond angle in ethers is higher than H-O-H bond angle in water through O is sp^3 -

hybridised in both the cases.



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136. Write the mechanism of hydration of ethene to yield ethanol.



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137. How will you convert Methanol into Ethanol ?



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138. How will you get primary, secondary and tertiary alcohols from suitable carbonyl compound by action of Grignard reagent?



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139. Give equations of reactions for the preparation of phenol from cumene (Cumene Process)



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140. Write short note on Dow's process.



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141. How will you convert chlorobenzene into phenol ?



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142. Alcohols have higher boiling point than alkanes. Why ?



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143. Why do alcohols have higher boiling points than halo-alkanes of the same molecular mass ?



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144. Alcohols are soluble in water while alkyl halides are not, although both are polar compounds. Explain.



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145. Why are alcohols higher boiling point than hydrocarbons of corresponding molecular masses?



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146. Why solubility of alcohols in water decreases with increase in molecular mass ?



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147. Why has phenol, higher boiling point than toluene ?



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148. Why alcohols are weaker acids than water ?



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149. What are Kolbe's Reaction ? Give one example.



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150. Write following name reactions :

Riemer Tiemann reaction.



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151. How will you convert phenol to salicylic acid ?



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152. Discuss the reaction and mechanism of acidic dehydration of ethyl alcohol to prepare ethene.



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153. Why is phenol stronger acid than the alcohols ? Explain in detail.



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154. Why primary alcohols are more acidic than secondary alcohols?



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155. Why -OH group in phenol is ortho and para directing in nature ?



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156. Write short note on :

Schotten Baumann reaction



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157. Write esterification reaction.



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158. What is Coupling reaction ?



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159. How is phenol converted into picric acid ?



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160. How is phenol converted into phenolphthalein ?



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161. Explain Lucas test to distinguish between 1° , 2° and 3° alcohols.



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162. Distinguish between primary, secondary and tertiary alcohols by chemical test.



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163. Write short on Victor Meyer's test to distinguish between 1° , 2° and 3° alcohols.



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164. Discuss oxidation of primary, secondary and tertiary alcohols.



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165. Compare the acidic characters of primary, secondary and tertiary alcohols.



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166. Discuss the acidic dehydration of alcohols at different temperatures.



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167. What happens when 1° , 2° and 3° alcohols are passed over red hot copper ? Give equations.



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168. Explain Williamson's synthesis.



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169. Ethers possess a dipole moment even if the alkyl groups in the molecule are identical. Explain.



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170. Explain why lower ethers are highly soluble in water?



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171. The Boiling Point of ethers are lower than isomeric alcohols why ?



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