



CHEMISTRY

BOOKS - SHARAM PUBLICATION

ALCOHOLS, PHENOLS AND ETHERS

Exercise

1. An isomer of ethanol is:

A. methanol

B. diethyl ether

C. dimethyl ether

D. acetone

Answer:



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2. Which of the following is a primary alcohol?

A. Butan-2-ol

B. Propan-2-ol

C. Butan-1-ol

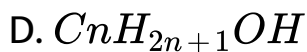
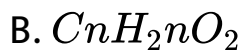
D. 2,3 dimethyl hexan -4-ol

Answer:



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3. The general molecular formula of homologous series of alkanols is



Answer:



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4. Benzyl amine reacts with nitrous acid to form

A. azobenzene

B. benzene

C. benzyl alcohol

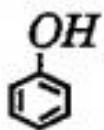
D. phenol

Answer:

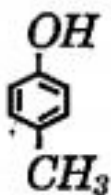


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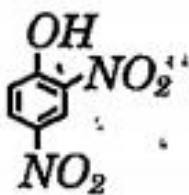
5. Strength of acidity is in order :



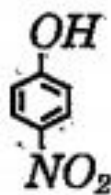
(I)



(II)



(III)



(IV)

A. $II > I > III > IV$

B. $III > IV > I > II$

C. $I > IV > III > III$

D. $IV > III > I > II$

Answer:



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6. Phenol reacts with Br, in CS_2 , at low temperature to give

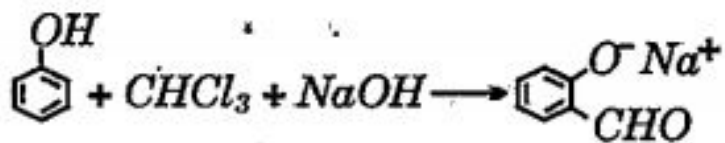
- A. o-bromo phenol
- B. m-bromo phenol
- C. o-and p-bromo phenol
- D. 2,4, 6-tri bromo phenol

Answer:



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7. The electrophile involved in the above reaction is



A. dichloro methyl cation ($\text{C}^\oplus \text{HCl}_2$)

B. dichloro carbene ($:\text{Cl}_2$)

C. trichloromethyl anion ($\text{C}^\ominus \text{Cl}_3$)

D. formylation ($\text{C}^\ominus \text{HO}$)

Answer:



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8. Phenol cannot be distinguished from ethanol by the following reagents except:

A. Sodium

B. $NaOH + I_2$

C. Neutral $FeCl_3$

D. $Br_2 + H_2O$

Answer:



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9. When ethanol is heated with HI and red phosphorus it gives

A. Ethyl iodide

B. Ethane

C. Ethylene

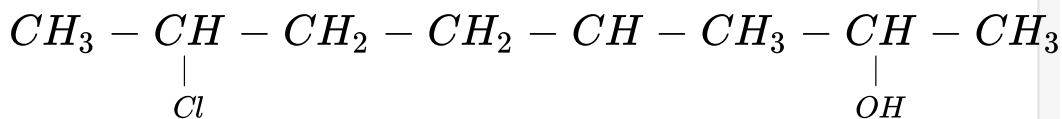
D. Ether

Answer:



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10. The IUPAC name of the compound below is



A. 2-chloro-5-hydroxy hexane

B. 2-hydroxy-5-chloro hexane

C. 5-chloro hexan-2-ol

D. 7-chloro octan-2-ol

Answer:



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11. IUPAC name of m-cresol is

- A. 3-methyl phenol
- B. 3-chloro phenol
- C. 3-methoxy phenol
- D. benzene-1, 3 di-ol

Answer:

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12. IUPAC name of $CH_3 - \overset{CH_3}{\underset{H}{|}}{C} - OCH_3$ is

- A. 1-methoxy -1-methyl ethane
- B. 2-methoxy-2-methyl ethane

C. 2-methoxy propane

D. isopropyl methyl ether

Answer:



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13. The process of converting alkyl halides into alcohols involves reaction.

A. addition reaction

B. substitution reaction

C. dehydro halogenation reaction

D. rearrangement reaction

Answer:

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14. Chlorination of toluene in presence of light and heat followed by reaction with $NaOH$ gives

- A. o-cresol
- B. m-cresol
- C. 2,4-dihydroxy toluene
- D. Benzyl alcohol

Answer:

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15. Phenyl magnesium bromide reacts with methanol to give

A. a mixture of anisole and $Mg(OH)Br$

B. a mixture of benzene and $Mg(OMe)Br$

C. a mixture of toluene and $Mg(OH)Br$

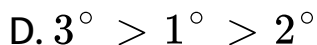
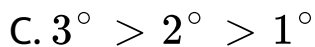
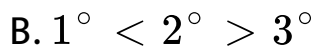
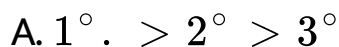
D. a mixture of phenol and $Mg(OH)Br$

Answer:



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16. What is the order of reactivity of alcohols in following reaction? $ROH + HCl \xrightarrow{ZnCl_2} RCl + H_2O$



Answer:



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17. During dehydration of alcohols to alkenes by heating with conc. H_2SO_4 , the initial step is

- A. formation of an ester
- B. protonation of alcohol molecule
- C. formation of carbocation
- D. elimination of water

Answer:

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18. CH_3CH_2OH can be converted to CH_3CHO by

A. catalytic hydrogenation

B. By treating with $LiAlH_4$

C. treatment with pyridinium chlorochromate

D. treatment with $KMnO_4$

Answer:



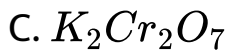
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19. The most suitable reagent for the conversion of

$RCH_2OH \rightarrow RCHO$ is

A. PCC(Pyridinium chloro chromate)

B. $KMnO_4$



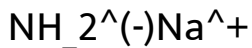
Answer:



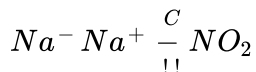
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20. The red coloured compound formed during Victor-Meyer's test for ethyl alcohol is :

A. $CH_3 - \overset{\text{O}}{\underset{||}{\text{C}}} - \overset{\text{O}}{\text{Na}^+}$



B. $CH_3 -$





Answer:



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21. Which of the following is most acidic?

A. Benzyl alcohol

B. Cyclohexanol

C. Phenol

D. m-chlorophenol

Answer:

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22. Which one of the following is not expected to undergo iodoform reaction?

- A. Propan-2-ol
- B. Ethanol
- C. Diphenyl methanol
- D. Butan-2-ol

Answer:

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23. Phenol, when it first reacts with conc. H_2SO_4 and then with conc. HNO_3 gives

- A. nitrobenzene
- B. 2, 4, 6-trinitro benzene
- C. m-nitrophenol
- D. p-nitrophenol

Answer:



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24. The major product obtained on interaction of phenol with $NaOH$ and CO_2

A. Salicylaldehyde

B. Salicylic acid

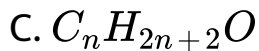
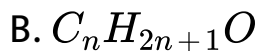
C. phthalic acid

D. benzoic acid

Answer:

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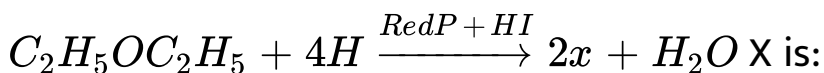
25. The molecular formula of ether is



Answer:

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26. In the following reaction



A. ethane

B. ethylene

C. butane

D. propane

Answer:



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27. O-nitrophenol is less soluble in water than m- and p-nitrophenol because

- A. O-nitrophenol shows intramolecular H-bonding
- B. O-nitrophenol shows intermolecular H-bonding
- C. O-nitrophenol is more volatile than m and p isomers

D. melting power of O-nitrophenol is less than those of m and p nitrophenol

Answer:



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28. Which of the following compounds can be used as antifreeze in automobile radiators?

A. Methyl alcohol

B. Glycol

C. Nitrophenol

D. Ethyl alcohol

Answer:

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29. Acid catalysed hydration of alkenes except ethene leads to the formation of

- A. primary alcohol
- B. secondary or tertiary alcohol
- C. mixture of primary and secondary alcohol
- D. mixture of secondary and tertiary alcohol

Answer:

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30. Why is phenol soluble in water?

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31. Which product is obtained when an alkyl halide is treated with aqueous KOH solution?

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32. What is the action of alcohol with Na metal? Give equation.

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33. What is the IUPAC name of isopropyl alcohol ?

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34. What is the IUPAC name of $CH_3OCH_2CH_3$?

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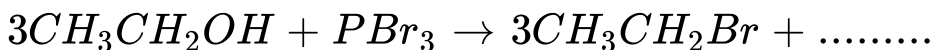
35. Give an example of a dihydric alcohol?

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36. What happens when sodium benzene sulphonate is heated with $NaOH$ solution?(Give equation)

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37. Complete the reaction



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38. Reduction of an aldehyde by Zn and HCl gives an organic compound ? What type of compound is it ?

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39. Write the structural formula of Pentan-2-ol.

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40. Which type of alcohol on treatment with HCl and anhydrous $ZnCl_2$ gives immediate precipitate?

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41. What happens when an ester is hydrolysed by dilute H_2SO_4 ?

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42. How is CH_3MgBr converted to ethanol? Give equation.

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43. How is benzene prepared from phenol?

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44. What is Willámson synthesis?

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45. Which reagent is used in Reimer-Tiemann reaction?

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46. What happens when phenol is treated with conc. HNO_3 ?

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47. Between phenol and o- nitrophenol which one is more acidic?

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48. Between Butan -1-ol and Butan -2-ol which has lower boiling point ?

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49. Fill in the blanks : Electrophilic substitution reaction in phenol takes place at position.

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50. Fill in the blanks : Condensation of phenol with formaldehyde produces

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51. Fill in the blanks : Phenol is acidic in nature because is more stable than

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52. Fill in the blanks : Phenol is while alcohol is

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53. Fill in the blanks : Reimer-Tiemann reaction is used to convert phenol into

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54. Fill in the blanks : Among the three isomers of nitro phenols , the one which is least soluble in water is

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55. Fill in the blanks : The alcohol having IUPAC name 3-ethyl pentan -3-ol has structural formula

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56. Fill in the blanks : Alcohols exhibit functional isomerism with

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57. Fill in the blanks : Formation of phenol from chlorobenzene is an example of aromatic substitution reaction.

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58. Fill in the blanks: Reaction of phenol with in presence of aq. $NaOH$ is called Schotten -Baumann

reaction.

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59. Fill in the blanks : 1° , 2° and 3° alcohols are distinguished by test.

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60. Fill in the blanks : A primary alcohol on oxidation gives an which on further oxidation gives both containing same number of C- atoms.

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64. Fill in the blanks : Phenol is acidic because of resonance stabilization of its conjugate base.....

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65. Fill in the blanks : Primary alcohols are formed by the reaction of Grignard's reagent with

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66. Fill in the blanks : O and P nitrophenols are separated by



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67. Fill in the blanks : Phenol on treatment with Br / H_2O gives but with Br_2 / CS_2 gives mainly

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68. Fill in the blanks : The common name of propane -1,2,3- triol is.....

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69. Why are alcohols soluble in water?

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70. How will you convert ethanol to ethanal?

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71. Suggest a method to convert ethanol to ethanoic acid.

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72. What happens when benzene diazonium chloride is heated with water?

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73. Dipole moment of phenol is less than that of methanol. Why?

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74. Explain why p-nitrophenol is more acidic than phenol?

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75. Arrange water, ethanol and phenol in the increasing order of acidity and give reason for it ?

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76. How is phenol prepared? Give equation.

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77. How can you convert benzene to phenol?

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78. What happens when benzene sulphonic acid is treated with $NaOH$ and then hydrolysed by acid.

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79. Between o-nitro phenol and p-nitro phenol ,which is more volatile and why?

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80. What happens when phenol is treated with Br_2 water?

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81. What happens when anisole(methyl phenylether) is treated with a mixture of conc. HNO_3 and conc. H_2SO_4 ?

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82. What happens when diethyl ether is heated with CH_3COCl in presence of anh. $ZnCl_2$ or anh. $AlCl_3$

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83. What happens when an ether is heated with dil. H_2SO_4 under pressure ?

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84. How can ethyl alcohol be prepared from ethylene?

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85. What is Hydroboration -oxidation reaction ? Explain.

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86. What happens when acetic acid is reduced by lithium aluminium hydride

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87. What happens when CH_3CHO is treated with CH_3MgBr and the resulting product is hydrolysed by dil HCl?

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88. Give a method of preparation of phenol from phenyl magnesium bromide.

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89. Lower alcohols are highly soluble in water but solubility decreases with the increases in molecular mass of alcohols. Give reason.

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90. Why is phenol more acidic than alcohol?

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91. Between O- nitrophenol and P- nitrophenol ,which is more acidic and why?

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92. Why is M- nitrophenol less acidic than O- nitrophenol and P- nitrophenol?

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93. What is Schotten-Baumann reaction ?

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94. What happens when ethyl alcohol is treated with Red P and Br_2 ?

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95. What happens when a mixture of the vapour of alcohol and excess ammonia are passed over heated alumina?

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96. What happens when phenol is treated with acidified $K_2Cr_2O_7$ solution?

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97. How can you distinguish 1° , 2° and 3° - alcohols by using Lucas reagent?

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98. Give a chemical test to distinguish between methanol and ethanol.

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99. Write uses of methanol and ethanol.





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100. What happens when ethyl methyl ether is treated with HI at 373K?



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101. What happens when diethyl ether is heated with CH_3COCl in presence of anhydrous $ZnCl_2$ or anhydrous $AlCl_3$?



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102. What is Williamson synthesis?



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103. Boiling point of ethers are less than those of isomeric alcohols give reason.

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104. What happens when anisole is treated with CH_3Cl in presence of anhydrous $AlCl_3$?

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105. What is Reimer-Tiemann reaction?





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106. Write a note on Kolbe's reaction.



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107. How can you distinguish between primary, secondary and tertiary alcohols ? With equation explain how does ethyl alcohol reacts with phosphorus pentachloride .



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108. How will you differentiate between 1° , 2° and 3° alcohols by Victor Meyer's test.

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109. How will you prepare ethanol from acetaldehyde?

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110. How will you prepare propanol from diborane.

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111. What happens when propan -1-ol is treated with pyridinium chloro chromate (PCC) .

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112. What happens when propan -1-ol is treated with acidified $K_2Cr_2O_7$ solution.

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113. How will you prepare phenol from benzene sulphonic acid

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114. How can you prepare phenol from chlorobenzene ?

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115. What happens when phenol is treated with Dil HNO_3 at low temperature and conc. HNO_3 ?

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116. How will you prepare ethyl alcohol from acetaldehyde and ethyl acetate?





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117. How will you convert methanol to ethanol and vice-versa?



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