



CHEMISTRY

BOOKS - BETTER CHOICE PUBLICATION

ALCOHOLS , PHENOLS AND ETHERS

Question Bank

1. Write one chain isomer if 1- methoxy -2 - methylpropane .



Watch Video Solution

2. Write one functional isomer of methoxymethane .



Watch Video Solution

3. Give the functional isomer of CH_3CH_2OH .



Watch Video Solution

4. Write one metamer of ethoxyethane .



Watch Video Solution

5. What are ethers ?



Watch Video Solution

6. Give the position isomer of $CH_3CH_2CH_2OH$
(Propan-1-ol).



Watch Video Solution

11 2 Nomenclature

1. Draw the structures of all isomeric alcohols of molecular formula $C_5H_{12}O$ and give their IUPAC names .

(b) Classify these isomers as primary secondary and tertiary alcohols .

 [Watch Video Solution](#)

11 3 Structure Of Functional Groups

1. In both alcohols and ethers , oxygen is sp^3 -hybridised and has two lone pairs . However the R-O-H bond angle to alcohols is less than tetrahedral angle of $109^\circ 28'$ and the R-O-R bond angle to ethers is more than the tetrahedral angle of $109^\circ 28'$, Explain why ?

 [Watch Video Solution](#)

2. 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.

 [Watch Video Solution](#)

12 3 Structure Of Functional Groups

1. 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.

 [Watch Video Solution](#)

11 4 Alcohols And Phenols

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

 [Watch Video Solution](#)

2. What is meant by hydroboration -oxidation reaction . Illustrate with an example .

 [Watch Video Solution](#)

3. How will you obtain propan -1- ol from propane ?



[Watch Video Solution](#)

4. How will you obtain propan -1- ol from propane ?



[Watch Video Solution](#)

5. How are the following conversions carried out ?

(i) Propene \rightarrow Propan -2- ol



[Watch Video Solution](#)

6. Benzyl chloride \rightarrow Benzyl alcohol

 [Watch Video Solution](#)

7. Ethyl magnesium chloride \rightarrow Propan -1-ol

 [Watch Video Solution](#)

8. Methyl magnesium bromide \rightarrow 2- Methylpropan
-2-ol .

 [Watch Video Solution](#)

9. How phenol is manufactured by Dow's process ?

 [Watch Video Solution](#)

10. How will you convert propan-1-ol to propan-2-ol ?

 [Watch Video Solution](#)

11. How will you convert Methanol into Ethanol ?

 [Watch Video Solution](#)

12. How will you prepare propanol from propanoic acid ?

 [Watch Video Solution](#)

13. How will you prepare propanol from propanoic acid ?

 [Watch Video Solution](#)

14. How will you get primary , secondary and tertiary alcohols from suitable carbony compound by action of Grignaed reagent ?



[Watch Video Solution](#)

15. How will you prepare secondary alcohol from Grignard reagent?



[Watch Video Solution](#)

16. Glycerol is a tertiary alcohol.



[Watch Video Solution](#)

17. How will you prepare ethanol from :

Ethanal



[Watch Video Solution](#)

Question Bank 11 1 Classification

1. What is an alcohol? give two examples



[Watch Video Solution](#)

2. What are phenols ?



[Watch Video Solution](#)

3. Draw structural formula of a primary alcohol having molecular formula C_4H_9OH .

 [Watch Video Solution](#)

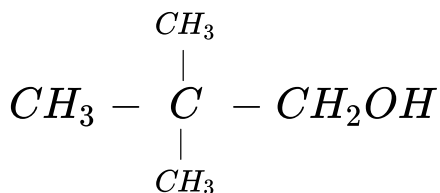
4. Draw the structural formula of a secondary alcohol having molecular formula C_4H_9OH .

 [Watch Video Solution](#)

5. Draw structural formula of a tertiary alcohol having molecular formula C_4H_9OH .

 [Watch Video Solution](#)

6. Classify the following as primary secondary and tertiary alcohols .



 [Watch Video Solution](#)

7. Classify the following as primary,secondary and tertiary alcohol $H_2C = CH - CH_2OH$

 [Watch Video Solution](#)

8. Classify the following as primary, secondary and tertiary alcohols $CH_3 - CH_2 - CH_2 - OH$

 [Watch Video Solution](#)

9. Give an example and IUPAC Name of tertiary Alcohol

 [Watch Video Solution](#)

10. Give an IUPAC Name of

CH_3CHO

 [Watch Video Solution](#)

11. Give one example of primary secondary and tertiary alcohol

 [Watch Video Solution](#)

12. Write down an isomer of C_2H_5OH .

 [Watch Video Solution](#)

13. How will you convert aniline into phenol ?

 [Watch Video Solution](#)

14. How will you convert aniline into phenol ?

 [Watch Video Solution](#)

15. You are given benzene conc. H_2SO_4 and $NaOH$

.Write equations for the preparation of phenol using these reagents .

 [Watch Video Solution](#)

16. Write the IUPAC name of the compound

$CH_3CH_2CH_2NH_2$

 [Watch Video Solution](#)

17. How will you prepare phenol from (a) Grignard reagent (b) Benzene

 [Watch Video Solution](#)

18. Discuss the reaction for the preparation of cumene. How can it be converted into phenol ? Write the chemical equations.

 [Watch Video Solution](#)

19. Discuss the reaction for the preparation of cumene. How can it be converted into phenol ? Write the chemical equations.

 [Watch Video Solution](#)

20. How will you convert benzene to phenol ?

 [Watch Video Solution](#)

21. Write chemical reaction for the preparation of phenol from chlorobenzene .

 [Watch Video Solution](#)

22. How will you convert chlorobenzene into phenol ?



[Watch Video Solution](#)

23. Explain Dow 's process .



[Watch Video Solution](#)

24. Write short note on Bouveault Blanc reduction .



[Watch Video Solution](#)

11 4 2 Physical Properties

1. Explain why propanol has higher boiling than of the hydrocarbon butane ?

 [Watch Video Solution](#)

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

 [Watch Video Solution](#)

3. Why do alcohols have higher boiling points than haloalkanes ?

 [Watch Video Solution](#)

4. Why are alcohols comparatively more soluble in water than the corresponding hydrocarbons ?

 [Watch Video Solution](#)

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

 [Watch Video Solution](#)

6. Why are alcohols soluble in water ?

 [Watch Video Solution](#)

7. Why are alcohols soluble in water ?

 [Watch Video Solution](#)

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

 [Watch Video Solution](#)

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



[Watch Video Solution](#)

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



[Watch Video Solution](#)

11 4 3 Chemical Properties

1. Give two reactions that show acidic nature of phenol Compare $-$ acidity of phenol with that of ethanol .

 [Watch Video Solution](#)

2. Why alcohols are weaker acids than water ?

 [Watch Video Solution](#)

3. Explain how does $-OH$ group attached to a carbon of benzene ring Activates it towards electrophilic substitution .



[Watch Video Solution](#)

4. How does the nitration of phenol with dilute nitric acid differ from nitration of phenol with conc, nitric acid in the presence of sulphuric acid?



[Watch Video Solution](#)

5. How will you convert Phenol to Benzoic acid ?



[Watch Video Solution](#)

6. Explain the following with an example .

Kolbe 's reaction .

 [Watch Video Solution](#)

7. Explain Reimer Tiemann reaction with one example.

 [Watch Video Solution](#)

8. How will you convert phenol into

(a) Salicylaldehyde (b) Salicylic acid

 [Watch Video Solution](#)

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

 [Watch Video Solution](#)

10. Write the reactions of alcohols with :

Sodium

 [Watch Video Solution](#)

11. How will you convert ethanol to ethane ?

 [Watch Video Solution](#)

12. Why phenols are acidic in nature ?



Watch Video Solution

13. Why Phenols are more acidic than Alcohol ?



Watch Video Solution

14. Orthonitrophenol and paranitrophenol are more acidic than phenols. Give reasons.



Watch Video Solution

15. Alcohols are easily protonated in comparison to phenols.

 [Watch Video Solution](#)

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

 [Watch Video Solution](#)

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

 [Watch Video Solution](#)

18. Write the equation of the reaction which takes place when 1-propanol is treated with HBr and conc.

H_2SO_4 (at 415K and 443K)



Watch Video Solution

19. Write the following reactions :

Phenol with zinc dust.



Watch Video Solution

20. How Phenol is converted to Benzene ?



[Watch Video Solution](#)

21. How does phenol react with:

Sodium



[Watch Video Solution](#)

22. Write the structure of Benzene diazonium chloride



[Watch Video Solution](#)

23. HNO_3



[View Text Solution](#)

24. How does phenol react with:

Chloroform

 [Watch Video Solution](#)

25. Acid anhydride on reaction with 1° amine gives

 [Watch Video Solution](#)

26. How does phenol react with:

Ammonia ?

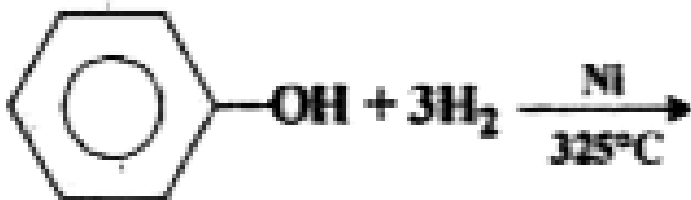
 [Watch Video Solution](#)

[Watch Video Solution](#)

27. Write a test to distinguish alcohols from phenols.

[Watch Video Solution](#)

28. Complete the following :



[Watch Video Solution](#)

29. Write the IUPAC name of the compound HCOOH



[Watch Video Solution](#)

30. What is Coupling reaction ?



[Watch Video Solution](#)

31. Explain SchottenBaumann reaction.



[Watch Video Solution](#)

32. Write esterification reaction.



[Watch Video Solution](#)

33. How alcohols react with

(i) Carboxylic acids

(ii) Acid anhydrides

(iii) Acid chlorides



Watch Video Solution

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



Watch Video Solution

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

 [Watch Video Solution](#)

36. How will you convert ethanol to ethanoic acid ?

 [Watch Video Solution](#)

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

 [Watch Video Solution](#)

38. How is phenol converted into picric acid ?

 [Watch Video Solution](#)

39. What is Fries Rearrangement .

 [Watch Video Solution](#)

40. Write the following reactions :

Phenol with phthalic anhydride.

 [Watch Video Solution](#)

41. How alcohols react with



Watch Video Solution

42. How alcohols react with PCl_5



Watch Video Solution

43. Write the structure of penta-1,3-diene



Watch Video Solution

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



Watch Video Solution

45. How will you distinguish primary, secondary and tertiary alcohols by dehydrogenation ? Write the chemical equation for each.



Watch Video Solution

46. Explain Victor Meyer's test for secondary (2°) alcohol.



[Watch Video Solution](#)

47. How will you distinguish secondary and tertiary alcohols are passed over red hot copper ? Give equations .



[Watch Video Solution](#)

48. How will you distinguish secondary and tertiary alcohols are passed over red hot copper ? Give equations .



[Watch Video Solution](#)

49. How will you distinguish primary, secondary and tertiary alcohols by dehydrogenation ? Write the chemical equation for each.

 [Watch Video Solution](#)

50. Write the reaction of primary , secondary and tertiary alcohols when passed through copper tube at 573 K .

 [Watch Video Solution](#)

51. Writing chemical equations What happen when phenol is treated with acetyl chloride in the presence of pyridine .



Watch Video Solution

52. How will you convert ethanol to ethane ?



Watch Video Solution

53. Discuss the dehydrogenation of primary, secondary and tertiary alcohols.



Watch Video Solution

54. What is catalytic dehydrogenation of alcohols ?

 [Watch Video Solution](#)

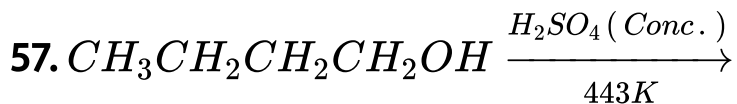
55. How will you convert ethyl bromide to diethyl ether .

 [Watch Video Solution](#)

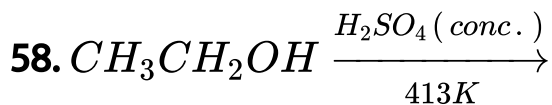
56. Complete the following reactions :



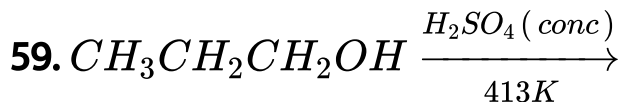
 [Watch Video Solution](#)



 [Watch Video Solution](#)



 [Watch Video Solution](#)



 [Watch Video Solution](#)

60. How will you convert ethanol to ethanoic acid ?

 [Watch Video Solution](#)

61. Write a chemical test to distinguish between phenol and benzoic acid.

 [Watch Video Solution](#)

11 5 Some Commercially Important Alcohols

1. What is wood spirit ?

 [Watch Video Solution](#)

2. How is methanol manufactured today ? Give two industrial uses of methanol .

 [Watch Video Solution](#)

3. What is denatured alcohol?

 [Watch Video Solution](#)

4. Give the industrial methods of preparation of ethanol .

 [Watch Video Solution](#)

5. Name the enzymes which convert

(i) Sucrose into glucose

(ii) Starch into maltose.



[Watch Video Solution](#)

6. What is power alcohol .



[Watch Video Solution](#)

7. Write two uses of methanol.



[Watch Video Solution](#)

8. Write two uses of ethanol.

 [Watch Video Solution](#)

9. How will you prepare alcohols from sugars ? Write chemical equation.

 [Watch Video Solution](#)

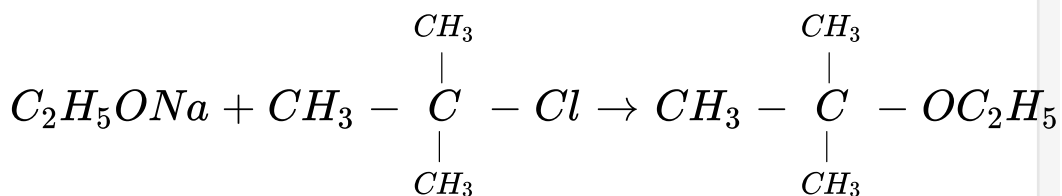
11 6 Ethers

1. Explain Williamson's synthesis.



Watch Video Solution

2. The following is not an appropriate reaction for the preparation of t-butyl ethyl ether .



(i) What would be the major product of this reaction ?



Watch Video Solution

3. Write as suitable reaction for the preparation of t-ethyl ether .



Watch Video Solution

4. How will you prepare ethers by Williamsons synthesis ? It requires proper choice of reactants.

Comment.

 [Watch Video Solution](#)

5. Illustrate with example the limitations of Williamson synthesis for the preparation of certain type of ethers

.

 [Watch Video Solution](#)

6. Why di-tertiary butyl ether cannot be prepared by Williamson's synthesis ?

 [Watch Video Solution](#)

7. Discuss the reaction and mechanism of acidic dehydration of ethyl alcohol to prepare ether.

 [Watch Video Solution](#)

8. Name the reagent used to convert bromoethane to ethoxy ethane ?

 [Watch Video Solution](#)

11 6 2 Physical Properties

1. Why are ethers polar in nature ?



Watch Video Solution

12 6 2 Physical Properties

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



Watch Video Solution

13 6 2 Physical Properties

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

 [Watch Video Solution](#)

14 6 2 Physical Properties

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

 [Watch Video Solution](#)

15 6 2 Physical Properties

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

 [Watch Video Solution](#)

16 6 2 Physical Properties

1. Boiling point of ethanol (C_2H_5OH) is higher than dimethyl ether ($CH_3—O—CH_3$). Explain.

 [Watch Video Solution](#)

11 6 3 Chemical Properties

1. Explain the fact that in aryl ethers (i) the alkoxy group activates the benzene ring towards electrophilic substitution and (ii) it directs the incoming substituents to ortho -and para -positions in benzene ring .



[Watch Video Solution](#)

2. Write the mechanism of the reaction of HI with methoxymethane .



[Watch Video Solution](#)



Watch Video Solution

3. How diethyl ether reacts with

HI



Watch Video Solution

4. How diethyl ether reacts with

PCl_5



Watch Video Solution

5. How diethyl ether reacts with



[Watch Video Solution](#)

6. Why are ethers relatively inert compounds ?



[Watch Video Solution](#)

7. Phenyl methyl ether reacts with HI to give phenol and methyl iodide and not iodobenzene and methyl alcohol. Explain.



[Watch Video Solution](#)

8. How do you account for the miscibility of ethoxy ethane with water.



Watch Video Solution