

PRAADIS EDUCATION

CHAPTER- 11

ALCOHOLS, PHENOLS AND ETHERS

CHEMISTRY- XII

Q1. How are primary, secondary and tertiary alcohols prepared from Grignard Reagents?

Q2. Give the equations of oxidation of primary, secondary and tertiary alcohols by Cu at 573 K .

Q3. Show how will you synthesize:

(i) 1- phenylethanol from a suitable alkene.

(ii) Cyclohexylmethanol using an alkyl halide by an $\text{S}_{\text{N}}2$ reaction.

(iii) pentan- 1- ol using a suitable alkyl halide?

Q4. How are the following conversions carried out?

(i) Propene \rightarrow Propan- 2- ol

(ii) Benzyl chloride \rightarrow Benzyl alcohol

(iii) Ethyl magnesium chloride \rightarrow Propan- 1- ol.

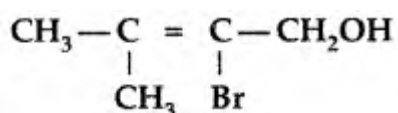
Q5. Name the reagents used in the following reactions:

(i) Oxidation of a primary alcohol to carboxylic acid.

(ii) Oxidation of a primary alcohol to aldehyde.

(iii) Bromination of phenol to 2, 4, 6- tribromophenol.

6. Give the IUPAC name of the following compound



7. Out of 2-chloroethanol and ethanol which is more acidic and why?
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9. When phenol is treated with bromine water, white precipitate is obtained. Give the structure and the name of the compound formed.
10. Arrange the following compounds in increasing order of acidity and give a suitable explanation. Phenol, o-nitrophenol, o-cresol.
11. How can propan-2-one be converted into tert-butyl alcohol?
12. Explain why the OH group in phenols is more strongly held as compared to OH group in alcohols.
13. Ethers can be prepared by Williamson synthesis in which an alkyl halide is reacted with sodium alkoxide. Di-tert-butyl ether can't be prepared by this method. Explain.
14. Explain why is ortho-nitrophenol more acidic than ortho-methoxyphenol?
15. Write chemical reaction for the preparation of phenol from chlorobenzene
16. Give two reactions that show the acidic nature of phenol. Compare acidity of phenol with that of ethanol.
17. How does phenol react with Br₂ in CS₂ and bromine water?
18. How do you account for the fact that unlike phenol, 2, 4-dinitrophenol and 2, 4, 6-trinitrophenol are soluble in aqueous solution of sodium carbonate?
19. Give reasons:
 - i) Nitration of phenol gives ortho- and para- products only.
 - ii) Why do alcohols have higher boiling points than the haloalkanes of the same molecular mass?

20. How is 1- propoxypropane synthesized from propan- 1-ol? Write mechanism of this reaction.

21. Write the mechanism of the reaction of HI with methoxybenzene.

22. (a) Name the starting material used in the industrial preparation of phenol.

(b) Write a complete reaction for the bromination of phenol in aqueous and non - aqueous medium.

(c) Explain why Lewis acid is not required in bromination of phenol?

23. How can phenol be converted to aspirin?

24. Write one chemical reaction to illustrate the following :

(i) Reimer-Teimann reaction

(ii) Williamson's synthesis

25. Write :

(i) Friedel-Crafts reaction

(ii) Coupling reaction

26. Etherial solution of an organic compound 'X' when heated with Mg gave 'Y'. 'Y' on treatment with CH_3CHO followed by acid hydrolysis gave 2-propanol. Identify the compound 'X'. What is 'Y' known as ?

27. Account for the following :

(i) Phenol has a smaller dipole moment than CH_3OH .

(ii) Phenol do not give protonation reactions readily.

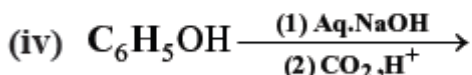
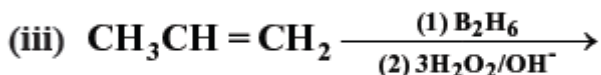
28. Arrange in order of boiling points :

(i) $\text{C}_2\text{H}_5 - \text{O} - \text{C}_2\text{H}_5$, $\text{C}_4\text{H}_9\text{COOH}$, $\text{C}_4\text{H}_9\text{OH}$

(ii) $\text{C}_3\text{H}_7\text{CHO}$, $\text{CH}_3\text{COC}_2\text{H}_5$, $\text{C}_2\text{H}_5\text{COOCH}_3$, $(\text{CH}_3\text{CO})_2\text{O}$

29.

Complete the following reactions :



30. Give equations of the following reactions :

(i) Oxidation of propan-1-ol with alkaline KMnO_4 solution.

(ii) Bromine in CS_2 with phenol.

(iii) Treating phenol with chloroform in presence of aqueous NaOH .

31. Describe the following reactions with examples :

(i) Reimer-Teimann reaction

(ii) Kolbe's reaction

(iii) Friedel Crafts acylation of anisole

32. How will you convert :

(i) Phenol to cyclohexanol

(ii) Benzyl chloride to benzyl alcohol

33. An alcohol A ($\text{C}_4\text{H}_{10}\text{O}$) on oxidation with acidified $\text{K}_2\text{Cr}_2\text{O}_7$ gives carboxylic acid 'B' ($\text{C}_4\text{H}_8\text{O}_2$). Compound 'A' when dehydrated with conc. H_2SO_4 at 443 K gives compound 'C' with aqueous H_2SO_4 . 'C' gives compound 'D' ($\text{C}_4\text{H}_{10}\text{O}$) which is an isomer of 'A'. Compound 'D' is resistant to oxidation but compound 'A' can be easily oxidized. Identify A, B, C and D and write their structure.

34. Phenol, $\text{C}_6\text{H}_5\text{OH}$ when it first reacts with concentrated sulphuric acid, forms Y. The compound, Y is reacted with concentrated nitric

acid to form Z. Identify Y and Z and explain why phenol is not converted commercially to Z by reacting it with conc. HNO₃.

35.

Fill in the blanks :

