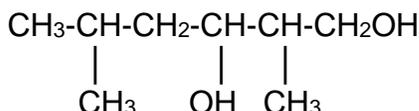


**BHARATIYA VIDYA BHAVAN'S V M PUBLIC SCHOOL, VADODARA**

**QUESTION BANK  
L-11 Alcohol, Phenol and Ethers**

**1 Mark Questions:**

- Q1. What is denaturated alcohol?  
Q2. O-Nitro phenol is more acidic than O-Methoxyphenol. Why?  
Q3. Dipole moment of phenol is smaller than that of methanol. Why?  
Q4. Arrange the following compounds in the increasing order of their acid strength  
4-nitrophenol, phenol, 2, 4, 6-trinitrophenol  
Q5. Draw the structural formula of 2-methylpropane-2-ol molecule.  
Q6. Why diethyl ether does not react with sodium?  
Q7. Give a chemical test to distinguish between phenol and cyclohexanol.  
Q8. How is toluene obtained from phenol?  
Q9. How could you convert ethanol to ethene?  
Q10. Give IUPAC name of the following compound.



**2 Marks Questions:**

- Q1. Name the different reagent needed to perform the following reactions:  
i) Phenol to benzene    ii) Dehydration of propan-2-ol to propene  
How will you convert?  
i) Propene to propan-1-ol    ii) Phenol to 2, 4, 6, trinitrophenol  
Q3. Account for the following:  
i) The boiling points of alcohol decreases with increase in branching of the alkyl chain.    ii) Phenol does not give protonation reaction readily.  
Q4. Complete the following reaction equations:  
i)  + SOCl<sub>2</sub> → ?  
ii)  + HCl → ?  
Q5. Write a short note on Reimer-Tiemann Reaction  
Q6. Explain Friedal-Craft's acetylation of anisole  
Q7. Why is the preparation of ether by acid catalysed dehydration of secondary alcohol not a suitable method?  
Q8. Illustrate Williamson's synthesis.  
Q9. Give mechanism of preparation of ethoxy ethane from ethanol?  
Q10. Preparation of ethers by acid dehydration of secondary or tertiary alcohol is not a suitable method. Why?

### 3 Marks Questions:

Q1. An organic compound 'A' having molecular formula  $C_3H_6$  on treatment with aqueous  $H_2SO_4$  gives 'B' which on treatment with  $HCl/ZnCl_2$  gives 'C'. The compound C on treatment with ethanoic KOH gives back compound 'A'. Identify the compounds A, B, C.

Q2. How will you bring out the following conversions?

- i) Phenol to aspirin    ii) Phenol to m-bromophenol    iii) Aniline to Phenol

Q3. Account for the following:

- i) Phenol does not react with  $NaHCO_3$  whereas carboxylic acids react.  
ii) Phenol is more easily nitrated than benzene.    iii) The dipole moment of ether is less than water.

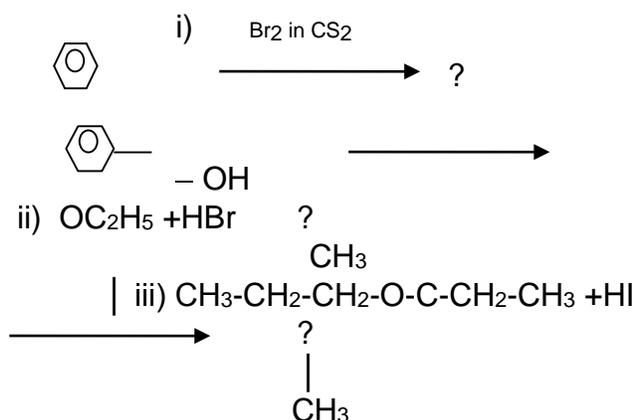
Q4. Give reasons:

- i) Why does p-dichlorobenzene have a higher m.p. than its o- and m-isomers?  
ii) Why is (+)-butan-2-ol optically inactive?  
iii) Alcohols are more soluble in water as compared to hydrocarbons of similar molar masses.

Q5. Give a chemical test to distinguish between the following:

- i) Phenol and benzyl alcohol    ii) butan-2-ol and 2-methylpropan-2-ol    iii) Ethanol and phenol

Q6. Complete the following reaction:



### 5 Marks Questions:

Q1. An aromatic compound 'A' on treatment with  $CHCl_3/KOH$  gives two compounds 'B' and 'C'. Both B and C give the same product 'D' when distilled with zinc dust. Oxidation of D gives E having molecular formula  $C_7H_6O_2$ . The sodium salt of E on heating with soda lime gives F which may also be obtained by distilling A with Zn dust. Identify A to F.

Q2. a) How will you convert phenol to benzoic acid?

b) An organic compound A having molecular formula  $C_6H_6O$  gives a characteristic colour with aqueous  $FeCl_3$  solution. A on treatment with  $CO_2$  and  $NaOH$  at 400 K under pressure gives B which on acidification gives a compound C'. The compound C reacts with acetyl chloride to give D which is a popular pain killer. Deduce the structure of A, B, C and D.

Q3 . A compound A having molecular formula  $C_4H_{10}O$  is found to be soluble in concentrated sulphuric acid. It does not react with sodium metal or potassium permanganate. On heating with excess of HI, it gives a single alkyl halide. Deduce the structure of compound A and explain all the reactions.