

**Sample Paper – 2013**  
**Class – XII**  
**Subject- Chemistry**

**CH:- Alcohol, Phenols & ether**

- Q.1 Write the IUPAC name of the following: [1]
- (i)  $\text{CH}_3\text{CH} = \underset{\text{Br}}{\text{C}} - \underset{\text{OH}}{\text{CH}} - \text{CH}_3$       (ii)  $\text{CH}_3 - \text{O} - \underset{\text{CH}_3}{\text{CH}} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$
- Q.2 What is the main product obtained when vapors of t-butyl alcohol are passed over copper at  $300^\circ\text{C}$ ? [1]
- Q.3 (i) Arrange the following compounds in the increasing order of acid strength.  
Propan-1-ol, 2,4,6-trinitrophenol, 3-nitrophenol, 3,5-dinitrophenol.  
(ii) Arrange the following alcohols in the order of increasing reactivity towards Lucas reagent  
2-butanol, 1-butanol, 2-methyl-2-propanol. [2]
- Q.4 Give the major products that are formed by heating each of following ethers with HI
- i.  $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{-O-CH}_2\text{CH}_3$   
ii.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{-O-C}(\text{CH}_3)_2\text{CH}_2\text{CH}_3$  [2]
- Q.5 Explain the following observations:
- (i) The boiling point of ethanol is higher than that of methoxymethane.  
(ii) Phenol is more acidic than ethanol  
(iii) o - nitrophenol is more acidic than o-methoxy phenol. [3]
- Q.6 Give one chemical test each to distinguish between the following pairs of compounds:
- (i) Phenol and benzoic acid    (ii) 1 - Propanol and 2 - propanol.    (iii) Methanol & Ethanol . [3]
- Q.7 How would you carry out the following conversions?
- (i) Ethyl magnesium chloride to 2-methyl-2-propanol.  
(ii) Propene to Propan-1-ol.  
(iii) Phenol to anisole.  
(iv) anisole to phenol  
(v) 2 - chloropropane to propan- 1 - ol. [5]
- Q.8 Give reasons for the following:
- (i) Phenols has a smaller dipole moment than methanol.  
(ii) Why do phenols not give the protonation reaction readily?  
(iii) How do you account for the miscibility of ethoxyethane with water. [3]
- Q.9 Give equations of the following reactions:

(i) Oxidation of propan-1-ol with alkaline  $\text{KMnO}_4$  solution.

(ii) Bromine in  $\text{CS}_2$  with phenol.

(iii) Dilute  $\text{HNO}_3$  with phenol.

[3]

Q.10 Describe the following reactions with example :

(i) Reimer-Tiemann reaction.

(ii) Kolbe' reaction

[2]

Q.11 Explain the mechanism of the following reactions:

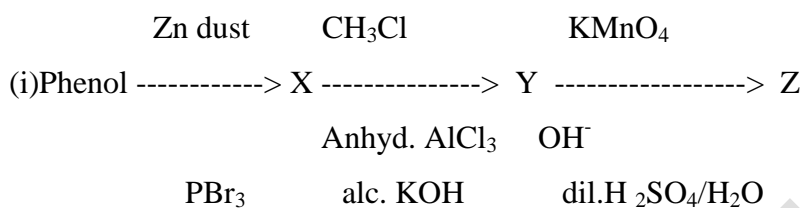
(i) Addition of Grignard's reagent to the carbonyl group forming an adduct followed by hydrolysis.

(ii) Acid catalysed dehydration of an alcohol forming an alkene.

[3]

Q.12 Identify X, Y and Z in the following sequence of reactions :

[2]



(ii) Ethanol -----> X -----> Y -----> Z

Q.13 An alcohol A ( $\text{C}_4\text{H}_{10}\text{O}$ ) on oxidation with acidified potassium dichromate give carboxylic acid B ( $\text{C}_4\text{H}_8\text{O}_2$ ). Compound A when dehydrated with conc.  $\text{H}_2\text{SO}_4$  at 443 K gives compound C.

Treatment of C with aqueous  $\text{H}_2\text{SO}_4$  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 oxidised. Identify A, B, C and D and write their structures.

[3]