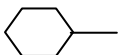


CHEMISTRY WORKSHEET

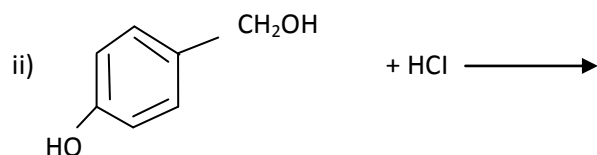
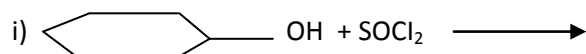
TOPIC: Alcohols , Phenols And Ethers

1. Write IUPAC name of  CH₂OH.
2. Write the structure of the molecule of a compound whose IUPAC name is 1-phenylpropan-2-ol.
3. Write equations for preparation of propan-2-ol, from i) an alkene, ii) a Grignard reagent
4. 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?
5. Sodium metal may be used to remove last traces of water from benzene but not from ethanol. Explain why?
6. Account for the following :
 - i) Phenols are acidic in nature.
 - ii) *o*-Nitrophenol is steam volatile where as *p*-Nitrophenol is not.
 - iii) Phenols undergo substitution at *ortho* and *para* positions.
7. What is meant by : (i) Absolute alcohols (ii) Methylated spirit (iii) Rectified spirit
How is absolute alcohol prepared?
8. Give the mechanism of cleavage of ethyl methyl ether with HI.
9. Explain the fact that in aryl alkyl 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.
10. Why do ethers have a low boiling point?
11. Out of benzene and phenol which is more easily nitrated and why?
12. Explain the mechanism of the following reactions:
$$2\text{C}_2\text{H}_5\text{OH} \xrightarrow[413\text{ K}]{\text{conc. H}_2\text{SO}_4} \text{C}_2\text{H}_5\text{OC}_2\text{H}_5 + \text{H}_2\text{O}$$
13. Describe simple chemical test to distinguish between diethyl ether and propanol.
14. Explain how an OH group attached to a carbon in benzene ring activates benzene towards electrophilic substitution.
15. Write the steps and conditions involved in the following conversions:
 - (i) Acetophenone to 2-phenyl-2- butanol
 - (ii) Propene to acetone.
16. Give chemical tests to distinguish between compounds in each of the following pairs:
 - i) Phenol and Benzyl alcohol
 - (ii) Butan-2-ol and 2 Methylpropanr -2-ol.
17. Which is stronger acid :- Phenol or Cresol? Explain.

18. Explain the mechanism of the following reactions:

- Addition of Grignard's reagent to the carbonyl group of a compound forming an adduct followed by hydrolysis.
- Acid catalysed dehydration of an alcohol forming an alkene.
- Acid catalysed hydration of an alkene forming an alcohol.

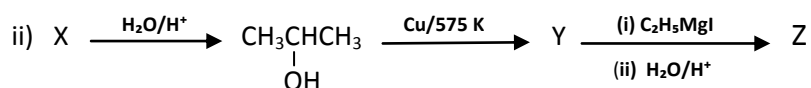
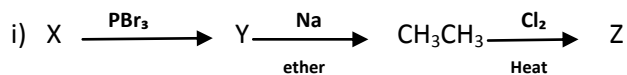
19. Complete the following reaction equations:



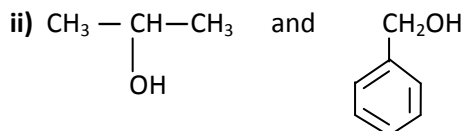
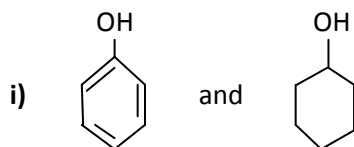
20. Explain the following observations :

- The boiling points of ethanol is higher than that of methoxymethane.
- Phenol is more acidic than ethanol.
- o*- and *p*-Nitrophenols are more acidic than phenol.

21. Complete the following sequences of reactions by supplying X, Y and Z.



22. Give a chemical test to distinguish between the following pairs of compounds.



Chemistry Monthly Test

C.B.S.E. XII

Max. Time : $1\frac{1}{2}$ hrs.

TOPIC: Alcohols , Phenols And Ethers & Aldehydes

M.M. - 30

- Write equations for preparation of propan-2-ol, from :
 - an alkene
 - a Grignard reagent
- 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?
- Account for the following :
 - Phenols are acidic in nature.
 - o*-Nitrophenol is steam volatile where as *p*-Nitrophenol is not.
 - Phenols undergo substitution at *ortho* and *para* positions.
- Give the mechanism of cleavage of ethyl methyl ether with HI.
- Out of benzene and phenol which is more easily nitrated and why?
- Write the steps and conditions involved in the following conversions:
 - Acetophenone to 2-phenyl-2-butanol
 - Propene to acetone.
- Give chemical tests to distinguish between compounds in each of the following pairs:
 - Phenol and Benzyl alcohol
 - Butan-2-ol and 2 Methylpropan-2-ol.
- Explain the following observations :
 - The boiling points of ethanol is higher than that of methoxymethane.
 - Phenol is more acidic than ethanol.
 - o*- and *p*-Nitrophenols are more acidic than phenol.
- Name the following compounds according to *IUPAC* system of nomenclature:
 - $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CHO}$
 - $\text{CH}_3\text{CH} = \text{CHCHO}$
 - $\text{OHCC}_6\text{H}_4\text{CHO-}p$
 - $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{C}(\text{CH}_3)_2\text{COCH}_3$
 - $\text{CH}_3\text{CH}_2\text{COCH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{Cl}$
- Explain the following reactions with example.
 - Rosenmund's reduction reaction
 - Etard reaction