



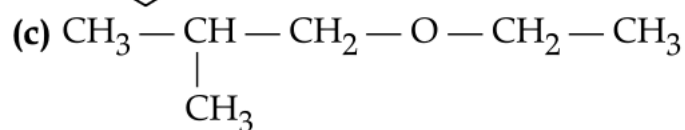
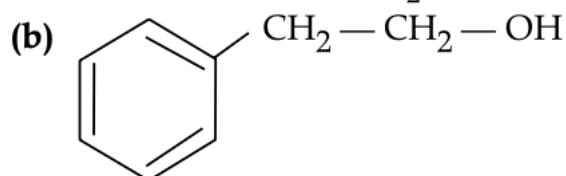
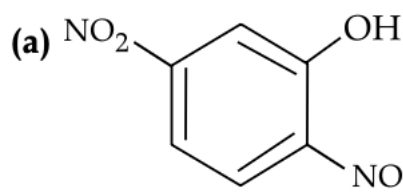
CHEMISTRY

CH: 7 ALCOHOLS, PHENOLS & ETHERS

Name: _____ Date: _____ Class: XII Sec: _____

I Answer the following

1. Write the IUPAC names of



II Give reasons for the following.

1. Bond angle in alcohol is slightly less than the tetrahedral angle.
2. C-OH bond length in CH_3OH is slightly more than the $-\text{C}-\text{OH}$ bond length in phenol
3. O-nitrophenol has lower boiling point than p-nitrophenol.
4. Alcohols are more soluble than the hydrocarbons of comparable molecular masses.
5. Alcohols and phenols are soluble in water
6. Ortho nitrophenol is more acidic than ortho methoxy phenol.
7. Boiling point of ethanol is higher than that of methanol
8. Phenols are more acidic than alcohols.
9. Ortho and para isomers of nitrophenol can be separated by steam distillation
10. An alkoxide is a stronger base than hydroxide ion.
11. When tertiary alkyl halides are treated with primary alkoxide alkenes are formed and not ethers.
12. Boiling point of ethers is lower than isomeric alcohols.
13. Reaction of anisole with HI gives methyl iodide and phenol.

- Ethers can not be prepared by dehydration of secondary or tertiary alcohols.
- Protonation of Phenols is difficult whereas ethanol easily undergoes protonation.

III Name the reagents used in the following reactions.

- Butanol to butanal.
- Butan -2 -one to butan -2 -ol.
- Bromination of phenol to 2,4,6 tribromophenol.

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- Nitration of phenol to 2,4,6 trinitrophenol
- Oxidation of primary alcohol to carboxylic acid
- Friedel Craft's alkylation of anisole
- Oxidation of primary alcohol to aldehyde.

IV Write chemical tests to distinguish between the following sets of compounds.

- Primary, secondary and tertiary alcohols
- Butan-2-ol, butanol and 2-methyl propan -2-ol
- Ethanol & phenol
- Phenol & benzyl alcohol
- Pentan-2-ol & pentan -3-ol

V Arrange the following compounds in the increasing order of acid strength and give the reason.

- 4 – nitro phenol, phenol, 2,4,6 trinitro phenol
- p- cresol, p- nitro phenol, phenol

VI Answer the following

- Reaction of methanol with cyclohexylmagnesium bromide.
- Reaction of phenol with Br₂.
- Write the equation of the reaction for the preparation of phenol from cumene.
- Write the structures of the products when Butan-2-ol reacts with the following: (i) CrO₃ (ii) SOCl₂
- What happens when phenol is oxidized by Na₂Cr₂O₇/H₂SO₄?
- What happens when phenol is heated with zinc dust?

□

VII

Assertion – Reason Questions

1. Assertion: It is not possible to prepare anisole from chlorobenzene through Williamson's synthesis.
Reason: The C-Cl bond in chlorobenzene shows partial double bond character due to resonance.
2. Assertion: Anisole reacts with HI to give methanol and iodobenzene.
Reason: The $-\text{OCH}_3$ group in anisole enriches the electron density in the ring through Resonance.
3. Assertion: n-Butanol has higher boiling point than 2-methyl propan-2-ol.
Reason: Branching increases the strength of Van der Waal's forces.
4. Assertion: Ethers are non-polar when they are symmetrical. Reason: Ethers have a bent structure.
5. Assertion: Nitro phenol is more acidic than phenol
Reason: Phenol undergoes electrophilic substitution reactions readily.
6. Assertion (A): Ortho and para-nitrophenol can be separated by steam distillation.
Reason (R): Ortho isomer associates through intermolecular hydrogen bonding while para isomer associates through intermolecular hydrogen bonding