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XII Unit 11

ALCOHOLS, PHENOLS AND ETHERS

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CHEMISTRY MANTRA | 105 Dilbagh Nagar Extension Jalandhar

Unit 11
- Alcohols, Phenols and Ethers

Q.1 What is rectified spirit ?
Answer: A mixture of 95% ethyl alcohol and 5% water is called rectified spirit.
Q.2 Name the alcohol used for polishing wooden furniture.
Answer: Ordinary spirit.
Q.3 Which type of alcohol is formed by hydroboration oxidation of unsymmetrical alkene?
Answer: In case of hydro oration oxidation of alkene the alcohol formed is (primary alcohol) opposite to Markovnikov's rule.
Q.4 Among acids and esters which can be reduced to alcohol easily by catalytic hydrogenation?
Answer: Esters can be easily reduced to alcohols.
Q.5 Name the product formed by reaction of Grignard's reagent with an aldehyde followed by hydrolysis.
Answer: Alcohol (1°alcohol with methanal and 2° alcohol with other aldehydes).
Q.6 Which one has higher boiling point propane or ethanol?
Answer: Ethanol has higher boiling point than propane.
Q.7 Alcohols act as weak acid. Why?
Answer: Due to polar nature of O - H bond alcohol acts as weak acid.
Q.8 Which type of alcohol does not react with Lucas reagent at room temperature?
Answer: 1° alcohol does not react with Lucas reagent at room temperature.
Q.9 What is the rate of reactivity of 1°, 2° and 3° alcohols with hydrogen halide?

Answer: 3° > 2° > 1°. (Reactivity of hydrogen halide)
Q.10 What is the ease of dehydration of 1 °, 2° and 3° alcohols?
Answer: 3° > 2° > 1°. (Ease of dehydration of alcohol)
Q.11 What is wood spirit?
Answer: Methanol is also known as wood spirit.
Q.12 Which enzyme catalyses conversion of sucrose to ethanol?
Answer: Invertase followed by zymase.
Q.13 What is the main use of ethanol?
Answer: Solvent in paint industry.
Q.14 Explain denaturation.
Answer: The process of making alcohol unfit for drinking is called denaturation.
Q.15 Which compound is mixed in ethanol for denaturation?
Answer: Copper sulphate and pyridine.
Q.16 Which alcohol on oxidation gives aldehyde?
Answer: 1° alcohol on oxidiation gives aldehyde.
Q.17 Which alcohol on oxidation gives ketone?

Answer: 2° alcohol on oxidation gives ketone.

Q.18 What are phenols?

Answer: When the hydrogen atom is replaced by -OH group in benzene ring the compound obtained is called phenol.

Q.19 What is carbolic acid?

Answer: Phenol is also called carbolic acid.

Q.20 Phenols are acidic. Why?

Answer: Due to presence of polar -OH group phenol behaves as acid and phenoxide ion is more stable.

Q.21 What is the hybridisation of oxygen atom in ether?

Answer: sp^3.

Q.22 Boiling points of ethers are much lower than that of alcohols. Why?

Answer: Ethers do not form H-bonding due to which they have lower boiling points than corresponding alcohols.

Q.23 Boiling points of alcohols are higher than correspond in hydrocarbons, ethers and alkyl halides. Why?

Answer: The high boiling points of alcohols are mainly due to the presence of intermolecular hydrogen bonding in them which is lacking in ethers, hydrocarbons and alkyl halides.

Q.24 Boiling points of alcohols decrease with increase in branching of carbon chains. Why?

Answer: As the branching increases surface area decreases and hence magnitude of Van der Waals force also decreases so, boiling point decreases.

Q.25 Boiling points of ethanol is much higher than methoxy methane. Why?

Answer: Ethanol has high boiling point than methoxy methane because alcohols are soluble in water due to formation of H-bonding with water molecule.

Q.26 Solubility of alcohols in water decreases with increasing size of alkyl group. Why?

Answer: Alkyl groups are hydrophobic in nature. So, as size of alkyl group increases, its solubility in water decreases.

Q.27 What is the chief use of methanol?

Answer: Methanol is chiefly used for the preparation of formaldehyde.

Q.28 Which alcohol is highly poisonous?

Answer: Methanol is highly poisonous.

Q.29 What is the advantage of using PCC for the oxidation of alcohols?

Answer: Oxidation stops at aldehyde level.

Q.30 Phenols are more reactive than benzene towards electrophilic substitution reaction. Why?

Answer: Resonating structures show that benzene ring acquires -ve charge which implies that there is a greater electron cloud. Therefore, an electrophile readily attacks at o/p position of phenol than in benzene.