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MHS COLLEGE ; DEPARTMENT OF MBBS

100 LEVEL

CHEM 102 ASSIGNMENT

1. Alkanols (also known as Alcohols) are majorly classified into two major classes under which sub classes are found. The major classifications are:

A. CLASSIFICATION BASED ON THE NUMBER OF HYDROGEN ATOMS ATTACHED TO A CARBON ATOM CONTAINING THE HYDROXYL GROUPS:

i. Primary Alcohol: These are alcohols that have two or three hydrogen atoms attached to the carbon atom containing the hydroxyl group. It is denoted by "1°". A good example is Propan-1-ol.

ii. Secondary Alcohol: These alcohols have only one hydrogen atom attached to the carbon atom containing the hydroxyl group. It is denoted by "2°". An example of this alcohol is Pentan-3-ol.

iii. Tertiary Alcohol: These alcohols are characterized by the absence of hydrogen atoms from the carbon atom attached to the hydroxyl group. It is denoted by "3°". An example is 2-methylbutan-2-ol.

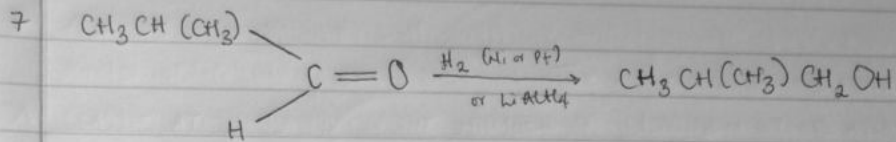
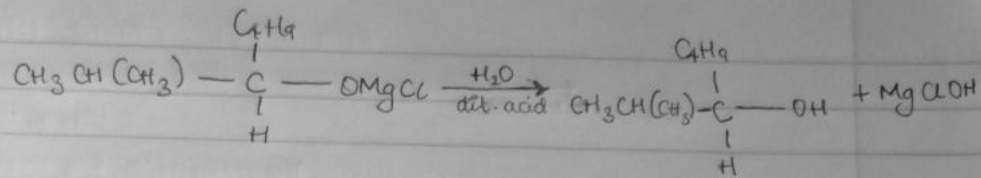
B. CLASSIFICATION BASED ON THE NUMBER OF HYDROXYL GROUPS PRESENT IN THE COMPOUND [ALCOHOL STRUCTURE]

i. Monohydric Alcohols: These alcohols have one hydroxyl group in their alcohol structure. Eg Methanol.

ii. Dihydric Alcohols: These alcohols have two hydroxyl groups in their structure. They are also called glycols. Eg Ethane-1,2-diol.

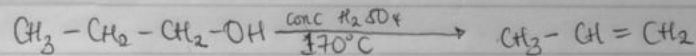
iii. Trihydric Alcohols: These alcohols have three hydroxyl groups in their structure. They could be equally referred to as triols. Example of this is Propan-1,2,3-triol.

iv. Polyhydric Alcohols: They have more than three hydroxyl groups in their alcohol structure. Example neopentyl.



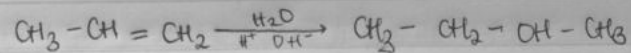
8 CONVERSION OF PROPAN-1-OL TO PROPAN-2-OL

i Propan-1-ol is treated with concentrated tetraoxosulphate (vi) acid at a temperature of 170°C , to dehydrate it and convert it to Prop-1-ene.



Approach 1

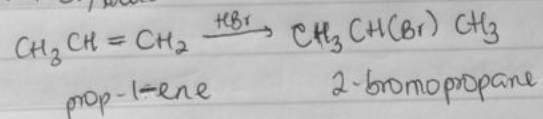
ii Propene is then hydrolyzed to propan-2-ol, following Markownikoff's addition. Water, is used as the unsymmetrical reagent, and attaches its (OH^-) to propene's carbon atom [from "CH" in $\text{CH}_3\text{CH}=\text{CH}_2$]



Approach 2

iii Prop-1-ene is converted to a haloalkane, by reaction with a hydrohalide

eg: HBr, thus:



iv 2-bromopropane is then hydrolysed using potassium hydroxide (KOH) to give propan-2-ol

