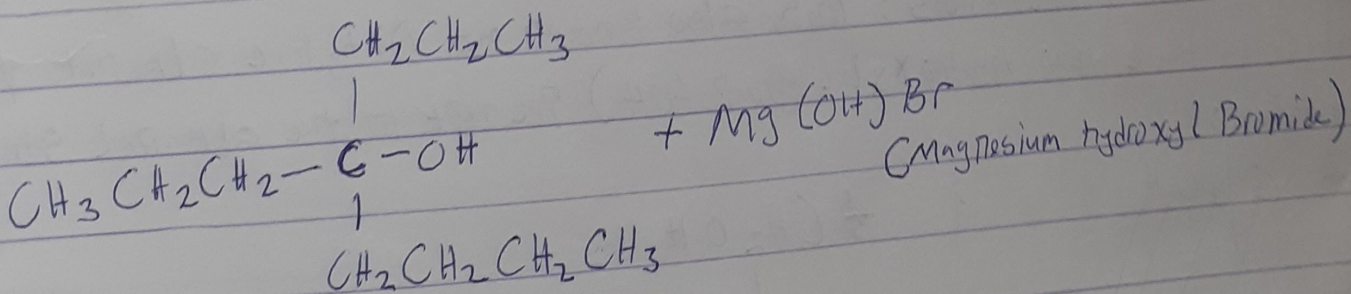
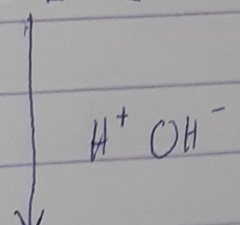
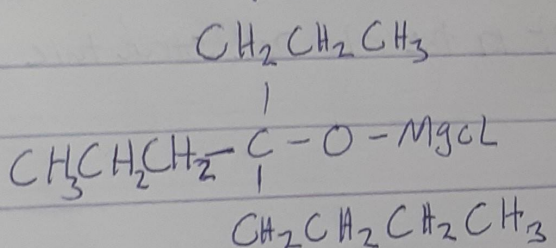
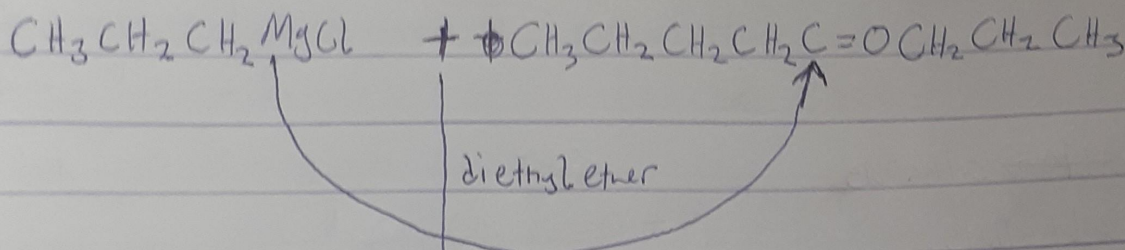
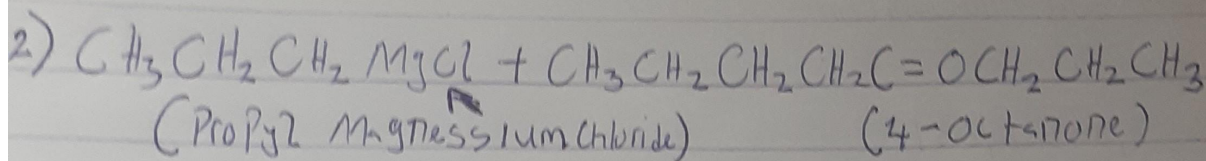
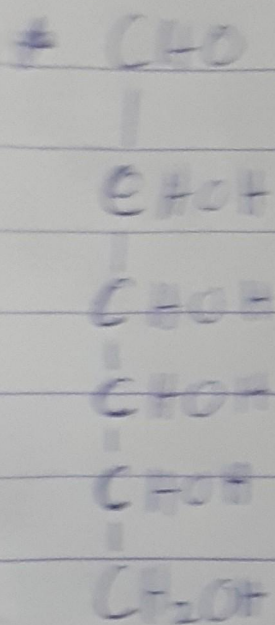


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C4-Propyl Octan-4-ol

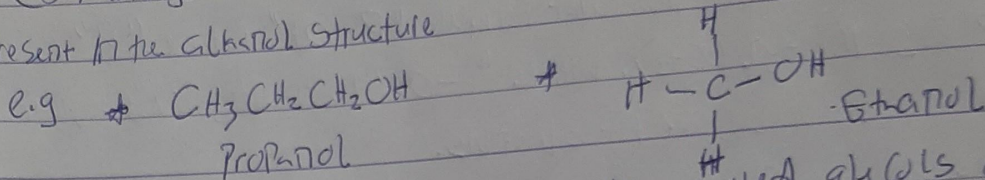


L-C-X-False

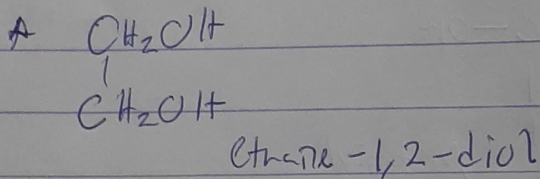
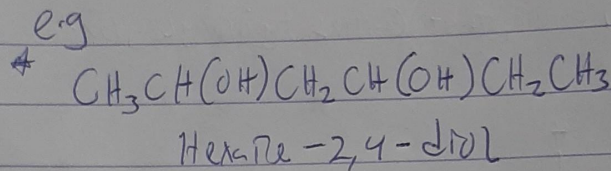
b) Classification based on the number of hydroxyl groups they possess

Note: The hydroxyl group has a general formula " $-OH$ " therefore based on this classification, alkanols can be classified as follows:

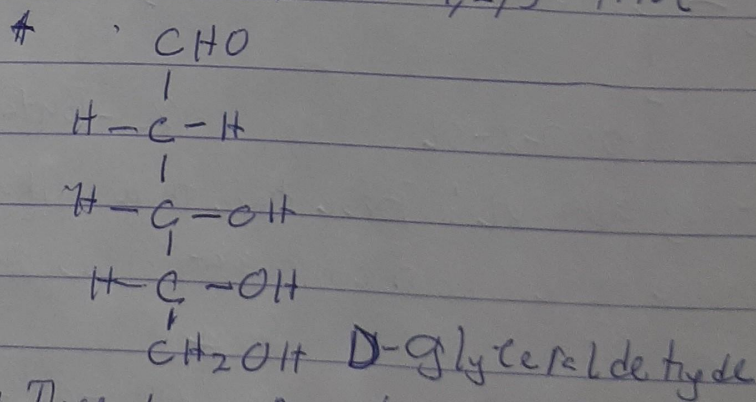
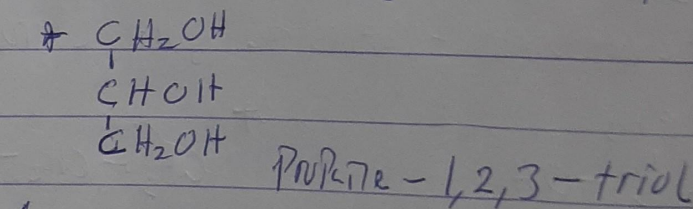
(i) Monohydric alkanols: These have only one hydroxyl group ($-OH$) present in the alkanol structure



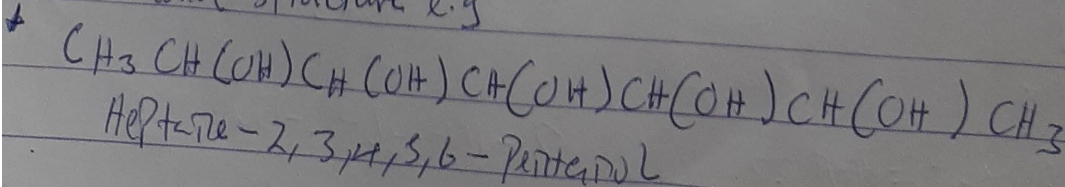
(ii) Dihydric alkanols: These are also called glycols and they have two hydroxyl groups present in the alkanol structure



(iii) Trihydric alkanols: These have three hydroxyl groups present in the alkanol structure e.g.



(iv) Polyhydric alkanols: These have more than three hydroxyl groups in the alcohol structure e.g.



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DEPARTMENT: MEDICINE AND SURGERY

COURSE: CTUM 102

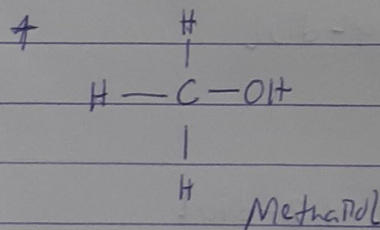
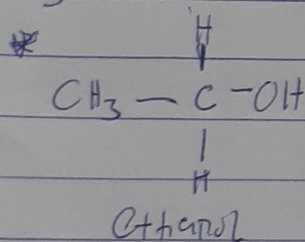
1. There are two major classifications of alcohols which are:

a) Classification based on the number of alkyl group or hydrogen atom.

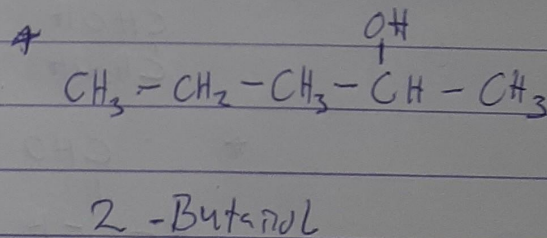
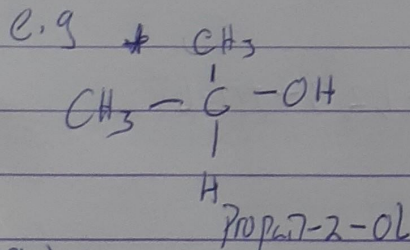
Note: Alcohol has the general molecular formula "R-OH" where "R" is the alkyl group e.g Methyl (CH_3). While "-OH" is the hydroxyl group which is the main functional group for alcohols.

Therefore based on this classification, alcohols can be classified as follows:

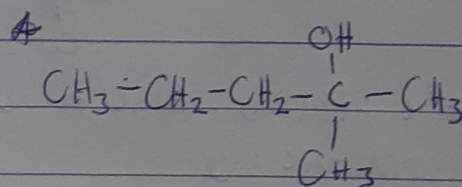
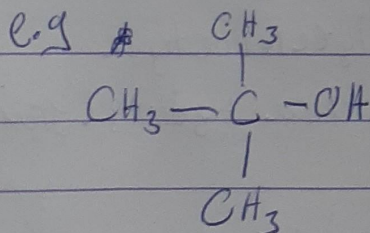
i) Primary alcohol: These have only one alkyl group or three or two hydrogen atom attached to the carbon atom that carries hydroxyl group e.g



(ii) Secondary alcohol: These have two alkyl groups or one hydrogen atom attached to the carbon that carries the hydroxyl group.



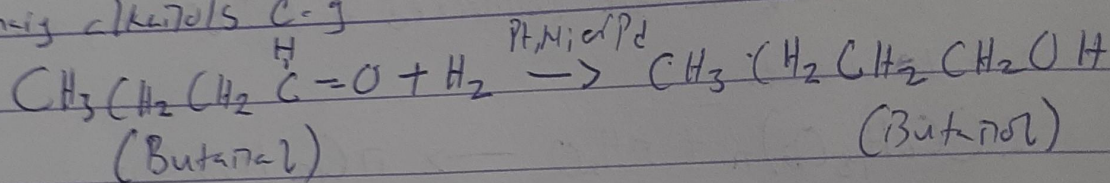
(iii) Tertiary alcohol: These have three alkyl groups and no hydrogen atom attached to the carbon atom that carries the hydroxyl group:



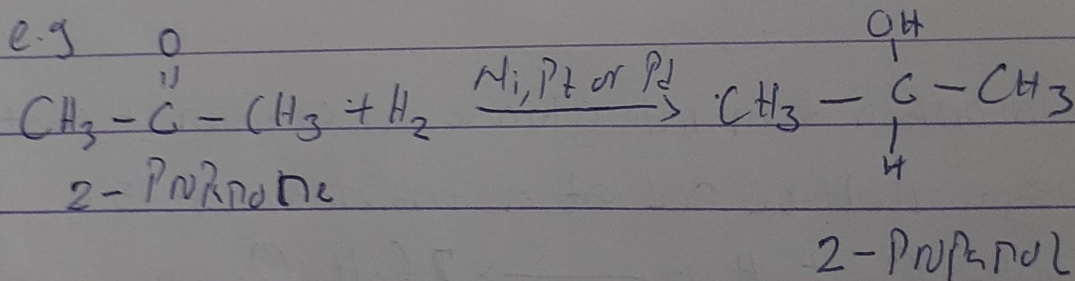
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4) Alkanals and alkanones are reduced to Primary and Secondary alkanol by hydrogenation of carbon-oxygen double bond in the presence of a catalyst such as Nickel (Ni), Platinum (Pt) catalyst or with Sodium tetrahydro borate (III) (NaBH_4)

Examples: Reduction of an alkanal yields an alkanol are reduced to Primary alkanols e.g



Reduction of an alkanone yields a Secondary alkanol

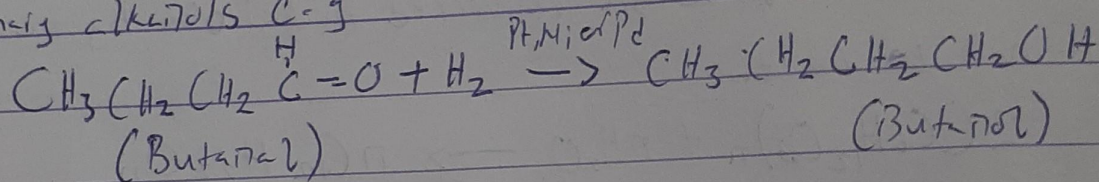


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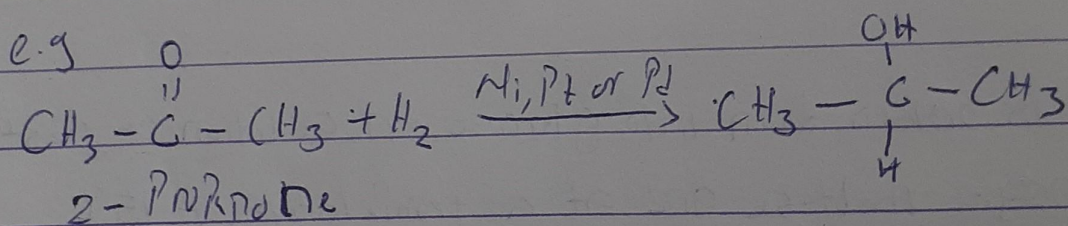
4) Alkanals and alkanones are reduced to Primary and Secondary alkanol
by hydrogenation of carbon-oxygen double bond in the presence of a
catalyst such as Nickel (Ni), Platinum (Pt) catalyst or with
Sodium tetrahydroborate (III) (NaBH_4)

Examples: * Reduction of an alkanal yields an alkanol are

reduced to primary alkanols e.g



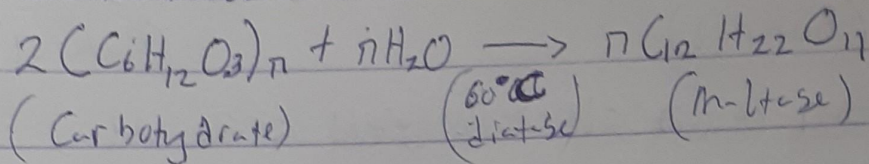
* Reduction of an alkanone yields a secondary alkanol



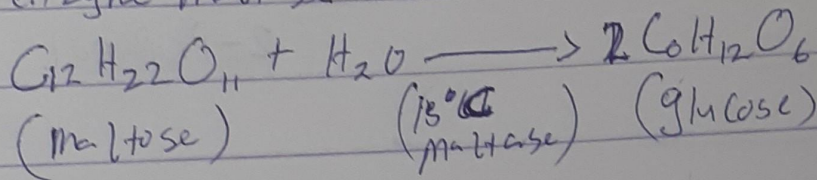
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3) Carbohydrates such as starch are major group of Natural Compounds that can be made to yield ethanol by the biological process of fermentation. The biological catalysts, enzymes found in yeast break down the carbohydrate molecule into ethanol to give a yield of 95%. The starch containing materials include cereals, rice, potatoes and on warming with malt to 60°C for a specific period of time are converted to maltose by the enzyme ~~diastase~~ diastase contained in malt.



The maltose is broken down into glucose on addition of yeast which contains the enzyme maltase and at a temperature of 15°C



The glucose at constant temperature of 15°C is then converted into alcohol (ethanol) by the enzyme Zymase (contained also in yeast).

