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**ASSIGNMENT ANSWER**

1. These are the classifications of alcohols

* Primary alcohol
* Secondary alcohol

PRIMARY ALCOHOL

This is actually based on the number of hydrogen attached to the carbon atom containing the hydroxyl group. That is if the number of hydrogen atoms is attached to the carbon atom bearing the hydroxyl group are two or three therefore it’s called a primary alcohol. Examples include; Ethanol (CH3CH2OH); Propan-1-ol (CH3CH2CH2OH); 2-methylpropan-1-ol (CH3CH-CH3CH2OH).

SECONDARY ALCOHOL

This is based in the carbon atom with one -OH group attached to it is joined directly to two alkyl groups which may be the same or different. Examples include;

* Propan-2-ol (OH)

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CH3- CH- CH3

* Butan-2-ol (OH)

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CH3- CH- CH2 - CH3

* Pentan-3-ol (OH)

|

CH3- CH2-CH- CH3

O

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2.CH3MgBr + CH3CH2CH2CH2CCH2CH2CH3

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Grignard reagent Octan-2-ene

This reaction will react to give produce a tertiary alcohol

CH3

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Mg(Br)Cl + CH3CH2CH2CH2-C-CH2CH2CH3

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OH (Tertiary alcohol is produced)

**3.INDUSTRIAL MANUFACTURE OF ALCOHOL**

**PRODUCTION OF ETHANOL**

The biological catalyst, enzymes found in yeast break down the carbohydrates molecule into ethanol to give a yield of 95% and the starch contains molasses, potatoes, cereals, rice, and on waring malt to 60^0C for a specific period of time are converted into maltose by the enzyme diastase contained in the malt.

2(C6H10O5) n + n (H2O) -----------60^0C/diastase------------- n(C12H22O11)

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Carbohydrate Maltose

The maltose is broken down into glucose on addition pf yeast which contains the enzyme maltase and at a temperature of 15^0C

C12H22O11 + n (H2O) -------15^0C/maltase--------- 2C6H12O6

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Maltose Glucose

The glucose at constant temperature of 15^0C is then converted into alcohol by the enzyme Zymase contained also in yeast.

C6H12O6 -------15^0C/Zymase-------- 2CH3CH2OH + 2CO2

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Glucose Ethanol

H H

| |

4.Alcohol R - C = O + H2 -------Ni----- R - C - OH

|

H

H

|

Example CH3CH = O + H2 -------Ni-------- CH3 - C - OH

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Ethanol H

R R

| |

Alcohol C = O + H2 ----Pt----- H - C- OH

| |

R PRIME R PRIME

CONTINUATION

CH3 CH3

| |

Example C = O + H2 ------Pt------ H - C - OH PROPANOL

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CH3 CH3