***NWOBODO LUCY CHISOM***

***MATRIC NO; 19/MHS11/088***

***DEPT; PHARMACY***

**1a)** This is based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If the hydrogen atom attached to the carbon atoms bearing the hydroxyl group are 3 or 2, they are primary alcohols. If it is one hydrogen atom it is called the secondary alcohol and if no hydrogen atom is attached it is called the tetiary alcohol.

EXAMPLE; **CH3OH(1O), CH3CH(OH)(H3(2O), CH3)3(-OH((3O)**

**(methanol) (propan-2-ol) (2-methylpropan-2-ol)**

**b**) This is baseed on the number of hydroxyl groups they possess- monohydric alcohol have 1 hydroxyl group, dihydric has 2 hydroxyl group and trihydric has 3 present. Polyhydric alcohols have more than 3 hydroxyl group present [heptane 2,3,4,5,6-pentol]

EXAMPLE;  **CH3CH2CHOH(monohydric), HOCH2CH2OH(dihydric)**

**(propanol) (ethane 1,2-diol)**

**2)** Use **CH3CH2CH2MgBr** as lingnard reagent

**8- 8+**

**CH3CH2CH2MgBr + CH3CH2CH2CH2-----C = O------------I**

**I I**

**CH2CH2CH3 I**

**CH3CH2CH3 ICH2CH3CH3**

**I H+ OH II8+ 8-**

**CH3CH2CH2-----C-----OH + Mg(OH)Br -------------- CH3CH2CH2---------C----------OMgBr**

**I Hydrolysis I**

**CH3CH2CH2CH3 CH3CH2CH2CH3**

**3)** Carbohydrates such as starch can be made to yield ethanol by the process of fermentation. The enzymes in yeast break down into ethanol to yield 95% the starch on warming with malt to 60 degrees celcius are converted into maltose by diastase.

**2(C6H10O5)n + nH2O -------------- nC12H22O11**

**carbohydrate 60C/diastase maltose**

The maltose is broken down into glucose on addition of yeast which contains maltose at 15O

**C12H22O11 + H2O ---------------------- 2C6H12O6**

**15C/maltose glucose**

The glucose at constant temp of 15OC is converted to alcohol by zymase also in yeast

**C6H12O6 -------------------------2CH3CH2OH + 2CO2**

**glucose ethanol**

**alkanol H2(Nior.pt) cat. primary alcohol**

**4.i) HCHO --------------------------- CH3OH**

**or LiALH4**

**alkanone  H2(NiOr.pt) cat. secondary alcohol**

**(ii)****CH3CH2C = O -------------------- CH3CH3CHOH**

**or LiAH4**

**OLiAH4**

**(ii)CH3CH2C//  -------------------- CH3CH2CH2OH (1O)**

**\ H2O**

**H**

**H2(NiOr.pt) cat.**

**(ii) CH3CH2CH2C = O ------------------------ CH3CH2CH2CH (2O)**

**or LiAH4 I**

**OH**