*ADOOH NORNUBARI FAVOUR*

*19/MHS01/045*

*CHM 102Assignment*

*1.ClassificationofAlcohols*

*A. Classification based on the number of hydrogen atoms*

*Attached to the carbon atom containing the OH-group*

*i. If 2 or 3 hydrogen atoms are attached to the*

*carbon atom bearing the OH-group, it is called a*

*primary alcohol (1°).*

*ii. If one hydrogen atom is attached, it is called a*

*secondary alcohol (2°).*

*iii. If no hydrogen atom is attached to the carbon*

*atom, it is a tertiary alcohol(3°).*

*Examples.*

*Methanol CH3OH (1°)*

*Propan2ol CH3CH(OH)CH3(2°)*

*B. Classification based on the number of hydroxyl groups they*

*possess. Monohydric alcohol have one OH-group present in*

*the alcohol structure. Dihydric alcohols are called glycols,*

*theyhave2hydroxylgrouppresentinthestructurewhile*

*trihydricalcoholsortriolshave3OHgroupspresentinthe*

*structure of the alcohol. Polydric alcohols or polyolshave*

*morethan3OHgroups.*

*Examples*

*Monohydric alcohol–PropanolCH3CH2CH2OH*

*Dihydric alcohol–Ethane1,2diolHOCH2-CH2OH*

*2.GrignardsynthesisofAlkanols*

*Grignard reagent–C2H5MgBr*

*CH3CH2CH2CH2-C=OCH2CH2CH3+ C2H5MgBr*

*C4H9C3H7C2H5–C–OMgBr— — — > C4H9C3H7C2H5–*

*C–OH +Mg(OH)Br*

*3.IndustrialmanufacturerofEthanol*

*Carbohydrate 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 breakdown the carbohydrate molecules into ethanol to*

*giveayieldof95%.On warming starch with malt to 60° for a*

*specificperio6oftimeareconvertedintomaltosebytheenzyme*

*diastase contained in the malt.*

*2(C6H10O5)n+nH2O. — — > n(C12H22O11)*

*Carbohydrate 60°C/diastase. Maltose*

*The maltose is broken down into glucose on addition of yeast*

*whichcontainstheenzymemaltaseandatatemperatureof15°.*

*C12H22O11+H2O. — — –> 2C6H12O6*

*Maltose. 15°C/maltase. Glucose*

*The glucose at constant temperature o f15°C is then converted*

*Into alcohol by the enzyme Zymase contained also in yeast*

*C6H12O6. — — — > 2CH3CH2OH+2CO2*

*Glucose. 15°C/Zymase Ethanol*

*4.Alkanone.Reductionofalkanonegivessecondaryalkanols*

*CH3C2H5-C=O — — –> CH3C2H5CHOH(2°)alcohol*

*LiAlH4*

*Alkanals. Reduction of alkanals gives primary alkanols.*

*CH3CH2CH=O — — –> CH3CH2CH2OH*

*LiAlH4/H2O*