**Solution Assignment 1 2021 Biorefinery**

**1**

The overall stoichiometric equation for the production of lactic acid and ethanol from glucose

C6H12O6 🡪 2C3H6O3

The overall stoichiometric equation for the production of methane from glucose

C6H12O6 🡪 3CO2 + 3CH4

The overall stoichiometric equation for the production of ethanol from glucose

C6H12O6 🡪 2C2H6O + 2CO2

The overall stoichiometric equation for the production of butanol from glucose

C6H12O6 🡪 C4H10O + H2O + 2CO2

The overall stoichiometric equation for the production of hydroxymethylfurfural from glucose

C6H12O6 🡪 C6H6O3 + 3H2O

The overall stoichiometric equation for the production of methylfurfural from glucose

C6H12O6 🡪 C5H6O + 3H2O + CO2

The overall stoichiometric equation for the production of butene from glucose

C6H12O6 🡪 C4H8 + 2H2O + 2CO2

The overall stoichiometric equation for the production of γ-valerolactone from glucose

C6H12O6 🡪 C5H8O2 + 2H2O + CO2

The overall stoichiometric equation for the production of levulinic acid and formic acid from glucose

C6H12O6 🡪 C5H8O3 + CH2O2 + H2O

The overall stoichiometric equation for the production of carbon from glucose

C6H12O6 🡪 6C + 6H2O

**No. 2.**

The stoichiometric equation of ethanol fermentation

C6H12O6 🡪 2C2H6O + 2CO2

The stoichiometric equation of acetic acid fermentation

C6H12O6 🡪 3C2H4O2

The stoichiometric equation of lactic acid fermentation

C6H12O6 🡪 2C3H6O3