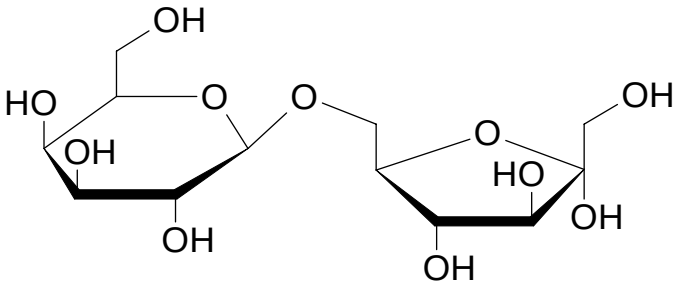
# Recitation 08 Problems


**WARM UP QUESTION** (Exam 2, Q2, 1999)

Suppose liver tissue metabolizes galactose. (a) What would be the probable end product(s) under conditions of high cellular concentration of ATP and (b) show how the product(s) would be formed (no formulas are necessary). (c) What would happen to the galactose if the cellular concentration of ATP is relatively low?

**QUESTION 1** (Exam 2, Q3, 1996)

Give a set of proposed enzymatic reactions that would allow the disaccharide shown below to be converted to 2 glucose units of glycogen. Assume the presence of any other compounds that may be needed for this overall conversion. No need to use structural formulas unless you wish to do so. What type of enzyme would be needed to begin the reaction sequence (i.e., to convert the disaccharide to 2 monosaccharides)?



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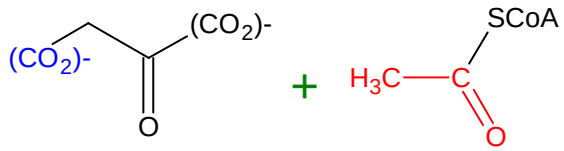
**QUESTION 2**

1 mole of Oxaloacetate (OAA) and 1 mole of Acetyl CoA are converted to Succinate. If the OAA and Acetyl CoA are labeled as shown below, where will the respective labeled atoms be in the steps leading up to Succinate production? Please show all TCA cycle intermediates. (See side board for color version)




Oxaloacetate (OAA)

Acetyl CoA

**QUESTION 3** (Exam 2, Q3, 1999)

Suppose that in the liver, the enzyme phosphoenolpyruvate carboxylase, functions for the formation of oxaloacetate. What would the other substrates and products be? With the use of structural formulas, give the mechanism of this enzymatic reaction.