

NAME(s): \_\_\_\_\_  
Chem 227 / Dr. Rusay

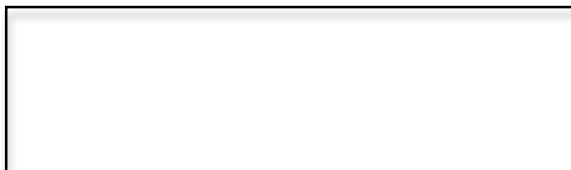
Sec. \_\_\_\_\_

### Pre-lab Flatulence

Carbohydrates, Digestion & Enzymes

(**Clearly** answer the following questions and turn in. Can be done in partnerships of no larger than three members per group.)

1. Draw a Haworth structure for sucrose.



2. Draw Fisher formulas for the un-cyclized forms and Haworth structures for the cyclized forms of D-glucose and D-fructose. Label the cyclized forms as either the  $\alpha$ -anomer or  $\beta$ -anomer.

D-glucose (uncyclized)	D-glucose (cyclized)  $\alpha$ -anomer or $\beta$ -anomer
D-fructose (uncyclized)	D-fructose (cyclized)  $\alpha$ -anomer or $\beta$ -anomer

3. What are the respective molecular formulas and Molar Masses of a) verbascose, b) stachyose, and c) raffinose? (Attach your calculations.)

	Molecular Formula	Molar Mass
verbascose		
stachyose		
raffinose		

4. How many grams of glucose and fructose would be produced by complete hydrolysis of 5 mmol of a) verbascose, b) stachyose, and c) raffinose respectively? (Attach your calculations.)

	glucose (g)	fructose (g)
verbascose		
stachyose		
raffinose		

5. How much energy (kJ) is produced from the complete metabolic oxidation of 5 mmol of glucose to CO<sub>2</sub> and H<sub>2</sub>O? (Attach your calculations.)

