Food Science Exam
Augusta State University
March 5, 2005
Answer Key

Directions: Please place answer in indicated place or specified format. Improper answers will receive no credit. You have 50 minutes to complete this test. You may use a non-programmable calculator.

1. (4) Distinguish between digestable and indigestible carbohydrates. (2)

Provide one example of each of the above two kinds of carbohydrates.
Digestable (1) *can be broken down by enzymes in our bodies*
Indigestable (1) *not able to be broken down by enzymes*

2. (5) You have a food that you know contains **starch**. Check all of the foods that it could be.

____ milk
__x_ bread
__x_ cereal
____ eggs
____ fish
__x_ beans
__x_ oatmeal
__x_ corn
____ ham
____ lettuce

3. (5) Listed below are the ingredients on a food label. Check all the food items that could be classified as carbohydrates.

__x_ sugar
__x_ Maltose
____ vegetable oil
__x_ high fructose corn syrup
____ mono and diglycerides
____ sodium phosphate
____ cocoa
____ lecithin
____ spices

4. (5) a. What chemical is used to test for starch? (2) *iodine*
b. If you used the above chemical, what color will a food containing starch be? (2) *black or blue-black*
c. What color will a food that does not contain starch be? (1) *amber/ gold/yellow*

5. (5) Determine the number of grams of carbohydrates/8 oz serving in each of the following and enter the value in the chart. Arrange the food in order of carbs/8 oz. Enter the words High, Middle, Low in the chart.
begin with the highest carb containing food first.

Food	Serving size	Carbs/serving	Carbs/8oz	Ranking
A	2 oz	8 g	*32 g*	*Middle*
B	4oz	18 g	*36 g*	*Highest*
C	6 oz	20g	*26.4 g*	*Lowest*

6. (4) a. Check the food in the list below that is a good source of fiber. (1)

____ cheese sandwich
____ macaroni and cheese
__x_ salad
____ taco

b. Why do people require fiber in diet? (2) *It helps food move through intestines producing softer stools.*

c. Name one disease that has been associated with a low fiber diet. (1) *colon cancer; constipation*

7. (5) Check each food in the list below that contains starch.

____ cheese
____ apple
__x_ bread
____ plain yogurt
____ turkey
__x_ taco shells

8. (10) Check all foods in the list below containing large amounts of carbohydrates.

__x__ carrots
__x__ milk
__x__ celery
__x__ cola
__x__ pear
__x__ apple juice
_____ roast beef
__x__ walnuts
_____ eggs

9. (5) a. What is the difference between complex and simple carbohydrates?

Complex contain more than simple sugars; they contain vitamins and minerals..

b. Why are complex carbohydrates healthier than simple carbohydrates?
Simple carbs do not contain any other useful food items.

c. Which of these foods will contain **no** complex carbohydrates? Check all that apply.

__x__ fruit juice
__x__ cola
_____ donut
__x__ milk
_____ coffee cake
_____ bean burrito

*10. a. (3) In which part of the human body are carbohydrates digested?
(mouth) small intestine

b. Where will digested carbohydrates be absorbed in the human body?
Small intestine

11. (3) Bacteria can be grown in test tubes containing specific ingredients, such as various sugars. If the bacteria can use the sugar, the liquid will turn yellow; if they cannot use a sugar, the liquid will remain red. Four different bacteria are grown in tubes containing one of the following: sucrose, lactose, fructose, and mannose. The results appear below:

Organism	sucrose	Lactose	fructose	Mannose
1	yellow	Red	yellow	yellow
2	red	Red	yellow	Red
3	red	yellow	red	red
4	yellow	Yellow	red	Yellow

a. Which organism can use the most sugars? 1 or 4

b. Which organism is able to use the least sugars? *2 or 3*

c. Which organism(s) can use lactose and mannose? 4