

**Food Science**  
**Augusta State University**  
**March 5, 2005**

Participant Name(s): \_\_\_\_\_

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 digestible and indigestible carbohydrates. (2)

Digestible (1) \_\_\_\_\_

Indigestible (1) \_\_\_\_\_

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

|                                 |                                  |
|---------------------------------|----------------------------------|
| <input type="checkbox"/> milk   | <input type="checkbox"/> oatmeal |
| <input type="checkbox"/> bread  | <input type="checkbox"/> corn    |
| <input type="checkbox"/> cereal | <input type="checkbox"/> ham     |
| <input type="checkbox"/> eggs   | <input type="checkbox"/> lettuce |
| <input type="checkbox"/> fish   |                                  |
| <input type="checkbox"/> beans  |                                  |

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

|  |  |
|--|--|
| <input type="checkbox"/> sugar                       | <input type="checkbox"/> mono and diglycerides |
| <input type="checkbox"/> Maltose                     | <input type="checkbox"/> sodium phosphate      |
| <input type="checkbox"/> vegetable oil               | <input type="checkbox"/> cocoa                 |
| <input type="checkbox"/> high fructose corn<br>syrup | <input type="checkbox"/> lecithin              |
|  | <input type="checkbox"/> spices                |

4. (5) a. What chemical is used to test for starch? (2) \_\_\_\_\_
- b. If you used the above chemical, what color will a food containing starch be? (2) \_\_\_\_\_
- c. What color will a food that does not contain starch be? (1) \_\_\_\_\_
- \_\_\_\_\_



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

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b. Why are complex carbohydrates healthier than simple carbohydrates?

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

- |                   |                    |
|-------------------|--------------------|
| _____ fruit juice | _____ milk         |
| _____ cola        | _____ coffee cake  |
| _____ donut       | _____ bean burrito |

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

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

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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? \_\_\_\_\_

b. Which organism is able to use the least sugars? \_\_\_\_\_

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