NOTE: Do not study from this test! For best results, study your textbook chapter, study guide, labs, and any other required coursework to the point at which you think that you are ready for the proctored exam in the learning center testing room. Then, take this test from beginning to end, without the help of your textbook, study guide, or any other resources. Once you are done with the test, check your answers. Finally, using your textbook, study guide, labs, etc. go back and review information that you missed or did not fully understand. If you follow our advice, you will have a better gauge of how well prepared you are for the proctored exam.

Some students get a false sense of security for the real exam, because they “studied” from this test rather than treating it as a true practice test. Don’t bother trying to memorize the answers. The real exam will have different questions with different answers! You need to understand, not memorize.

Answer the following questions on a separate sheet of paper.

1. Which of the following is not one of the six main minerals of the body?
   a. chloride
   b. magnesium
   c. phosphorus
   d. niacin

2. Suppose an absent-minded aquatic biologist accidentally puts a saltwater fish in a freshwater aquarium. Thus, fresh water would be free to enter the fish and surround its body cells. What would happen to the cells of this fish?
   a. Osmosis will not affect the fish’s cells, because there will be no net movement of water into or out of the cells.
   b. Osmosis will cause water to enter the fish’s cells until they burst.
   c. Osmosis will cause water to leave the fish’s cells, causing the cells to collapse.

3. Imagine a balloon is made from a membrane that is permeable to water but not sucrose molecules. If the balloon is filled with fresh water and then placed in a beaker filled with 50% sucrose solution, then the balloon will:
   a. not change in size or volume.
   b. get smaller as it loses water.
   c. get larger as it gains water.

4. What would happen if activation energy barriers didn't exist?
   a. Substrates would not bind properly to enzymes.
   b. Chemical reactions in the body would never occur.
   c. The body's metabolism would decrease to the point where food molecules couldn't be broken down.
   d. All chemical reactions in the body would proceed whether they were needed or not.

5. Saturated fats:
a. contain only single bonds between carbon atoms.
b. contain double bonds between carbon atoms.
c. contain fewer hydrogen atoms than unsaturated fats.
d. are more healthy than unsaturated fats.

6. The following nutritional information compares a bag of regular tortilla chips and a bag of baked tortilla chips. Which of these snacks is healthier and why?

Serving size: Reg. Chips = 1 oz / Baked Chips = 1 oz
Calories: Reg. Chips = 140 / Baked Chips = 120
Total fat: Reg. Chips = 9 g / Baked Chips = 2 g
Saturated fat: Reg. Chips = 1 g / Baked Chips = 1 g
Trans fat: Reg. Chips = 0 g / Baked Chips = 0 g
Cholesterol: Reg. Chips = 0 mg / Baked Chips = 0 mg
Fiber: Reg. Chips = 1 g / Baked Chips = 1 g
Sugars: Reg. Chips = 0 g / Baked Chips = 0 g
Protein: Reg. Chips = 2 g / Baked Chips = 2 g

a. The regular tortilla chips are healthier because they contain fewer Calories and less total fat.
b. The baked tortilla chips are healthier because they contain fewer Calories and less total fat.
c. The regular tortilla chips are healthier because they contain fewer Calories, less saturated fat, and more fiber.
d. The baked tortilla chips are healthier because they contain fewer Calories, less saturated fat, and more fiber.

7. Vitamin ________ is not water-soluble.

a. B6
b. B12
c. D
d. C

8. Which of the following vitamins should you be most concerned about consuming in excess?

a. vitamin B6
b. vitamin B12
c. vitamin E
d. vitamin C

9. Simple diffusion is:

a. one type of active transport.
b. the movement of water across a cell membrane.
c. the movement of molecules from an area of high concentration to an area of low concentration.
d. the movement of molecules from an area of low concentration to an area of high concentration.

10. When molecules or atoms move down a concentration gradient across cell membranes, it's
called:

a. active transport.

b. passive transport.

c. exocytosis.

d. endocytosis.

11. What makes some people "lactose intolerant" as adults?

a. Some people don't produce any enzymes, including the one needed to digest lactose.

b. Lactose can only be digested by people who produce enough lactic acid to digest it.

c. Lactose-intolerant people don't produce adequate amounts of lactase.

d. The active site of the lactose-digesting enzyme can vary from person to person.

12. Which of the following require a cell to expend energy?

a. simple diffusion and facilitated diffusion

b. facilitated diffusion and active transport

c. active transport and endocytosis

d. osmosis and facilitated diffusion

13. Which of the following require a transport protein?

a. simple diffusion and facilitated diffusion

b. facilitated diffusion and active transport

c. osmosis and facilitated diffusion

d. active transport and osmosis

14. Specialized white blood cells, called macrophages, engulf bacteria and other foreign particles by bringing them into the cell via a vesicle. Once inside the cell the foreign substances are broken down. What process was used to bring the material into the cell?

a. exocytosis

b. active transport

c. facilitated diffusion

d. endocytosis

15. What is a major difference between saturated and unsaturated fats?

a. At room temperature, saturated fats are liquid and unsaturated fats are solid.

b. Unsaturated fats have a flat molecular structure, but saturated fats are kinked.

c. Unsaturated fat molecules are packed together loosely, but saturated fats are tightly packed.

d. Saturated fats contain carbon-to-carbon double bonds, but unsaturated fats don't.

16. What would happen to the cells of a plant if it were watered with saltwater from the ocean? (the cells of the plant would end up being surrounded by saltwater)

a. the amount of water in the plant cells would not change

b. the plant cells would gain water

c. the plant cells would lose water
17. In an experiment, a small dialysis bag is filled with a 40% salt solution. It is placed in a beaker filled with a 20% salt solution. What will happen to the weight of the dialysis bag?

a. the weight will not change  
b. the bag will gain weight  
c. the bag will lose weight

18. Vitamins in the human body:

a. are sources of stored energy.  
b. help enzymes function properly.  
c. act as hormones that trigger cells to take up glucose.  
d. are the basis of the plasma membrane.

19. Vitamin ________ is not fat-soluble nor is it stored in fat within the body.

a. A  
b. C  
c. D  
d. E

20. Sharks living in the ocean are isotonic to their environments, that is, the concentration of solutes inside their cells is the same as the concentration of solutes in their external environment. How will osmosis affect shark cells in their natural environment?

a. Osmosis will not affect shark cells, because there will be no net movement of water into or out of the cells.  
b. Osmosis will cause water to enter the cells until they burst.  
c. Osmosis will cause water to leave the cells, causing the cells to collapse.

21. Which of the following is true regarding the BMI of healthy men and women?

a. Both healthy men and women have a BMI of at least 20 but less than 25.  
b. Healthy men always have a higher BMI than healthy women.  
c. A BMI of 10 or less is ideal for both sexes.  
d. The BMI of both healthy men and healthy women tends to decrease with age.

22. Which is a correct statement about diet, exercise, and disease?

a. Type II diabetes is a disorder that can't be controlled by a change in diet or exercise.  
b. Hypertension is a major disease associated with lack of exercise and an unhealthy diet.  
c. Heart attacks are due to factors such as a lack of diet and exercise but are not due to genetics.  
d. Increased exercise and a better diet can clear away all HDL and LDL cholesterol from blood vessels.

23. Eating disorders in which the body is starved of calories are dangerous because:

a. menstruation can increase in frequency.  
b. there's an increased risk of stroke.
c. bone density can decrease, resulting in osteoporosis.
d. they can lead to high blood pressure.

24. Which of the following is NOT a macronutrient?

a. water  
 b. fat  
 c. protein  
 d. vitamin C

25. Plants store excess glucose in the form of ________________.

a. glycogen  
 b. starch  
 c. cellulose  
 d. amino acids

26. Why is it a good idea to include protein from two different sources, such as eating cereal and milk or beans and rice?

a. You are more likely to obtain enough calories.  
b. You are more likely to get a complete protein.  
c. You are less likely to consume too many trans fats.  
d. It helps to lower your bad cholesterol levels.

27. The following nutritional information compares two common sandwich spreads: mayonnaise and mustard. Which of these is healthier to put on a sandwich, and why?

Serving size: Mayo = 1 tbsp. / Mustard = 1 tbsp.  
Calories: Mayo = 90 / Mustard = 15  
Total fat: Mayo = 10 g / Mustard = 0 g  
Saturated fat: Mayo = 2 g / Mustard = 0 g  
Trans fat: Mayo = 0 g / Mustard = 0 g  
Cholesterol: Mayo = 5 mg / Mustard = 0 mg  
Fiber: Mayo = 0 g / Mustard = 0 g  
Sugars: Mayo = 0 g / Mustard = 0 g  
Protein: Mayo = 0 g / Mustard = 0 g

a. The mustard is healthier because it contains fewer Calories and less total fat and saturated fat.  
b. The mayo is healthier because it contains fewer Calories and less total fat and saturated fat.  
c. The mustard is healthier because it contains fewer Calories, less trans fat, and more protein.  
d. The mayo is healthier because it contains fewer Calories, less trans fat, and more protein.

28. Which of the following is most likely an enzyme?

a. proline  
b. stearic acid  
c. endopeptidase  
d. acetylcholine
29. Which of the following is found in saliva?

a. catalase  
b. lactase  
c. amylase  
d. sucrase

30. To lose one pound of fat in a week, what combination of changes in your diet and exercise is needed?

a. Reduce food intake by 200 Calories per day and increase exercise to burn off 300 more Calories per day.  
b. Reduce food intake by 200 Calories per day and increase exercise to burn off 200 more Calories per day.  
c. Reduce food intake by 400 Calories per day with no change in exercise.  
d. Increase exercise to burn off 400 more Calories per day with no change in diet.

Answers:

1. d  
2. b  
3. b  
4. d  
5. a  
6. b  
7. c  
8. c  
9. c  
10. b  
11. c  
12. c  
13. b  
14. d  
15. c  
16. c  
17. b  
18. b  
19. b  
20. a  
21. a  
22. b  
23. c  
24. d  
25. b  
26. b  
27. a  
28. c  
29. c  
30. a