

# THE SCIENCE OF NUTRITION

This test places emphasis on accurate and scientifically sound information about human nutrition. Topics covered include: the digestive system; metabolism; the effects of carbohydrates, fats and proteins on health; vitamins and minerals; food choices; nutrition in various stages of the life cycle, and the effect of diet on wellness and fitness. (3 s.h.) BIO-208-TE

This is a two-hour examination in which you must answer 100 multiple-choice questions worth 1 point each. A passing score is **60** out of 100 points.

**Here are the areas covered and their approximate importance on the test:**

## **I. DIGESTION (10%)**

- A. The digestive system
- B. Enzymes and hormones related to the digestive system

## **II. METABOLIC PROCESSES (40%)**

- A. Carbohydrates
- B. Lipids
- C. Proteins
- D. Metabolic reactions: Hormonal regulation of glucose and fat metabolism
- E. Water-soluble vitamins
- F. Fat-soluble vitamins
- G. Water and the major minerals
- H. Trace minerals

## **III. DIRECT NUTRITIONAL CONCERNS (50%)**

- A. Overview of nutrition: Nutrients; sound sources of nutritional information; dietary reference intakes; planning a healthy diet
- B. Weight management: kCalories and energy; body weight and composition; causes-problems-treatments for overweight and underweight
- C. Physical activity, fitness, and nutrition
- D. Life cycle nutrition: Pregnancy; infancy; childhood; adulthood; the later years
- E. Diet and health: Hypertension; cardiovascular disease; cancer; diabetes
- F. Consumer concerns about foods and water: Understanding food labels; food-borne illnesses; additives and preservatives; organic food; sports drinks
- G. Hunger

**A textbook to help you prepare:**

Eleanor Whitney and Sharon Rolfes. *Understanding Nutrition*  
Current edition. Belmont, CA: Wadsworth/Thompson

## SAMPLE QUESTIONS

1. Which of the following is a function of sphincter muscles?
  - a. Control peristalsis
  - b. Grind large food particles
  - c. Secrete digestive juices into the GI tract
  - d. Control passage of food through the GI tract
  
2. Which of the following body organs does NOT secrete digestive enzymes?
  - a. Liver
  - b. Stomach
  - c. Pancreas
  - d. Salivary glands
  
3. What is the function of bile?
  - a. It emulsifies fats.
  - b. It initiates digestion of protein.
  - c. It enhances absorption of complex carbohydrates.
  - d. It protects stomach and small intestine from hydrochloric acid.
  
4. What are the most intensively investigated additives?
  - a. Flavor enhancers
  - b. Antimicrobial agents
  - c. Artificial colors
  - d. Antioxidants
  
5. The word *organic* on a food label is no guarantee that the food is
  - a. pesticide-free
  - b. fertilized with manure or vegetable compost
  - c. grown without hormones or antibiotics
  - d. produced without genetic modification
  
6. All of the following are consequences of ingesting excess vitamin C supplements EXCEPT
  - a. frequently causing diarrhea
  - b. enhancing the action of anticlotting medications
  - c. being safe at levels up to 300 mg/day
  - d. interfering with laboratory urine tests for the diagnosis of diabetes
  
7. What is the approximate length of the typical adolescent growth spurt?
  - a. 6 months
  - b. 1 year
  - c. 2.5 years
  - d. 4.5 years

8. About how many glasses of water should older adults drink every day?
- 2 to 4
  - 4 to 6
  - 6 to 8
  - 8 to 10
9. Blood cholesterol levels and death from heart disease tend to be lower when fish, fruits, and vegetables are eaten in abundance and dietary fat mostly consists of
- saturated fats
  - monounsaturated fats
  - polyunsaturated fats
  - omega-6 fats
10. Who is the most appropriate person to consult regarding nutritional information?
- Chiropractor
  - Medical doctor
  - Health food store owner
  - Registered dietitian
11. Glycogen is mainly stored in
- muscle and liver tissue
  - pancreas and kidney tissue
  - stomach and intestine tissue
  - brain and red blood cell tissue
12. In what part of the body are chylomicrons produced?
- Liver
  - Small intestine
  - Pancreas
  - Gall bladder
13. Which of the following food proteins has the best assortment of essential amino acids?
- Rice
  - Fish
  - Corn
  - Egg
14. Which of the following substances is most depleted after a day of fasting?
- Amino acids
  - Fatty acids
  - Glycogen
  - Triglycerides

15. What is the primary excretory route for the water-soluble vitamins?
- Bile
  - Kidney
  - Intestine
  - Perspiration
16. In what population group are the effects of vitamin A deficiency most severe?
- Newborns
  - Adolescents
  - Adults
  - Elderly
17. Which of the following minerals is LEAST likely to be a dietary deficiency?
- Iron
  - Calcium
  - Chromium
  - Phosphorus
18. Which of the following is a characteristic of the trace minerals?
- The amounts found in foods are not predictable.
  - Dermatitis is a sign of deficiency common to many trace minerals.
  - Deficiencies are more difficult to recognize in children than in adults.
  - The average person has approximately 100 grams of trace minerals in their body.
19. People who follow a vegan diet do NOT eat
- legumes
  - cheeses
  - grains
  - nuts
20. Which of the following foods requires the LEAST energy to produce?
- Fruit
  - Vegetables
  - Grains
  - Meat
21. Heavy use of soy products as a substitute for meat can inhibit absorption of
- calcium
  - folate
  - vitamin D
  - iron

22. The increasing independence that comes with adolescence can cause nutritional problems, because many adolescents
- a. have decreased appetites after their major growth spurt has taken place
  - b. take medications that diminish the nutritional value of food
  - c. spend their food money on illegal drugs
  - d. are uninterested in or unaware of the importance of good nutrition
23. Why is exercise an important part of the treatment of diabetes?
- a. It prevents the heart problems associated with diabetes.
  - b. It helps prevent amputations because exercised legs are stimulated to release stored glycogen.
  - c. It stimulates muscles to take up 10-20 times more glucose than unexercised muscles.
  - d. It burns excess kcalories and reduces body fat associated with diabetes onset.
24. Ben's caloric intake exceeds the RDA for his size, activity level, and lifestyle. In order to obtain the best possible nutrition, what should he do?
- a. Increase exercise and decrease caloric intake
  - b. Increase protein intake and decrease carbohydrate intake
  - c. Decrease fat intake since this is where the bulk of calories are contained
  - d. Not be too concerned unless he gains additional weight

### **ANSWERS TO SAMPLE QUESTIONS**

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