

MULTIPLE CHOICE

1. Which hormone causes an increase in blood glucose?
 - a. glycogen
 - b. gastrin
 - c. glucagon
 - d. sucrase

ANS: C DIF: B OBJ: 38-3
2. The hormone _____ stimulates the liver to release glucose into the blood when glucose levels are low.
 - a. glucagon
 - b. insulin
 - c. bile
 - d. gastrin

ANS: A DIF: B OBJ: 38-4
3. The hormone that causes a decrease in blood glucose is _____.
 - a. glucagon
 - b. insulin
 - c. gastrin
 - d. nuclease

ANS: B DIF: B OBJ: 38-3
4. The liver reacts to a high level of glucose in the blood by converting some of the glucose to _____.
 - a. insulin
 - b. glucagon
 - c. galactose
 - d. glycogen

ANS: D DIF: B OBJ: 38-3
5. The presence of food and the subsequent stretching of the stomach signals the _____ to stimulate an increase in gastric juices.
 - a. esophagus
 - b. medulla
 - c. liver
 - d. gallbladder

ANS: B DIF: B OBJ: 38-4

38-1

6. Food is moved through the digestive tract through a series of involuntary muscular contractions called _____.
 - a. mechanical digestion
 - b. chemical digestion
 - c. peristalsis
 - d. stimuli

ANS: C DIF: B OBJ: 38-1
7. What controls the release of food from the stomach to the small intestine?
 - a. villus
 - b. larynx
 - c. epiglottis
 - d. muscular valve

ANS: D DIF: B OBJ: 38-2
8. The first section of the small intestine is called the _____.
 - a. appendix
 - b. rectum
 - c. duodenum
 - d. villus

ANS: C DIF: B OBJ: 38-2
9. The stomach is stimulated to secrete gastrin when _____.
 - a. amylase is present
 - b. protein is present
 - c. chewing occurs
 - d. there is not enough acid

ANS: C DIF: B OBJ: 38-4
10. Cellulose is important in the diet as a source of _____.
 - a. energy
 - b. protein
 - c. fat
 - d. bulk

ANS: D DIF: B OBJ: 38-5
11. As a result of digestion, proteins are broken down to _____.
 - a. monosaccharides
 - b. amino acids
 - c. triglycerides
 - d. glycerol

ANS: B DIF: B OBJ: 38-5

38-2

12. The body's preferred energy source is _____.
- carbohydrates
 - fats
 - proteins
 - minerals

ANS: A DIF: B OBJ: 38-5

13. What is the most abundant substance in the body?

- fat
- water
- sugar
- protein

ANS: B DIF: B OBJ: 38-5

14. Vitamins are used by the body to _____.

- provide energy
- regulate processes in the body
- supply building materials
- digest proteins

ANS: B DIF: B OBJ: 38-5

15. Which of the following occurs in the large intestine as the work of anaerobic bacteria?

- absorption of water
- synthesis of vitamin K and some B vitamins
- change of glucose to glycogen
- elimination of indigestible matter

ANS: B DIF: B OBJ: 38-1

16. Which of the following is part of the digestive tract?

- liver
- small intestine
- gallbladder
- pancreas

ANS: B DIF: B OBJ: 38-2

17. The surface area of the small intestine is greatly increased by _____.

- a large number of villi
- chemical digestion
- peristalsis
- mechanical digestion

ANS: A DIF: B OBJ: 38-2

18. Which of the following is not mechanical digestion?
- chewing food
 - breakdown of fats by bile
 - churning of the stomach
 - action of pepsin on proteins

ANS: D DIF: B OBJ: 38-1

19. Starches are large _____.

- fats
- proteins
- polysaccharides
- monosaccharides

ANS: C DIF: B OBJ: 38-5

MATCHING

Match each item with the correct statement below. Write the answer in the space provided.

- | | |
|--------------------|------------------|
| a. small intestine | h. epiglottis |
| b. liver | i. esophagus |
| c. bile | j. target tissue |
| d. thyroid gland | k. pepsin |
| e. amylase | l. peristalsis |
| f. stomach | m. Calorie |
| g. endocrine gland | n. rectum |

- _____ Organ that produces bile
- _____ Ductless organ that releases hormones into the bloodstream
- _____ Narrow, muscular tube in which digestion is completed
- _____ Unit of heat used to measure the energy content of food
- _____ Specific cells in the body to which hormones convey information
- _____ Responsible for metabolic control, energy balance, and growth
- _____ Last section of the digestive system from which feces are eliminated
- _____ Chemical that breaks down fats into small droplets and helps neutralize stomach acids
- _____ Digestive enzyme that begins the chemical digestion of proteins
- _____ Muscular, pouchlike enlargement of the digestive tract
- _____ Flap of skin that covers the opening to the windpipe during swallowing
- _____ Series of involuntary muscle contractions along the walls of the digestive tract
- _____ Muscular tube that connects the mouth to the stomach
- _____ Digestive enzyme that breaks down starch into sugar molecules called disaccharides

- | | | | |
|---------------|---|--------|-----------|
| 1. ANS: _____ | b | DIF: B | OBJ: 38-1 |
| 2. ANS: _____ | g | DIF: B | OBJ: 38-3 |
| 3. ANS: _____ | a | DIF: B | OBJ: 38-1 |
| 4. ANS: _____ | m | DIF: B | OBJ: 38-6 |
| 5. ANS: _____ | j | DIF: B | OBJ: 38-3 |
| 6. ANS: _____ | d | DIF: B | OBJ: 38-4 |
| 7. ANS: _____ | n | DIF: B | OBJ: 38-2 |

8. ANS: c DIF: B OBJ: 38-1
 9. ANS: k DIF: B OBJ: 38-1
 10. ANS: f DIF: B OBJ: 38-2
 11. ANS: h DIF: B OBJ: 38-2
 12. ANS: i DIF: B OBJ: 38-1
 13. ANS: i DIF: B OBJ: 38-2
 14. ANS: e DIF: B OBJ: 38-1

SHORT ANSWER

1. How does the liver ensure that the body will have a constant supply of energy?

ANS: The liver keeps the level of nutrients in the bloodstream constant by storing as glycogen the glucose that is not needed at the time. When the liver receives blood with low levels of glucose from the small intestine, it converts the glycogen to glucose and releases it into the bloodstream.

DIF: A OBJ: 38-4

2. What is meant when it is said that someone has a fast metabolic rate?

ANS: It means that the person uses energy in food quickly. Faster metabolism means that more energy is needed and that more heat is produced.

DIF: A OBJ: 38-6

3. What causes people to gain weight?

ANS: eating more Calories than the body can metabolize

DIF: A OBJ: 38-6

4. Trace the pathway of a bite of hamburger through the digestive system.

ANS: into the mouth, down the esophagus, to the stomach, to the small intestine, to the large intestine, to the rectum, and out the anus

DIF: A OBJ: 38-2

5. How do hormones secreted by the small intestine affect digestion in both the stomach and the small intestine?

ANS: Hormones secreted by the small intestine inhibit the secretion of gastric juices in the stomach, slowing down digestion there. These hormones stimulate pancreatic secretions and the production and release of bile needed for digestion in the small intestine.

DIF: A OBJ: 38-3

6. What are the uses of proteins in the body?

ANS: Proteins are building materials for the body; they make up enzymes, antibodies, many hormones, and chemicals that help in clotting blood. They are also a part of muscles and many cell structures.

DIF: B OBJ: 38-5

7. How does thyroxine affect metabolism?

ANS: Thyroxine affects the rate at which the body uses energy and determines a person's food requirements.

DIF: B OBJ: 38-3

8. What is the role of insulin?

ANS: Insulin lowers the level of glucose in the blood. It accelerates the transport of glucose from the blood into cells. It also accelerates the conversion of glucose into glycogen.

DIF: B OBJ: 38-3

9. What is the role of glucagon? What controls the secretion of this hormone?

ANS: Glucagon increases the blood glucose level by accelerating the conversion of glycogen in the liver to glucose. Secretion of glucagon is controlled by the level of blood sugar; when the blood sugar level falls, cells are chemically stimulated to secrete glucagon.

DIF: B OBJ: 38-4

10. How is the level of glucose in the blood maintained?

ANS: Blood glucose is maintained by regular eating and by hormones making adjustments in the blood. For example, digested sugars from a meal may pass from the blood to the liver where they are converted into glycogen. The amount of glucose (sugar) in the blood is controlled by two pancreatic hormones—insulin and glucagon.

DIF: B OBJ: 38-3

11. A person suffering from diarrhea may become dehydrated. How might this cause problems in the body?

ANS: Water is necessary to regulate body temperature. Without it, the body would suffer large temperature shifts. Oxygen and nutrients would not be able to enter the cells without the assistance of water as a solvent. Water is also necessary for the process of digestion.

DIF: A OBJ: 38-1