Human Digestive System Practice

Use this key to check answers and read the explanations.

1. Which tube carries swallowed food from the throat to the stomach?
   - A. Esophagus
   - B. Trachea
   - C. Duodenum
   - D. Colon

   Correct answer: A. Esophagus
   Food passes from the throat into the esophagus, which carries it to the stomach.

2. Which action is an example of mechanical digestion?
   - A. An enzyme cutting a protein into smaller chains
   - B. An enzyme splitting a starch molecule
   - C. Chewing a cracker into smaller pieces
   - D. A simple sugar entering a blood vessel

   Correct answer: C. Chewing a cracker into smaller pieces
   Chewing physically breaks food into smaller pieces. The action changes the food's size without splitting its molecules.

3. What is the name for waves of muscle contraction that propel food along the digestive tract?
   - A. Absorption
   - B. Peristalsis
   - C. Emulsification
   - D. Secretion

   Correct answer: B. Peristalsis
   During peristalsis, muscle contractions move along the tract, pushing its contents forward.

4. What is the mixture of partially digested food and gastric juices called as it leaves the stomach?
   - A. Lymph
   - B. Saliva
   - C. Bile
   - D. Chyme

   Correct answer: D. Chyme
   The stomach churns food with gastric juices. The resulting mixture, chyme, passes into the small intestine.

5. Which part of the small intestine receives the stomach's contents first?

A. Jejunum
B. Duodenum
C. Ileum
D. Cecum

Correct answer: B. Duodenum
The duodenum begins at the outlet of the stomach. The jejunum and ileum follow it, and the cecum is part of the large intestine.

6. Which enzyme in saliva begins breaking down starch while food is in the mouth?

A. Salivary amylase
B. Pepsin
C. Lactase
D. Trypsin

Correct answer: A. Salivary amylase
Salivary amylase starts splitting starch into smaller carbohydrates while chewing mixes food with saliva.

7. How does bile make larger fat droplets easier for digestive enzymes to act on?

A. It carries the intact droplets through the intestinal wall.
B. It joins the droplets into one larger pool.
C. It converts fat directly into glucose.
D. It disperses the fat into smaller droplets, exposing more surface.

Correct answer: D. It disperses the fat into smaller droplets, exposing more surface.
Bile emulsifies fat by dispersing it into small droplets. The increased surface gives fat-digesting enzymes more area to act on.

8. Which structure regulates the passage of small amounts of stomach contents into the small intestine?

A. Ileocecal valve
B. Lower esophageal sphincter
C. Pyloric sphincter
D. Anal sphincter

Correct answer: C. Pyloric sphincter
The pyloric sphincter is a ring of muscle at the stomach outlet. It controls the passage of chyme into the duodenum.

9. As the colon absorbs water from its contents, what usually happens to the material left inside it?

A. It contains less water and generally becomes firmer.
B. It becomes more watery as fluid enters it from the colon wall.
C. Its water content stays the same because only salts cross the wall.
D. It becomes firmer only after it reaches the rectum.

Correct answer: A. It contains less water and generally becomes firmer.
Water moves from the colon contents across the intestinal wall. The remaining waste generally becomes more solid as stool forms.

10. Which substance is a building block released as digestive enzymes break down dietary protein?

A. Glycerol
B. Glucose
C. A fatty acid
D. An amino acid

Correct answer: D. An amino acid
Proteins are chains built from amino acids. Digestive enzymes break the chains into shorter pieces and release amino acids.

11. A classroom animation shows two movement records. In A, contractions at alternating spots move contents back and forth with little net travel. In B, a contraction wave moves contents forward. Which labels match A and B, in order?

A. Absorption and secretion
B. Peristaltic propulsion and segmentation
C. Segmentation and peristaltic propulsion
D. Secretion and absorption

Correct answer: C. Segmentation and peristaltic propulsion
Segmentation mixes contents through repeated local contractions. A traveling wave that pushes material forward shows peristaltic propulsion.

12. In a fictional colon diagram, 100 water units enter section A, 40 leave A and enter section B, and 12 leave B. Neither section adds water, and the only loss is absorption. Which section absorbs more units, and which absorbs a higher percentage of what enters it?

A. A absorbs more units and a higher percentage.
B. A absorbs more units, and B absorbs a higher percentage.
C. B absorbs more units and a higher percentage.
D. B absorbs more units, and A absorbs a higher percentage.

Correct answer: B. A absorbs more units, and B absorbs a higher percentage.
A absorbs $100 - 40 = 60$ units, or 60% of its input. B absorbs $40 - 12 = 28$ units, or 70% of its input. A absorbs more units, and B absorbs a larger share.

13. A fictional textbook diagram shows two vessels in a small-intestinal villus. Vessel A receives absorbed glucose and amino acids. Vessel B receives particles called chylomicrons that carry long-chain fats. What are A and B, in order?

A. Two lacteals
B. A lacteal and a blood capillary
C. Two blood capillaries
D. A blood capillary and a lacteal

Correct answer: D. A blood capillary and a lacteal
Glucose and amino acids enter blood capillaries in the villus. Chylomicrons enter a lacteal, a small vessel that carries lymph.

14. Two fictional intestine models have the same outer dimensions. Model A has smooth lining with 12 surface units. Model B has folds and villi with 48 surface units. Which conclusion follows from the area measurements?

A. Model B exposes four times the lining area of Model A.
B. Model B absorbs four times as much of every nutrient.
C. Model B exposes 36 times the lining area of Model A.
D. Both models expose the same area because their outer dimensions match.

Correct answer: A. Model B exposes four times the lining area of Model A.
The surface area ratio is 48 ÷ 12 = 4. Folds and villi add exposed lining. Finding an absorption rate would require separate evidence.

15. A classroom diagram marks a food mixture at pH 2 as it leaves the stomach. After bicarbonate-rich pancreatic fluid joins the mixture, the model shows pH 6. Which interpretation matches the normal entry site and the change in acidity?

A. The fluid enters in the stomach, and the mixture becomes less acidic.
B. The fluid enters in the duodenum, and the mixture becomes more acidic.
C. The fluid enters in the duodenum, and the mixture becomes less acidic.
D. The fluid enters in the colon, and the mixture becomes more acidic.

Correct answer: C. The fluid enters in the duodenum, and the mixture becomes less acidic.
Pancreatic fluid joins the mixture in the duodenum. Its bicarbonate helps neutralize stomach acid, so a rise in pH means the mixture has become less acidic.