

Name: \_\_\_\_\_

Period: \_\_\_\_\_

## Unit 10 Digestive System

### Test Review

1. Describe the general functions of the digestive system.
  
2. Differentiate between the two forms of digestion.
  - a. chemical:
  
  - b. mechanical (physical):
  
3. Differentiate between the alimentary canal structures and the accessory structures of digestion. Give examples of each.
  
4. Define the functions of saliva and of salivary amylase in digestion.
  
5. Identify the parts of a typical tooth.
  - a. crown:
  
  - b. neck:
  
  - c. root:
  
  - d. gingivae:
  
  - e. peridontal ligament:
  
  - f. enamel:
  
  - g. dentin:
  
  - h. pulp:
  
  - i. root canal:

6. Define the following.
  - a. deglutition:
  - b. mastication:
  - c. maceration:
  - d. segmentation:
  - e. haustral churning:
  - f. peristalsis:
  
7. Describe the following organs in terms of their anatomical features of the stomach:
  - a. fundus:
  - b. body:
  - c. rugae:
  - d. pylorus:
  - e. pyloric sphincter:
  
8. Identify the four basic components of gastric juice.
  - a. mucous:
  - b. pepsinogen:
  - c. hydrochloric acid:
  
9. Answer the following questions about the pancreas.
  - a. Where is it located?
  - b. What enzymes does it produce?
  
10. Describe the function of bile and the role of the gallbladder in digestion.

11. Identify the three sections of the small intestine.

- 1.
- 2.
- 3.

12. Identify the structures and sections of the large intestine that start with the following letters.

- a. C
- b. A
- c. T
- d. D
- e. S
- f. R
- g. A

13. Describe the diseases and disorders of the digestive system.

- a. Appendicitis:
  
- b. Cirrhosis:
  
- c. Colorectal Cancer:
  
- d. Gallstones:
  
- e. Hepatitis:
  
- f. Obesity:
  
- g. Ulcers:

## Unit 10: Digestive System

### Test Review - KEY

1. Describe the general functions of the digestive system.

The digestive organs includes all organs involved with digestion - the mechanical and chemical breakdown of food into a usable form, absorption - the movement of molecules through the mucosal lining and into the blood, and excretion - the removal of solid waste.

2. Differentiate between the two forms of digestion.

a. chemical: Catabolic reactions which break down carbohydrates, proteins, and lipids into their building blocks of monosaccharides, amino acids, and fatty acids and glycerol. Requires enzymes to speed up the chemical reactions.

b. mechanical (physical): The breaking down of the bigger pieces of food to smaller pieces of food, such as chewing or maceration.

3. Differentiate between the alimentary canal structures and the accessory structures of digestion. Give examples of each.

The alimentary canal is a continuous tube running through the middle of the body from the mouth to the anus. The food and/or waste products move through these organs. The organs include the mouth, pharynx, esophagus, stomach, small intestine, large intestine, and anus.

The accessory organs of the alimentary canal includes those organs which provide enzymes, fluids to break down food, but many do not have direct contact with the food. These include salivary glands, liver, gallbladder, and pancreas.

4. Define the functions of saliva and of salivary amylase in digestion.

Saliva is the fluid secreted by the salivary glands. It flow from the salivary glands, through ducts into the mouth.

Salivary amylase is the enzyme which chemically breakdowns starch into maltose in the mouth.

5. Identify the parts of a typical tooth.

a. crown: The crown is the exposed portion of the tooth - found above the gums.

b. neck: The neck is the constricted junction line of the tooth between the crown and the root.

c. root: The root contains one to three projections of the tooth which embedded in the sockets of the alveolar processes of the mandible and the maxillae.

d. gingivae: The gingiva is another name for the gums which surrounds the tooth.

- e. peridental ligament: The periodontal ligament is an area of dense fibrous connective tissue attached to the socket walls and the cemental surfaces of the roots of the tooth. It anchors the teeth in position and absorbs shock during chewing.
  - f. enamel: The enamel is the portion of the tooth that protects the teeth from wear and tear. It is the hardest substance in the body. It is composed primarily of calcium phosphate and calcium carbonate.
  - g. dentin: The dentin is calcified connective tissue, (bony part of the tooth) which gives the tooth its basic shape and rigidity
  - h. pulp: The pulp cavity is a large cavity enclosed by the dentin and filled with fleshy material known as pulp. It contains the nerve and blood vessels.
  - i. root canal: Openings within the roots of the teeth which allow for the passage of nerve and blood vessels into and out of the pulp cavity.
6. Define deglutition, mastication, maceration, segmentation, and haustral churning.
- a. deglutition: Deglutition or swallowing is the mechanism that moves food from the mouth, through the pharynx, and into the esophagus.
  - b. mastication: Mastication or chewing breaks food down into smaller pieces by combining it with saliva. As the food and saliva mix, a ball of food called a bolus is formed.
  - c. maceration: Maceration are mixing waves in the stomach which mix food with the gastric secretions to form a liquid paste called chyme.
  - d. segmentation: Segmentation is a strictly localized contraction of the small intestine to mix food with digestive juices. It happens in areas of the small intestine containing food and brings chyme in contact with the mucosa for absorption.
  - e. haustral churning: Haustral Churning is the way the large intestine moves food. A haustra, or intestinal pouch, remains relaxed until it fills up, then it contracts moving food to the next haustrum
  - f. peristalsis: Peristalsis are the wave-like muscle contractions of the muscularis layer which propel food and wastes along the alimentary canal.

7. Describe the following organs in terms of their anatomical features of the stomach:
  - a. fundus: rounded superior area of the stomach that acts as a temporary storage for food
  - b. .body: the large, central portion of the stomach below the fundus
  - c. rugae: folds of the mucosa which stretch to increase the size of the stomach.
  - d. pylorus: narrow, inferior region of the stomach
  - e. pyloric sphincter: opening from the pylorus from the stomach into the duodenum of the small intestine
8. Identify the four basic components of gastric juice.
  - a. mucous: thick, sticky substance which helps protect the inner lining of the stomach.
  - b. pepsinogen: Pepsin is secreted in its inactive form pepsinogen. It is activated in the presence of hydrochloric acid. It facilitates the chemical digestion of proteins into dipeptides.
  - c. hydrochloric acid: Hydrochloric acid provides the acidic environment needed for the enzyme action in the stomach.
9. Answer the following questions about the pancreas.
  - a. Where is it located? left upper quadrant, posterior to the stomach
  - b. What enzymes does it produce? Pancreatic juice
10. Describe the function of bile and the role of the gallbladder in digestion.

Bile is a greenish-colored fluid which is produced in the liver. The principal pigment in bile is bilirubin. Bile is typically stored and concentrated in the gallbladder and flows to the duodenum when stimulated by the presence of fat. Bile functions to emulsify fat to aid in lipid digestion by assisting in mechanical digestion or breaking the fat into smaller pieces to increase the surface area available for digestive enzymes to work.

11. Identify the three sections of the small intestine.

1. duodenum
2. jejunum
3. ileum

12. Identify the structures and sections of the large intestine that start with the following letters.

- a. Cecum
- b. Ascending colon
- c. Transverse colon
- d. Descending colon
- e. Sigmoid colon
- f. Rectum
- g. Anus

13. Identify these structures:

- a. Haustra: segments of the large intestine that perform haustral churning to process fecal matter and reabsorb fluid and nutrients into the wall of the large intestine

14. Describe the diseases and disorders of the digestive system.

- a. Appendicitis: Appendicitis, the inflammation of the appendix, is the most common surgical disease. It results from the obstruction of the opening to the appendix by a mass, stricture or infection. This sets off an inflammatory process that can lead to infection and necrosis.
- b. Cirrhosis: Cirrhosis of the liver is a chronic liver disease characterized by the destruction of the liver cells followed by scarring.
- c. Colorectal Cancer: Colorectal cancer is the second most common form of cancer in the United States and Europe. Colorectal cancer has a slow progression and remains localized for long periods of time. If it is detected early, it has a 90% cure rate.
- d. Gallstones: Gallstones or cholelithiasis is the presence of stones in the gallbladder, resulting from changes in the bile component. The stones are made of cholesterol, calcium bilirubinate, and the bilirubin pigment.

e. Hepatitis:

**Hepatitis A**

This is a highly contagious form of hepatitis and is usually transmitted by the fecal-oral route, commonly within institutions and families. The usual cause is the ingestion of contaminated food, milk, or water.

**Hepatitis B**

This is a highly contagious form of hepatitis that is transmitted by the direct exchange of contaminated blood.

f. Obesity: Obesity is the presence of excess body fat, generally over 20% for men and over 30% for women.

g. Ulcers: Ulcers are lesions found in the mucosal membrane in the alimentary canal. They can develop in the esophagus, stomach, duodenum, or jejunum. The most common cause is a bacterial infection, followed by chronic use of non-steroidal anti-inflammatory drugs, like aspirin and ibuprofen. Other predisposing factors include genetics, exposure to alcohol and tobacco, and stress.