



***Essentials of Anatomy and Physiology, 5e (Martini/Nath)***  
**Chapter 16 The Digestive System**

Multiple-Choice Questions

1) Which of the following is an accessory organ of digestion?

- A) stomach
- B) liver
- C) spleen
- D) colon
- E) esophagus

Answer: B

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

2) Ingestion refers to the

- A) progressive dehydration of indigestible residue.
- B) input of food into the digestive tract.
- C) chemical breakdown of food.
- D) absorption of nutrients in the gut.
- E) mixing of nutrients with digestive enzymes.

Answer: B

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

3) The mucous epithelium is a component of the

- A) serosa.
- B) muscularis.
- C) submucosa.
- D) mucosa.
- E) adventitia.

Answer: D

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms



4) Contraction of the \_\_\_\_\_ layer of the intestinal wall functions to change the shape of the intestinal lumen and moves food through its length.

- A) mucosa
- B) submucosa
- C) serosa
- D) muscularis
- E) adventitia

Answer: D

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

5) The \_\_\_\_\_ are double sheets of peritoneal membrane that hold some of the visceral organs in their proper position.

- A) serosa
- B) adventitia
- C) mesenteries
- D) fibrosa
- E) muscularis

Answer: C

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

6) The beginning and end of the digestive tract is lined by

- A) pseudostratified ciliated columnar epithelium.
- B) cuboidal epithelium.
- C) stratified squamous epithelium.
- D) simple epithelium.
- E) simple columnar epithelium.

Answer: C

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

7) A stratified squamous epithelial lining can be found in the

- A) anal canal.
- B) esophagus.
- C) oral cavity.
- D) oropharynx.
- E) all of the above

Answer: E

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms



8) The movement of nutrients through the wall of the digestive tract is called

- A) ingestion.
- B) mechanical digestion.
- C) compaction.
- D) absorption.
- E) all of the above

Answer: D

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

9) The layer of the digestive wall immediately beneath the epithelium is the

- A) lamina propria.
- B) submucosa.
- C) muscularis.
- D) serosa.
- E) adventitia

Answer: A

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

10) The muscularis layer contains nerves referred to as the

- A) muscularis nerves.
- B) submucosal plexus.
- C) enteric nerves.
- D) myenteric plexus.
- E) all of the above

Answer: D

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

11) The largest of the salivary glands is(are) the

- A) sublingual glands.
- B) submaxillary glands.
- C) parotid glands.
- D) pancreas.
- E) none of the above

Answer: C

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms



12) Teeth used to bite off the tips of food are the

- A) cuspids.
- B) bicuspid.
- C) canines.
- D) molars.
- E) incisors.

Answer: E

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

13) The salivary glands that produce secretions rich in salivary amylase are the

- A) sublingual glands.
- B) submandibular glands.
- C) lingual glands.
- D) parotid glands.
- E) submaxillary glands.

Answer: D

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

14) The teeth best adapted for biting off relatively large pieces of food are the

- A) incisors.
- B) cuspids.
- C) bicuspid.
- D) molars.
- E) none of the above

Answer: A

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

15) The root of a tooth is covered with

- A) dentin.
- B) enamel.
- C) cementum.
- D) gingiva.
- E) blood vessels and nerves.

Answer: C

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms



16) Carbohydrate digestion begins in the

- A) mouth.
- B) esophagus.
- C) stomach.
- D) duodenum.
- E) ileum.

Answer: A

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

17) Salivary amylase functions to digest

- A) proteins.
- B) lipids.
- C) cellulose.
- D) nucleic acids.
- E) carbohydrates.

Answer: E

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

18) The enzyme amylase helps to digest

- A) proteins.
- B) complex carbohydrates.
- C) fats.
- D) lipids.
- E) nucleic acids.

Answer: B

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

19) Chewing is called

- A) segmentation.
- B) pendulum movements.
- C) peristalsis.
- D) churning movements.
- E) mastication.

Answer: E

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms



20) \_\_\_\_\_ pair(s) of salivary glands secrete into the oral cavity.

- A) One
- B) Two
- C) Three
- D) Four
- E) Five

Answer: C

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

21) The \_\_\_\_\_ gland empties into the upper regions of the oral cavity.

- A) submaxillary
- B) submandibular
- C) parotid
- D) sublingual
- E) vestibular

Answer: C

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

22) Functions of the tongue include

- A) mechanical processing of food.
- B) manipulation of food.
- C) sensory analysis of food.
- D) A and B only
- E) all of the above

Answer: E

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

23) The portion of a tooth that is similar to bone and is living tissue is

- A) enamel.
- B) cementum.
- C) dentin.
- D) pulp.
- E) periodontium.

Answer: C

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

**Biology 105 – Human Biology**



**PRACTICE MIDTERM EXAM 2**

Session: Spring 2011  
Section: 55244 / 61816 4 Units  
Class Location: UVC1 St. Helena  
Days / Time: F 9:00 AM – 3:50 PM  
Instructor: RIDDELL

24) The root of a tooth is anchored by

- A) enamel.
- B) periodontal ligaments.
- C) dentin.
- D) pulp.
- E) the root canal.

Answer: B

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

25) What is worn away if someone has a "cavity"?

- A) enamel.
- B) cementum.
- C) dentin.
- D) pulp.
- E) periodontium.

Answer: A

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

26) Secretions from the salivary glands

- A) are mostly digestive enzymes.
- B) help to control bacterial populations in the mouth.
- C) help to lubricate the oral cavity and its contents.
- D) B and C only
- E) all of the above

Answer: D

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

27) The roof of the oral cavity is formed by the

- A) vestibule.
- B) palate.
- C) gingival.
- D) tongue.
- E) pharynx.

Answer: B

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms



28) The space between the tongue and the teeth is called the

- A) pharynx.
- B) larynx.
- C) epiglottis.
- D) vestibule.
- E) cheek.

Answer: D

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

29) The \_\_\_\_\_ are blade-shaped teeth that function in cutting or chopping.

- A) wisdom teeth
- B) incisors
- C) bicuspid
- D) cuspids
- E) molars

Answer: B

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

30) The \_\_\_\_\_ are pointed teeth that are adapted for tearing and shredding.

- A) incisors
- B) bicuspid
- C) wisdom teeth
- D) cuspids
- E) molars

Answer: D

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

31) The \_\_\_\_\_ are teeth with flattened crowns and prominent ridges that are adapted for grinding.

- A) molars
- B) cuspids
- C) eyeteeth
- D) canines
- E) bicuspid

Answer: A

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms





32) The enzyme amylase digests

- A) carbohydrates.
- B) proteins.
- C) lipids.
- D) nucleic acids.
- E) vitamins.

Answer: A

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

33) The first place in which chemical digestion takes place is the

- A) oral cavity.
- B) esophagus.
- C) stomach.
- D) small intestine.
- E) large intestine.

Answer: A

Diff: 1

Learning Outcome: 16.2

Skill Level: 2 Reviewing Concepts

34) A blockage of the ducts from the parotid glands would

- A) result in the production of more viscous saliva.
- B) impair the lubricating properties of saliva.
- C) interfere with carbohydrate digestion in the mouth.
- D) eliminate the sense of taste.
- E) all of the above

Answer: C

Diff: 1

Learning Outcome: 16.2

Skill Level: 2 Reviewing Concepts

35) The first place mechanical digestion takes place is the

- A) oral cavity.
- B) esophagus.
- C) stomach.
- D) pancreas.
- E) small intestine.

Answer: A

Diff: 1

Learning Outcome: 16.2

Skill Level: 2 Reviewing Concepts



36) The main part of the stomach is called the

- A) fundus.
- B) pylorus.
- C) cardia.
- D) body.
- E) all of the above

Answer: D

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

37) Gastrin causes

- A) inhibition of HCl secretion.
- B) increases in the secretion of gastric glands.
- C) the change of pepsin into pepsinogen..
- D) the upper esophageal sphincter to open.
- E) all of the above

Answer: B

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

38) Functions of the stomach include

- A) storage of recently ingested food.
- B) mechanical breakdown of food.
- C) denaturation of proteins.
- D) initiation of protein digestion.
- E) all of the above

Answer: E

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

39) Parietal cells secrete

- A) pepsin.
- B) gastrin.
- C) mucus.
- D) hydrochloric acid.
- E) all of the above

Answer: D

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms



40) Chief cells secrete

- A) pepsinogen.
- B) gastrin.
- C) mucus.
- D) hydrochloric acid.
- E) intrinsic factor.

Answer: A

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

41) The portion of the stomach that lies in contact with the diaphragm is the

- A) cardia.
- B) pylorus.
- C) fundus.
- D) antrum.
- E) body.

Answer: C

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

42) The first portion of the stomach that food enters is the

- A) body.
- B) antrum.
- C) pylorus.
- D) cardia.
- E) fundus.

Answer: D

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

43) The largest section of the stomach is the

- A) antrum.
- B) fundus.
- C) body.
- D) cardia.
- E) pylorus.

Answer: C

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms



- 44) The lesser omentum is
- A) a major portion of the stomach.
  - B) attached to the stomach at the greater curvature.
  - C) important in the digestion of fats.
  - D) a fatty sheet that hangs like an apron over the abdominal viscera.
  - E) a sheet of connective tissue that attaches the stomach to the liver and pancreas.

Answer: E

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

- 45) Rugae are
- A) submucosal ridges in the stomach.
  - B) involved in absorption of liquids from the stomach.
  - C) pockets in the lining of the stomach that contain secretory cells.
  - D) located in the esophagus.
  - E) areas where proteins are digested.

Answer: A

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

- 46) During the cephalic phase of gastric secretion,
- A) the stomach responds to distention.
  - B) secretin inhibits parietal and chief cell action.
  - C) there is an increased flow of action potentials along the vagus nerve to the stomach.
  - D) the intestine reflex inhibits gastric emptying.
  - E) production of gastric juice slows down.

Answer: C

Diff: 1

Learning Outcome: 16.4

Skill Level: 2 Reviewing Concepts

- 47) The gastric phase of gastric secretion is triggered by
- A) the sight, thought, or smell of food.
  - B) the entry of food into the stomach.
  - C) the entry of chyme into the small intestine.
  - D) the entry of chyme into the large intestine.
  - E) the release of cholecystokinin and secretin by the small intestine.

Answer: B

Diff: 1

Learning Outcome: 16.4

Skill Level: 2 Reviewing Concepts



48) Which of the following foods will spend the most time in the stomach?

- A) rice
- B) pasta
- C) salad
- D) steak
- E) cake

Answer: D

Diff: 1

Learning Outcome: 16.4

Skill Level: 2 Reviewing Concepts

49) Which of the following is a function of HCl in the stomach?

- A) denaturing proteins
- B) destroying bacteria
- C) activating pepsinogen
- D) all of the above
- E) none of the above

Answer: D

Diff: 1

Learning Outcome: 16.4

Skill Level: 2 Reviewing Concepts

50) Gastrin is released in response to

- A) proteins, alcohol, and caffeine.
- B) parasympathetic innervation.
- C) the sight of food.
- D) the smell of food.
- E) chyme entering the esophagus.

Answer: A

Diff: 1

Learning Outcome: 16.4

Skill Level: 2 Reviewing Concepts

51) Persons who have undergone a total gastrectomy can survive because the stomach's only absolutely vital function is

- A) absorption of nutrients.
- B) secretion of amylase.
- C) secretion of intrinsic factor.
- D) digestion of proteins.
- E) water absorption.

Answer: C

Diff: 1

Learning Outcome: 16.4

Skill Level: 3 Critical Thinking & Clinical Applications



52) Modification of the submucosa of the small intestine that allow for expansion of the organ are the

- A) flat surfaces.
- B) mucus glands.
- C) ciliated columnar cells.
- D) plicae.
- E) muscularis smooth muscle.

Answer: D

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

53) In visceral smooth muscle,

- A) the cells are linearly arranged as long fibers.
- B) adjacent cells are connected by synapses.
- C) when one muscle cell contracts, the contraction spreads as a wave through the whole tissue.
- D) contraction can only be stimulated by neurotransmitters.
- E) all of the above

Answer: C

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

54) Sections of muscular contractions that mix the contents of the small intestine are called

- A) segmentations.
- B) pendulum movements.
- C) peristalsis.
- D) churning movements.
- E) mastications.

Answer: A

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

55) Cholecystokinin from the intestinal wall is stimulated by the presence of

- A) fats and protein in the duodenum.
- B) acid in the stomach.
- C) protein in the stomach.
- D) fats in the stomach.
- E) acid in the duodenum.

Answer: A

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

56) Plicae and intestinal villi

- A) increase the surface area of the mucosa of the small intestine.
- B) carry products of digestion that will not pass through the walls of blood capillaries.
- C) produce new cells for the mucosa of the small intestine.
- D) secrete digestive enzymes.
- E) produce hormones.

Answer: A

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

57) Intestinal enteroendocrine cells

- A) secrete chemicals that control other digestive organs.
- B) carry products of digestion that will not pass through the walls of blood capillaries.
- C) produce new cells for the mucosa of the small intestine.
- D) function in the absorption of nutrients.
- E) secrete a watery intestinal juice.

Answer: A

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

58) Absorptive effectiveness of the small intestine is enhanced by

- A) plicae.
- B) villi.
- C) microvilli.
- D) intestinal movements.
- E) all of the above

Answer: E

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

59) The portion of the small intestine that is attached to the pylorus of the stomach is the

- A) ileum.
- B) colon.
- C) cecum.
- D) jejunum.
- E) duodenum.

Answer: E

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

60) The portion of the small intestine that performs most absorption is the

- A) ileum.
- B) duodenum.
- C) jejunum.
- D) pylorus.
- E) cecum.

Answer: C

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

61) The longest portion of the small intestine is the

- A) cecum.
- B) appendix.
- C) ileum.
- D) jejunum.
- E) duodenum.

Answer: C

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

62) An enzyme that will digest proteins into polypeptides is

- A) lipase.
- B) amylase.
- C) nuclease.
- D) maltase.
- E) trypsin.

Answer: E

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

63) Increased parasympathetic stimulation of the intestine would result in

- A) decreased motility.
- B) decreased secretion.
- C) decreased sensitivity of local reflexes.
- D) decreased segmentation.
- E) none of the above

Answer: E

Diff: 1

Learning Outcome: 16.5

Skill Level: 2 Reviewing Concepts





- 64) The hormone secretin functions to
- A) convert trypsinogen into trypsin.
  - B) activate chymotrypsin.
  - C) stimulate the release of bicarbonate from the pancreas.
  - D) stimulate the release of enzymes from the pancreas.
  - E) all of the above

Answer: C

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

- 65) Which of the following is a protein-splitting enzyme from the pancreas?

- A) zymogen
- B) trypsin
- C) amylase
- D) nuclease
- E) gastrin

Answer: B

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

- 66) The liver functions to
- A) form glucose from noncarbohydrates.
  - B) store vitamins.
  - C) destroy damaged RBC.
  - D) produce bile.
  - E) all of the above

Answer: E

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

- 67) A characteristic common of all protein-digesting enzymes is

- A) secretion by the pancreas.
- B) activation by HCl.
- C) secretion in an inactive form.
- D) stimulation by enterokinase.
- E) none of the above

Answer: C

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

68) An intestinal hormone that stimulates the pancreas to release a watery secretion that is high in bicarbonate ion is

- A) enterocrinin.
- B) secretin.
- C) cholecystokinin.
- D) GIP.
- E) gastrin.

Answer: B

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

69) An intestinal hormone that stimulates the gall bladder to release bile is

- A) enterokinase.
- B) secretin.
- C) cholecystokinin
- D) GIP.
- E) gastrin.

Answer: C

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

70) An intestinal hormone that stimulates the release of insulin from the pancreatic islet cells is

- A) enterocrinin
- B) enterokinase.
- C) secretin.
- D) cholecystokinin.
- E) GIP.

Answer: E

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

71) The human liver is composed of \_\_\_\_\_ lobe(s).

- A) one
- B) two
- C) three
- D) four
- E) five

Answer: D

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms



72) The fusion of the hepatic duct with the cystic duct forms the

- A) hepatic portal vein.
- B) porta hepatis.
- C) common bile duct.
- D) common pancreatic duct.
- E) bile canaliculus.

Answer: C

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

73) In the center of a liver lobule there is a

- A) hepatic duct.
- B) portal area.
- C) capillary bed.
- D) central vein.
- E) portal vein.

Answer: D

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

74) The basic functional units of the liver are the

- A) hepatocytes.
- B) liver cells.
- C) lobules.
- D) portal areas.
- E) bile canaliculi.

Answer: C

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

75) \_\_\_\_\_ are arranged within a lobule of the liver into a series of plates radiating outward from a central vein.

- A) Portal cells
- B) Hepatocytes
- C) Bile canaliculi
- D) Bile ducts
- E) Hepatic ducts

Answer: B

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms



76) Bile is produced in the

- A) liver.
- B) duodenum.
- C) pancreas.
- D) gall bladder.
- E) appendix.

Answer: A

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

77) Decreased levels of bile salts in the bile would interfere with

- A) protein digestion.
- B) fat digestion.
- C) digestion of disaccharides.
- D) digestion of complex carbohydrates.
- E) digestion of vitamins.

Answer: B

Diff: 1

Learning Outcome: 16.6

Skill Level: 2 Reviewing Concepts

78) Which of the following stimulates the release of insulin from the pancreas?

- A) GIP
- B) CCK
- C) secretin
- D) gastrin
- E) pepsin

Answer: A

Diff: 1

Learning Outcome: 16.6

Skill Level: 2 Reviewing Concepts

79) Which of the following NEVER comes in physical contact with ingested food?

- A) tongue
- B) esophageal wall
- C) HCl
- D) pancreatic wall
- E) small intestinal wall

Answer: D

Diff: 1

Learning Outcome: 16.6

Skill Level: 2 Reviewing Concepts



80) Bile salts are responsible for the digestion and absorption of

- A) fats.
- B) proteins.
- C) carbohydrates
- D) minerals.
- E) vitamins.

Answer: A

Diff: 1

Learning Outcome: 16.6

Skill Level: 2 Reviewing Concepts

81) A drug that blocks the action of the hormone cholecystokinin would affect

- A) the amount of bile produced by the liver.
- B) the composition of pancreatic secretions.
- C) the level of intestinal gastrin.
- D) secretions of the duodenal glands.
- E) all of the above

Answer: B

Diff: 1

Learning Outcome: 16.6

Skill Level: 3 Critical Thinking & Clinical Applications

82) An obstruction of the cystic duct would result in

- A) pancreatitis.
- B) jaundice.
- C) the inability to digest protein.
- D) increased sugar in the chyme.
- E) an inability to absorb water-soluble vitamins.

Answer: B

Diff: 1

Learning Outcome: 16.6

Skill Level: 3 Critical Thinking & Clinical Applications

83) Tom is suffering from hepatitis, an inflammation of the liver. Which of the following symptoms would you expect to observe in Tom?

- A) jaundice
- B) elevated levels of blood glucose
- C) impaired digestion of protein
- D) blood in the feces
- E) all of the above

Answer: A

Diff: 1

Learning Outcome: 16.6

Skill Level: 3 Critical Thinking & Clinical Applications



84) Which of the following is a major action of the large intestine?

- A) secrete enzymes
- B) reabsorb water
- C) regulate the release of bile
- D) secrete digestive enzymes
- E) produce hormones

Answer: B

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

85) During the defecation reflex, the

- A) diaphragm is lowered.
- B) epiglottis is opened.
- C) abdominal wall relaxes.
- D) internal abdominal pressure decreases.
- E) none of the above

Answer: A

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

86) Functions of the large intestine include

- A) chemical digestion of chyme.
- B) temporary food storage.
- C) reabsorption of water and compaction of feces.
- D) absorption of the products of digestion.
- E) all of the above

Answer: C

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

87) After the splenic flexure, the colon becomes the

- A) ascending colon.
- B) transverse colon.
- C) descending colon.
- D) sigmoid colon.
- E) rectum.

Answer: C

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

88) The taeniae coli are

- A) external pouches of the colon.
- B) three longitudinal bands of muscle located beneath the serosa of the colon.
- C) ridges in the mucosa of the colon.
- D) polyps that obstruct the sigmoid colon.
- E) tumors normally found in the ascending colon.

Answer: B

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

89) An expanded chamber in the region of the ileum at the ileocecal valve is the

- A) appendix.
- B) sigmoid colon.
- C) rectum.
- D) haustra.
- E) cecum.

Answer: E

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

90) Which of the following is faster?

- A) the normal rate of peristalsis in the small intestine
- B) the normal rate of peristalsis in the colon

Answer: A

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

91) Major regions of the large intestine include the

- A) cecum, colon, and duodenum.
- B) duodenum, ileum, and jejunum.
- C) cecum, colon, and duodenum.
- D) ascending colon, descending colon, and ileum.
- E) cecum, colon, and rectum.

Answer: E

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms



92) Nutrients generally absorbed by the large intestine are

- A) electrolytes.
- B) water.
- C) fats.
- D) proteins.
- E) both A and B

Answer: E

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

93) Which of the following changes in the digestive system occurs with advancing age?

- A) a decrease in smooth tone
- B) weaker peristaltic contractions
- C) a thinner epithelial lining
- D) a reduction in epithelial stem cell division
- E) all of the above

Answer: E

Diff: 1

Learning Outcome: 16.8

Skill Level: 1 Reviewing Facts and Terms

### Matching Questions

1) Match the description in the first column with the term in the second column.

- |   |                         |
|---|-------------------------|
| _____ 1. extends from dentin of tooth root to bone            | A. uvula                |
| _____ 2. structure hanging from the pharyngeal arch           | B. frenulum             |
| _____ 3. enzyme that breaks down starch                       | C. palate               |
| _____ 4. roof of the oral cavity                              | D. amylase              |
| _____ 5. structure that anchors the tongue to the mouth floor | E. periodontal ligament |

Answer: 1-E, 2-A, 3-D, 4-C, 5-B

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms





2) Match the structure of the digestive system with its function.

- |                                     |   |
|-------------------------------------|---|
| _____ 1. oral cavity, teeth, tongue | A. dehydration and compaction of indigestible materials in preparation for elimination                      |
| _____ 2. salivary glands            | B. secretion of bile (important for lipid digestion), storage of nutrients, many other vital functions      |
| _____ 3. liver                      | C. storage and concentration of bile  |
| _____ 4. pharynx                    | D. transport of materials to the stomach  |
| _____ 5. esophagus                  | E. secretion of buffers and digestive enzymes by exocrine cells; secretion of hormones by endocrine cells   |
| _____ 6. gallbladder                | F. mechanical processing, moistening, mixing with salivary secretions                                       |
| _____ 7. stomach                    | G. chemical breakdown of materials by acid and enzymes; mechanical processing through muscular contractions |
| _____ 8. large intestine            | H. secretion of lubricating fluid containing enzymes that break down carbohydrates                          |
| _____ 9. pancreas                   | I. enzymatic digestion and absorption of water, organic substrates, vitamins, and ions                      |
| _____ 10. small intestine           | J. pharyngeal muscles propel materials into esophagus   |

Answer: 1-F, 2-H, 3-B, 4-J, 5-D, 6-C, 7-G, 8-A, 9-E, 10-I

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

Fill in the Blank Questions

1) The first set of teeth to appear are the \_\_\_\_\_ teeth.

Answer: deciduous

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

2) The secondary dentition usually contains \_\_\_\_\_ teeth.

Answer: 32

Diff: 1

Learning Outcome: 16.2

Skill Level: 1 Reviewing Facts and Terms

3) A small, semisolid mass of food that is the result of proper chewing is called a(n)

\_\_\_\_\_.

Answer: bolus

Diff: 1

Learning Outcome: 16.3

Skill Level: 1 Reviewing Facts and Terms



4) The esophagus passes through a hole in the diaphragm called the \_\_\_\_\_.

Answer: esophageal hiatus

Diff: 1

Learning Outcome: 16.3

Skill Level: 1 Reviewing Facts and Terms

5) Gastrin is released by \_\_\_\_\_ cells.

Answer: enteroendocrine (G)

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

6) Intrinsic factor is necessary for the absorption of \_\_\_\_\_.

Answer: vitamin B<sub>12</sub>

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

7) The compound necessary for the absorption of vitamin B<sub>12</sub> is called \_\_\_\_\_.

Answer: intrinsic factor

Diff: 1

Learning Outcome: 16.4

Skill Level: 1 Reviewing Facts and Terms

8) Most digestion takes place in the \_\_\_\_\_.

Answer: small intestine

Diff: 1

Learning Outcome: 16.5

Skill Level: 1 Reviewing Facts and Terms

9) Bile salts aid in the digestion of fats by \_\_\_\_\_ large fat droplets.

Answer: emulsifying

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

10) \_\_\_\_\_ helps to regulate the pH of pancreatic secretions.

Answer: Bicarbonate

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms



11) The \_\_\_\_\_ ligament marks the division between the left and right lobes of the liver.

Answer: falciform

Diff: 1

Learning Outcome: 16.6

Skill Level: 1 Reviewing Facts and Terms

12) Removal of water and reduction of chyme volume is called \_\_\_\_\_.

Answer: compaction

Diff: 1

Learning Outcome: 16.7

Skill Level: 1 Reviewing Facts and Terms

### Essay Questions

1) Dave is under a lot of stress at his job and at home. He begins to feel discomfort and a burning sensation in his abdomen following a meal. After consulting a doctor, he finds that he has developed a duodenal ulcer. He does not understand how being nervous would cause the ulcer and asks you to explain. What would you tell Dave?

Answer: The body's normal response to stress is increased sympathoadrenal activity. Increased stimulation of the digestive tract by the sympathetic nerves would cause a decrease in mucus secretion in the small intestine as well as decreased motility. After a meal, the acid chyme would not be neutralized as efficiently because of the decreased mucus, and the irritating action would remain longer because of the decreased motility. In addition, bile that may enter from the liver has a detergent action that would further remove the mucus protection from the cells, making them more vulnerable to the effects of the stomach acid.

Diff: 1

Learning Outcome: 16.5

Skill Level: 3 Critical Thinking & Clinical Applications

2) How would you describe the condition known as lactose intolerance to another individual who believes she may be suffering from this condition because she experiences gastric distress after consuming dairy products?

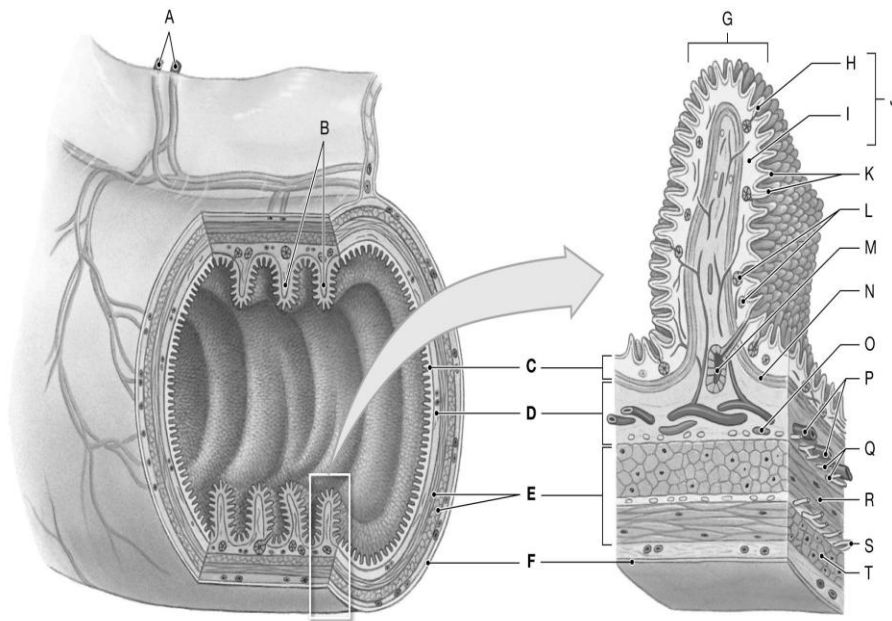
Answer: An adult deficiency in lactase can lead to lactose intolerance. The cause of this appears to be genetic. Lactase works in the small intestine as a catalyst that aids in the hydrolysis of the disaccharide lactose, which is common in milk-based products. The inability to digest lactose into its monosaccharides leads to the fermentation of the molecule by intestinal bacteria into unpleasant products such as gases and acids. Treatments of this disease include ingesting commercial products that supply the missing enzyme, such as acidophilus milk and Lactate drops or tablets.

Diff: 1

Learning Outcome: 16.5

Skill Level: 3 Critical Thinking & Clinical Applications

Labeling Exercises



Using the figure above, identify the labeled part.

1) Label A: \_\_\_\_\_

Answer: Mesenteric artery and vein

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

2) Label B: \_\_\_\_\_

Answer: Plicae circulares

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

3) Label C: \_\_\_\_\_

Answer: Mucosa

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

4) Label D: \_\_\_\_\_

Answer: Submucosa

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

**Biology 105 – Human Biology**



**PRACTICE MIDTERM EXAM 2**

Session: Spring 2011  
Section: 55244 / 61816 4 Units  
Class Location: UVC1 St. Helena  
Days / Time: F 9:00 AM – 3:50 PM  
Instructor: RIDDELL

5) Label E: \_\_\_\_\_

Answer: Muscularis externa

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

6) Label F: \_\_\_\_\_

Answer: Serosa (visceral peritoneum)

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

7) Label G: \_\_\_\_\_

Answer: Plica circulares

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

8) Label H: \_\_\_\_\_

Answer: Mucous epithelium

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

9) Label I: \_\_\_\_\_

Answer: Lamina propria

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

10) Label J: \_\_\_\_\_

Answer: Mucosa

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

11) Label K: \_\_\_\_\_

Answer: Villi

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

12) Label L: \_\_\_\_\_

Answer: Mucosal glands

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

**Biology 105 – Human Biology**



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13) Label M: \_\_\_\_\_

Answer: Submucosal gland

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

14) Label N: \_\_\_\_\_

Answer: Muscularis mucosae

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

15) Label O: \_\_\_\_\_

Answer: Lymphatic vessel

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

16) Label P: \_\_\_\_\_

Answer: Artery and vein

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

17) Label Q: \_\_\_\_\_

Answer: Submucosal plexus

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

18) Label R: \_\_\_\_\_

Answer: Circular muscle layer

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

19) Label S: \_\_\_\_\_

Answer: Myenteric plexus

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

20) Label T: \_\_\_\_\_

Answer: Longitudinal muscle layer

Diff: 1

Learning Outcome: 16.1

Skill Level: 1 Reviewing Facts and Terms

**Biology 105 – Human Biology**



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