Chapter 15 Test Bank

Student: _____

1. Which of the following processes is NOT associated with gastrointestinal function?
A. digestion
B. filtration
C. secretion
D. motility
E. absorption

2. Which is NOT a function performed by saliva?
A. moistening and lubricating food for swallowing
B. starch digestion
C. enabling the sense of taste
D. killing bacteria
E. emulsifying lipids

3. Which correctly describes a major function of the stomach?
A. the complete digestion of protein to amino acids
B. maintaining an alkaline pH for the digestion of proteins
C. absorption of saliva and chyme into the bloodstream
D. lubricating food so it can be formed into a bolus
E. storing ingested food and partially digesting macromolecules

4. Which occurs mainly in the small intestine?
A. gastrin is secreted
B. H^+ is secreted from epithelial cells into the lumen
C. lysozyme is secreted
D. acidic chyme is neutralized
E. bile salts are manufactured

5. What structure secretes the enzyme that breaks down starch to smaller carbohydrates?
A. the esophagus
B. pancreatic exocrine cells
C. pancreatic duct cells
D. the liver
E. the large intestine

6. Which of the following statements regarding digestion and absorption of carbohydrates is true?
A. Carbohydrate digestion begins in the stomach.

B. Lactose intolerance results from an insufficiency of the enzyme, amylase.
C. Digestible polysaccharides are broken down into the monosaccharides glucose, galactose and fructose, which can be absorbed.
D. Sucrose is the main form of carbohydrate that can be absorbed by active transport across the intestinal epithelium.
E. Cellulose from plants is a polymer of glucose that can be easily digested and absorbed by the human GI tract.

7. The main source of enzymes that cleave disaccharides into monosaccharides is:
A. the pancreas.
B. the liver.
C. gastric secretory cells.
D. the luminal membrane of epithelial cells in the small intestine.
E. the salivary glands.

8. Which of the following molecules crosses the luminal membrane of intestinal cells by facilitated diffusion?
A. glucose
B. lactose
C. fructose
D. galactose
E. maltose

9. Which of the following enzymes is most active at an acidic pH?
A. amylase
B. lipase
C. trypsin
D. pepsin
E. chymotrypsin

10. Which of the following statements regarding protein digestion and absorption is TRUE?
A. Only the exocrine pancreas produces enzymes that can digest proteins.
B. After absorption, the products of protein digestion are carried by blood directly to the liver.
C. Pepsin digests protein mainly in the small intestine.
D. The enzymes that digest protein are secreted in active form.
E. Free amino acids are the only product of protein digestion that can be absorbed from the lumen into intestinal epithelial cells.

11. Which of the following statements is true regarding the emulsification of fats?
A. Fat emulsification requires pancreatic lipase.
B. Emulsification is the splitting of triglycerides into monoglycerides and free fatty acids.
C. Fat emulsification occurs mainly in the liver.
D. Emulsification is the production of a chylomicron from triglycerides and protein.
E. Fat emulsification requires secretion of bile salts and phospholipids by the liver.

12. Which accurately describes lipase?
A. It is mainly produced in the liver, and secreted into the small intestine.
B. It emulsifies lipids.
C. It is secreted by the endocrine pancreas.
D. It is produced in the exocrine pancreas, and catalyzes the degradation of chylomicrons into proteins and fats.
E. It catalyzes the breakdown of triglycerides into monoglycerides and free fatty acids.

13. Which of the following statements about the transport of the absorbed products of fat digestion is TRUE?
A. Free fatty acids and monoglycerides are transported to the liver via the hepatic portal vein.
B. Products of fat digestion first go to the lymph system, and then to the veins leading to the heart.
C. Triglycerides are transported to the liver via the hepatic portal vein to be processed.
D. Free fatty acids and monoglycerides are assembled into triglycerides before they are absorbed from the lumen of the gut into epithelial cells lining the tract.
E. Products of fat digestion are absorbed in the distal portion of the ileum, bound to intrinsic factor.

14. Which is TRUE about fat-soluble vitamins?
A. They must be digested to fatty acids and monoglyceride before being absorbed.
B. Examples include vitamins A, B12, and D.
C. Their normal absorption depends on normal secretion of bile salts.
D. They are absorbed into GI capillaries and travel immediately to the liver in the hepatic portal vein, for storage.
E. They don't need to be ingested because the body can manufacture all of them in sufficient quantities.

15. Which of these is a function of intrinsic factor?
A. It is secreted by salivary glands, and is necessary for digestion of vitamin B12.
B. It is secreted by parietal cells in the gastric mucosa, and its main function is causing insulin release.
C. It is secreted in the stomach, and its main function is activating pepsinogen into pepsin.
D. It is secreted by the small intestine mucosa, and its main function is initiating the intrinsic electrical activity of the pacemaker cells in the stomach.
E. It is secreted in the stomach, and a deficiency of it would cause anemia.

16. Iron is stored in the body mainly as a protein-iron storage complex called:
A. glycogen.
B. hemochromatosis.
C. ferris wheel.
D. transferrin.
E. ferritin.

17. Which is NOT true about receptors that mediate digestive reflexes?
A. They are located in the gastrointestinal tract wall.
B. They include chemoreceptors, osmoreceptors, and mechanoreceptors.

C. They may relay information to integrative centers in the CNS, or to the enteric plexuses.
D. They may be endocrine cells.
E. They only activate feedforward pathways.

18. Which of the following statements about neural control of digestion is FALSE?
A. Parasympathetic stimulation is excitatory to digestion.
B. Sympathetic stimulation is generally inhibitory to digestion.
C. Local neural networks (nerve plexuses) regulate digestive functions.
D. Nerve plexuses receive input from the autonomic nervous system
E. Parasympathetic stimulation inhibits GI exocrine gland secretions.

19. Which of the following statements regarding neural regulation of gastrointestinal function is TRUE?
A. Networks of neurons in the wall of the GI tract innervate the wall's smooth muscle.
B. Smooth muscle of the GI tract is innervated by both sympathetic and autonomic motor nerves.
C. If the autonomic nerves to the GI tract were cut, digestion and absorption of food could no longer take place.
D. The nerve plexus of the GI tract exists in a single layer, just outside of the serosa.
E. There are no afferent neuronal pathways from the GI tract to the central nervous system.

20. Which of the following statements regarding hormonal regulation of gastrointestinal function is TRUE?

A. An increase of H^+ in the small intestine stimulates secretion of the hormone secretin, which in turn stimulates HCO_3^- secretion by the pancreas.

B. The presence of fatty acids in the stomach stimulates secretion of CCK, which in turn stimulates enzyme secretion by cells in the antrum of the stomach.
C. The presence of amino acids in the small intestine stimulates secretion of gastrin, which in turn stimulates HCl secretion by parietal cells.
D.

The presence of fatty acids in the small intestine stimulates the secretion of the hormone secretin, which causes contraction of the gallbladder.

E. The hormone somatostatin stimulates the secretion of H^+ into the lumen of the stomach.

21. Which of the following plays a main role in stimulating the secretion of the hormone gastrin?
A. the hormone secretin
B. the hormone cholecystokinin (CCK)
C. distention of the stomach
D. an increase in $[H^+]$ in the lumen of the stomach
E. histamine

22. Which of the following statements about gastrin is TRUE?
A. It is mainly secreted by cells in the epithelium of the duodenum.
B. It is an enzyme that is secreted into the lumen of the stomach.
C. It is a hormone that is secreted in response to sympathetic stimulation.

D. It is an enzyme that breaks down proteins.
E. It is a hormone that is secreted in response to the presence of peptides in the stomach.

23. Which is caused by increased levels of the hormone cholecystokinin?
A. contraction of the sphincter of Oddi
B. inhibition of pancreatic enzyme secretion
C. contraction of the gallbladder
D. secretion of HCO_3^- from the pancreatic duct cells
E. secretion of gastric H^+

24. Which of the following statements concerning secretin is correct?
A. The most potent stimulus for secretin secretion is the presence of fat in the duodenum.
B. Secretin is the most potent stimulus for pancreatic digestive enzyme secretion.
C. Secretin is the most potent stimulus for pancreatic HCO_3^- secretion.
D. Secretin stimulates secretion by the parietal and chief cells.
E. Secretin stimulates gastrin secretion by parietal cells.

25. Which of the following statements regarding lipid digestion and absorption is TRUE?
A. The presence of fatty acids in the duodenum stimulates the secretion of CCK, which in turn stimulates secretion of pancreatic enzymes.
B. The presence of fatty acids in the duodenum stimulates the secretion of secretin, which in turn stimulates contraction of the gallbladder.
C. The presence of fatty acids in the duodenum stimulates the secretion of gastrin, which in turn stimulates bile synthesis in the gallbladder.
D. The presence of fatty acids in the duodenum stimulates emptying of the stomach.
E. The presence of fatty acids in the stomach stimulates the secretion of secretin, which inhibits motility of the large intestine.

26. Which is TRUE regarding the three phases of the control of HCl secretion?
A. In the intestinal phase, an increase in osmolarity of the contents of the duodenum decreases HCl secretion.
B. In the gastric phase, distension of the stomach decreases HCl secretion.
C. In the cephalic phase, increased nutrient concentration in the duodenum stimulates HCl secretion.
D.

In the intestinal phase, increased peptide concentration in the stomach inhibits HCl secretion.

E. In the gastric phase, decreased H^+ concentration in the stomach inhibits HCl secretion.

27. Which of the following pathways is activated during the cephalic phase of gastrointestinal control?
A. sympathetic nerves to enteric nervous system
B. secretion of cholecystokinin

C. secretion of secretin
D. parasympathetic nerves to enteric nervous system
E. short reflexes between the small intestine and stomach

28. During the cephalic phase of gastric stimulation, which of the following does NOT occur?
A. Seeing, smelling, and/or tasting food reflexly increase(s) gastric acid secretion.
B. Parasympathetic stimulation of secretory cells in the gastric mucosa occurs.
C. Gastrin is secreted into the gastric lumen.
D. HCl is secreted into the gastric lumen.
E. Pepsinogen is secreted into the gastric lumen.

29.

Which of the following is NOT a part of the swallowing reflex?

A. Respiration is inhibited.
B. The glottis closes.
C. The upper esophageal sphincter relaxes.
D. The lower esophageal sphincter relaxes.
E. The pyloric sphincter relaxes.

30. The type of smooth muscle contraction occurring in the esophagus during swallowing is called:
A. peristalsis.
B. mass movement.
C. segmentation.
D. distension.
E. eccentric.

31. Regurgitation of food from the stomach into the esophagus:
A. is ordinarily inhibited by the upper esophageal sphincter.
B. causes irritation of the esophageal mucosa.
C. is called retropulsion, and is essential for gastric digestion.
D. is ordinarily prevented by the pyloric sphincter.
E. is called secondary peristalsis.

32. Which of these are secretions of the parietal cells of the gastric mucosa?
A. HCl and pepsinogen
B. pepsinogen and intrinsic factor
C. gastrin and intrinsic factor
D. HCl and gastrin
E. HCl and intrinsic factor

33. Which of the following is secreted by the chief cells of the gastric mucosa?

A. pepsinogen
B. HCl
C. intrinsic factor
D. gastrin
E. pepsin

34. Which combination of substances would cause the greatest stimulation of gastric HCL secretion when applied to parietal cells?
A. somatostatin, gastrin, and histamine
B.

acetylcholine, histamine, and somatostatin

C. somatostatin and acetylcholine
D.

gastrin, histamine, and acetylcholine

E. histamine and gastrin

35. Which occurs during the secretion of hydrochloric acid by gastric epithelial cells?
A. There is a decrease in the pH of blood in the hepatic portal circulation.
B. Bicarbonate ions are secreted into the hepatic portal circulation.
C. Chloride ions are pumped from the cytosol of the gastric epithelial cells into the hepatic portal circulation blood.
D. Both H^+ and K^+ are actively pumped from the epithelial cell cytosol into the lumen of the stomach.
E. Vesicles containing H^+/K^+ -ATP-aseoteins are endocytosed into vesicles within the gastric epithelial cells.

36. Which is TRUE regarding the secretion of HCl in the stomach?
A.

H^+ is actively transported into the gastric lumen by ATPase pumps in the mucosal membrane.

B. H^+ is actively cotransported into the lumen by secondary active transporters coupled to K^+.
C. The pH of the blood leaving the area of the parietal cells is lower than the normal ECF value of 7.4.
D. H^+ diffuses passively from mucosal epithelial cells into the lumen of the stomach, following Cl^-.
E. Cl^- and HCO_3^- are exchanged across the luminal membrane of epithelial cells via a passive transport protein.

37. During the contractions of gastric emptying:
A. the stomach is induced to contract by increased sympathetic activity.
B. the pyloric sphincter opens to allow stomach contents to pass quickly and completely into the duodenum.
C. the pyloric sphincter closes to allow only a small amount of liquefied chyme to pass into the duodenum

with each contraction of the stomach.
D. the strength of stomach wall contractions is increased when the duodenum secretes cholecystokinin.
E. the strongest contractions are in the antrum of the stomach because the intrinsic pacemaker frequency is fastest there.

38. Which of the following is the most potent inhibitor (directly or indirectly) of gastric motility and emptying?
A. fat in the duodenum
B. acid in the stomach
C. carbohydrate in the stomach
D. gastrin
E. distension of the stomach

39. Which of the following breakfasts would likely remain in the stomach longest?
A. toast, orange juice, and coffee
B. fried eggs, bacon, and hash browns
C. a bowl of cereal with skim milk
D. a boiled egg, toast, and juice
E.

The type of meal has no effect on the rate of gastric emptying.

40. Segmentation of the small intestine:
A. occurs only between meals, and functions to stimulate the secretion of gastrin and the resulting mass-movements that empty the large intestine.
B. occurs at a rate of 3 contractions per minute throughout the small intestine, although the strength of contractions is much greater in the ileum, which has a much thicker layer of smooth muscle in its walls.
C. functions mainly to prevent any forward movement of chyme, so that all digestion and absorption is complete before undigestible materials move into the jejunum.
D. are peristaltic movements that sweep undigestible materials out of the small intestine between meals.
E. mixes chyme with digestive enzymes, brings food molecules near the wall for absorption, and slowly moves small intestine contents toward the cecum.

41. The primary kind of motility in the stomach during digestion of a meal is:
A. peristalsis.
B. segmentation.
C. relaxation of the pyloric sphincter.
D. mass movement.
E. regurgitation.

42. Which is TRUE about gastric motility?
A. The basic electrical rhythm of the gastric smooth muscle (three depolarizations per minute) is the same regardless of whether or not food is present.
B. Gastric contractions are strongest in the fundus of the stomach.

C.

The force of contraction is decreased by gastrin and increased by enterogastrones.

D. When a wave of excitation reaches the pyloric sphincter, action potentials become inhibitory and the sphincter opens wide to allow chyme to exit.
E. The term, "slow waves" refer to gastric contractions, while "pacemaker" refers to gastric action potentials.

43. Bicarbonate is:
A. secreted into the lumen by gastric epithelial cells and into the interstitial fluid by pancreatic duct cells.
B. secreted into the lumen by pancreatic acinar cells, and into the interstitium by pancreatic duct cells.
C. secreted into the lumen by pancreatic duct cells, and into the interstitium by pancreatic acinar cells.
D. secreted into the interstitial fluid by gastric epithelial cells, and into the lumen by pancreatic duct cells.
E. secreted into the lumen by both gastric epithelial cells and pancreatic duct cells.

44.

Which of the following is NOT secreted by the exocrine pancreas?

A. bicarbonate ions
B. amylase
C. bile salts
D. trypsinogen
E. lipase

45. Which of the following statements about pancreatic enzymes is FALSE?
A. Trypsinogen is secreted in an inactive form.
B. Pancreatic amylase digests carbohydrates.
C. Pancreatic lipase digests fats.
D. Except for trypsinogen, other proteolytic enzymes are secreted in active form.
E. Trypsinogen is activated by enterokinase.

46. Which of these is a secretion of the endocrine portion of the pancreas?
A. trypsinogen
B. enterokinase
C. amylase
D. bicarbonate
E. insulin

47. Which of the following statements regarding protein digestion and absorption is TRUE?
A. Cells in the stomach secrete enterokinase, which breaks down proteins into smaller peptides.
B. Pepsin and trypsin are proteolytic enzymes that are most active in an acid pH.
C. More acid is secreted during the digestion of a high-protein meal than during the digestion of a meal

containing little protein.
D. The presence of peptides in the stomach inhibits secretion of gastrin.
E. Proteins are too large to pass through the pyloric sphincter into the small intestine.

48. Bile is synthesized and secreted by the:
A. gallbladder.
B. gastric mucosa.
C. pancreas.
D. duodenum.
E. liver.

49. A person without a gallbladder:
A. cannot secrete bile.
B. cannot store bile.
C. will have no difficulty digesting a large, fat-rich meal.
D. cannot digest fats.
E. cannot store lipase.

50. Bile pigments:
A. are important for fat digestion.
B. are formed from catabolism of the globin part of hemoglobin.
C. impart color to the bile, feces, and urine.
D. are amphipathic molecules that emulsify fats.
E. are completely reabsorbed in the distal ileum.

51. In which region(s) of the GI tract do peristaltic contractions occur?
A. the small intestine
B. the large intestine
C. the stomach
D. the esophagus
E.

All of these options are correct.

52. The primary kind of motility in the small intestine during digestion of a meal is:
A. peristalsis.
B. segmentation.
C. receptive relaxation.
D. migrating motility complex.
E. mass movement.

53. The small intestine:

A. normally contain millions of bacteria that digest complex polysaccharides and produce vitamin K.
B. secretes amylase, lipase, and various proteases from its epithelial cells.
C. is the main site of gastrin secretion.
D. absorbs a larger volume of fluid than any other region of the GI tract.
E. undergoes only peristaltic contractions, both during the digestion of meals and between meals.

54. Ulcers are:
A. most common in the gastric mucosa.
B. always caused by hypersecretion of gastric acid.
C. treated by interventions that inhibit acid secretion.
D.

caused by removal of the gallbladder.

E. most common in the large intestine.

55.

Which of the following is NOT true about gallstones?

A. They cause lactose intolerance.
B. They cause pain.
C. They cause impaired fat digestion.
D. They cause general nutritional deficiencies.
E. They cause jaundice.

56. Which of the following would be most likely to cause metabolic alkalosis?
A. severe vomiting
B. severe diarrhea
C. hyperventilation
D. strenuous exercise
E. hypoventilation

57. Which of the following would be most likely to cause metabolic acidosis?
A. severe vomiting
B. severe diarrhea
C. hyperventilation
D. hypoventilation
E. traveling to high altitude

58. Lactose intolerance:
A. is an inability to digest milk sugar.
B. is most common in very young children.
C. results from the inability to secrete insulin.

D.

results from removal of the gallbladder.

E. is an inability to digest proteins.

59. Constipation:
A. is associated with symptoms caused by accumulation of toxins present in feces.
B. is caused by failure to defecate at least once a day.
C. may be prevented by ingestion of foods with a high proportion of cellulose and other indigestible carbohydrates.
D. results in metabolic acidosis.
E. occurs in people who are lactose intolerant when they drink milk.

60. A bacterium that has been associated with ulcers is:
A.

Eschericia Coli.

B.

Clostridium Difficile.

C.

Staphylococcus aureus.

D.

Helicobacter pylori.

E.

Streptococcus pyogenes.

61. The enzyme, lactase:
A. is involved directly in the digestion of proteins.
B. is necessary for the breakdown of milk fats.
C. is embedded in the luminal plasma membranes of intestinal epithelial cells.
D. promotes the formation of and storage of bile by the gallbladder.
E. is overproduced and released by secretory cells in the small intestine in the condition known as lactose intolerance.

62. Which of the following is NOT characteristic of inflammatory bowel disease (IBD)?
A. bleeding, edema, and ulceration anywhere along the gastrointestinal tract

B.

pain relief when changing to a diet higher in fiber

C. perforations in the mucosa and intestinal wall leading to infection by bacteria which are normally present and benign
D. inflammation and thickening of the bowel wall to the point of preventing the usual passage of feces
E. pain in the lower right abdomen frequently mistaken for appendicitis

63. The exact causes of inflammatory bowel diseases continue to be explored, but it is relatively clear that:
A. it is equally common among people of all ages and racial groups within the population.
B. it is likely to result from a combination of environmental and genetic factors.
C. individuals suffering from its effects are largely experiencing the consequences of the absence of immune mechanisms in the gastrointestinal tract.
D. it can be easily diagnosed since its symptoms are always very specific and the affected areas are always limited to a very focused area within the small intestine.
E. the cause is allergy to a single particular food, and patients get immediate relief by simply not eating that food.

64. The lumen of the gastrointestinal tract is continuous with the external environment.
True False

65. The liver contributes to GI function, although it is not technically part of the gastrointestinal tract.
True False

66. The pH of the contents of the stomach lumen is considerably higher than that of interstitial fluid.
True False

67. The volume of fluids secreted by the gastrointestinal tract in a typical day is far greater than the volume of food and drink ingested.
True False

68. Glucose absorption across the luminal membrane of intestinal epithelial cells occurs by secondary active transport.
True False

69. Polysaccharides must be broken down to disaccharides in order to be absorbed.
True False

70. The products of lipid digestion diffuse into the intestinal epithelium as micelles.
True False

71. In patients lacking exocrine pancreas secretion, fat digestion is normal provided bile is still produced.
True False

72. The breakdown products of dietary triglycerides are resynthesized into triglycerides by intestinal cells and pass from these cells into lacteals.
True False

73. Contraction of the circular smooth muscle in the gastrointestinal tract wall decreases the diameter of the lumen, while contraction of the longitudinal smooth muscle shortens the tract.
True False

74. Amino acids are mainly absorbed across the epithelial wall in the stomach.
True False

75. Short chains of amino acids and some intact proteins are absorbed from the small intestine.
True False

76. Three enzymes secreted by the pancreas and important for protein digestion are trypsin, chymotrypsin, and pepsin.
True False

77. The function of micelles is to store the products of lipid digestion, facilitating their absorption.
True False

78. Food mixed with digestive juices in the stomach is called chyme.
True False

79. Neural regulation of digestive processes is accomplished exclusively by the enteric nervous system of the gastrointestinal tract.
True False

80. The presence of acid and peptides in the stomach stimulates the gastric phase of gastrointestinal control.

True False

81. The presence of food in the mouth stimulates salivary gland secretion.
True False

82. Food is propelled down the esophagus primarily as a result of segmentation contractions of esophageal smooth muscle.
True False

83. The amount of HCl secreted by the stomach during the digestion of a meal is dependent upon the type of food ingested.
True False

84. In general, sympathetic stimulation increases gastric secretion and motility, while parasympathetic stimulation decreases these two processes.
True False

85. Removal of the stomach would interfere with absorption of vitamin B12.
True False

86. "Heartburn" following a large meal is usually due to pressure of the stomach against the heart.
True False

87. Gastric chief cells secrete pepsin.
True False

88. Normally, the amount of bicarbonate ions secreted into the intestine nearly equals the amount of acid secreted by the stomach during digestion.
True False

89. About 95 percent of the bile salts secreted by the liver is recycled back to the liver by the enterohepatic circulation.
True False

90.

The hormone that stimulates secretion of bicarbonate by the pancreas is also the hormone principally responsible for stimulating contraction of the gallbladder.

True False

91. The same hormone that stimulates pancreatic enzyme secretion stimulates pancreatic bicarbonate secretion.
True False

92. Bile secreted by the liver contains the major enzymes for digesting fats.
True False

93. During a meal, peristalsis is the predominant form of movement in the small intestine.
True False

94. The presence of high-osmolarity chyme in the small intestine stimulates both water movement into the intestinal lumen from the blood and the discharge of more chyme from the stomach into the duodenum.
True False

95. The gastroileal reflex coordinates the emptying of chyme from the ileum into the colon with the emptying of chyme from the stomach into the duodenum.
True False

96. The primary function of the large intestine is to store and dilute unabsorbed fecal material.
True False

97. Because the large intestine has a greater diameter than the small intestine, the large intestine has a greater surface area.
True False

98. Flatus is primarily a result of air being swallowed with food.
True False

99. Voluntary control of defecation requires learning to keep the external anal sphincter smooth muscle contracted.
True False

100. Lactose intolerance is caused by an amylase deficiency.
True False

101. Severe diarrhea can lead to metabolic acidosis.
True False

102. Any agent that interferes with water absorption or that causes water secretion into the gastrointestinal tract can cause diarrhea.
True False

Chapter 15 Test Bank Key

1. Which of the following processes is NOT associated with gastrointestinal function?
A. digestion
B. filtration
C. secretion
D. motility
E. absorption

Bloom's: Level 1. Remember
Learning Outcome: 15.01
Section: 15.01
Topic: Digestive System

2. Which is NOT a function performed by saliva?
A. moistening and lubricating food for swallowing
B. starch digestion
C. enabling the sense of taste
D. killing bacteria
E. emulsifying lipids

Bloom's: Level 1. Remember
Learning Outcome: 15.01
Learning Outcome: 15.03

Learning Outcome: 15.04
Section: 15.01
Section: 15.03
Section: 15.04
Topic: Digestive System

3. Which correctly describes a major function of the stomach?
A. the complete digestion of protein to amino acids
B. maintaining an alkaline pH for the digestion of proteins
C. absorption of saliva and chyme into the bloodstream
D. lubricating food so it can be formed into a bolus
E. storing ingested food and partially digesting macromolecules

Bloom's: Level 1. Remember
Learning Outcome: 15.03
Section: 15.03
Topic: Digestive System

4. Which occurs mainly in the small intestine?
A. gastrin is secreted
B. H^+ is secreted from epithelial cells into the lumen
C. lysozyme is secreted
D. acidic chyme is neutralized
E. bile salts are manufactured

Bloom's: Level 1. Remember
Learning Outcome: 15.03
Section: 15.03
Topic: Digestive System

5. What structure secretes the enzyme that breaks down starch to smaller carbohydrates?
A. the esophagus
B. pancreatic exocrine cells
C. pancreatic duct cells
D. the liver
E. the large intestine

Bloom's: Level 1. Remember
Learning Outcome: 15.03
Section: 15.03
Topic: Digestive System

6. Which of the following statements regarding digestion and absorption of carbohydrates is true?
A. Carbohydrate digestion begins in the stomach.
B. Lactose intolerance results from an insufficiency of the enzyme, amylase.
C. Digestible polysaccharides are broken down into the monosaccharides glucose, galactose and fructose, which can be absorbed.
D. Sucrose is the main form of carbohydrate that can be absorbed by active transport across the intestinal epithelium.
E. Cellulose from plants is a polymer of glucose that can be easily digested and absorbed by the human GI

tract.

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

7. The main source of enzymes that cleave disaccharides into monosaccharides is:
A. the pancreas.
B. the liver.
C. gastric secretory cells.
D. the luminal membrane of epithelial cells in the small intestine.
E. the salivary glands.

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

8. Which of the following molecules crosses the luminal membrane of intestinal cells by facilitated diffusion?
A. glucose
B. lactose
C. fructose
D. galactose
E. maltose

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

9. Which of the following enzymes is most active at an acidic pH?
A. amylase
B. lipase
C. trypsin
D. pepsin
E. chymotrypsin

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

10. Which of the following statements regarding protein digestion and absorption is TRUE?
A. Only the exocrine pancreas produces enzymes that can digest proteins.
B. After absorption, the products of protein digestion are carried by blood directly to the liver.
C. Pepsin digests protein mainly in the small intestine.
D. The enzymes that digest protein are secreted in active form.
E. Free amino acids are the only product of protein digestion that can be absorbed from the lumen into

intestinal epithelial cells.

Bloom's: Level 1. Remember
Learning Outcome: 15.02
Learning Outcome: 15.05
Section: 15.02
Section: 15.05
Topic: Digestive System

11. Which of the following statements is true regarding the emulsification of fats?
A. Fat emulsification requires pancreatic lipase.
B. Emulsification is the splitting of triglycerides into monoglycerides and free fatty acids.
C. Fat emulsification occurs mainly in the liver.
D. Emulsification is the production of a chylomicron from triglycerides and protein.
E. Fat emulsification requires secretion of bile salts and phospholipids by the liver.

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

12. Which accurately describes lipase?
A. It is mainly produced in the liver, and secreted into the small intestine.
B. It emulsifies lipids.
C. It is secreted by the endocrine pancreas.
D. It is produced in the exocrine pancreas, and catalyzes the degradation of chylomicrons into proteins and fats.
E. It catalyzes the breakdown of triglycerides into monoglycerides and free fatty acids.

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

13. Which of the following statements about the transport of the absorbed products of fat digestion is TRUE?
A. Free fatty acids and monoglycerides are transported to the liver via the hepatic portal vein.
B. Products of fat digestion first go to the lymph system, and then to the veins leading to the heart.
C. Triglycerides are transported to the liver via the hepatic portal vein to be processed.
D. Free fatty acids and monoglycerides are assembled into triglycerides before they are absorbed from the lumen of the gut into epithelial cells lining the tract.
E. Products of fat digestion are absorbed in the distal portion of the ileum, bound to intrinsic factor.

Bloom's: Level 2. Understand
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

14. Which is TRUE about fat-soluble vitamins?
A. They must be digested to fatty acids and monoglyceride before being absorbed.

B. Examples include vitamins A, B12, and D.
C. Their normal absorption depends on normal secretion of bile salts.
D. They are absorbed into GI capillaries and travel immediately to the liver in the hepatic portal vein, for storage.
E. They don't need to be ingested because the body can manufacture all of them in sufficient quantities.

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

15. Which of these is a function of intrinsic factor?
A. It is secreted by salivary glands, and is necessary for digestion of vitamin B12.
B. It is secreted by parietal cells in the gastric mucosa, and its main function is causing insulin release.
C. It is secreted in the stomach, and its main function is activating pepsinogen into pepsin.
D. It is secreted by the small intestine mucosa, and its main function is initiating the intrinsic electrical activity of the pacemaker cells in the stomach.
E. It is secreted in the stomach, and a deficiency of it would cause anemia.

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

16. Iron is stored in the body mainly as a protein-iron storage complex called:
A. glycogen.
B. hemochromatosis.
C. ferris wheel.
D. transferrin.
E. ferritin.

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

17. Which is NOT true about receptors that mediate digestive reflexes?
A. They are located in the gastrointestinal tract wall.
B. They include chemoreceptors, osmoreceptors, and mechanoreceptors.
C. They may relay information to integrative centers in the CNS, or to the enteric plexuses.
D. They may be endocrine cells.
E. They only activate feedforward pathways.

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

18. Which of the following statements about neural control of digestion is FALSE?
A. Parasympathetic stimulation is excitatory to digestion.

B. Sympathetic stimulation is generally inhibitory to digestion.
C. Local neural networks (nerve plexuses) regulate digestive functions.
D. Nerve plexuses receive input from the autonomic nervous system
E. Parasympathetic stimulation inhibits GI exocrine gland secretions.

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

19. Which of the following statements regarding neural regulation of gastrointestinal function is TRUE?
A. Networks of neurons in the wall of the GI tract innervate the wall's smooth muscle.
B. Smooth muscle of the GI tract is innervated by both sympathetic and autonomic motor nerves.
C. If the autonomic nerves to the GI tract were cut, digestion and absorption of food could no longer take place.
D. The nerve plexus of the GI tract exists in a single layer, just outside of the serosa.
E. There are no afferent neuronal pathways from the GI tract to the central nervous system.

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

20. Which of the following statements regarding hormonal regulation of gastrointestinal function is TRUE?
A. An increase of H^+ in the small intestine stimulates secretion of the hormone secretin, which in turn stimulates HCO_3^- secretion by the pancreas.
B. The presence of fatty acids in the stomach stimulates secretion of CCK, which in turn stimulates enzyme secretion by cells in the antrum of the stomach.
C. The presence of amino acids in the small intestine stimulates secretion of gastrin, which in turn stimulates HCl secretion by parietal cells.
D.

The presence of fatty acids in the small intestine stimulates the secretion of the hormone secretin, which causes contraction of the gallbladder.

E. The hormone somatostatin stimulates the secretion of H^+ into the lumen of the stomach.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

21. Which of the following plays a main role in stimulating the secretion of the hormone gastrin?
A. the hormone secretin
B. the hormone cholecystokinin (CCK)
C. distention of the stomach
D. an increase in $[H^+]$ in the lumen of the stomach
E. histamine

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

22. Which of the following statements about gastrin is TRUE?
A. It is mainly secreted by cells in the epithelium of the duodenum.
B. It is an enzyme that is secreted into the lumen of the stomach.
C. It is a hormone that is secreted in response to sympathetic stimulation.
D. It is an enzyme that breaks down proteins.
E. It is a hormone that is secreted in response to the presence of peptides in the stomach.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

23. Which is caused by increased levels of the hormone cholecystokinin?
A. contraction of the sphincter of Oddi
B. inhibition of pancreatic enzyme secretion
C. contraction of the gallbladder
D. secretion of HCO_3^- from the pancreatic duct cells
E. secretion of gastric H^+

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

24. Which of the following statements concerning secretin is correct?
A. The most potent stimulus for secretin secretion is the presence of fat in the duodenum.
B. Secretin is the most potent stimulus for pancreatic digestive enzyme secretion.
C. Secretin is the most potent stimulus for pancreatic HCO_3^- secretion.
D. Secretin stimulates secretion by the parietal and chief cells.
E. Secretin stimulates gastrin secretion by parietal cells.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

25. Which of the following statements regarding lipid digestion and absorption is TRUE?
A. The presence of fatty acids in the duodenum stimulates the secretion of CCK, which in turn stimulates secretion of pancreatic enzymes.
B. The presence of fatty acids in the duodenum stimulates the secretion of secretin, which in turn stimulates contraction of the gallbladder.
C. The presence of fatty acids in the duodenum stimulates the secretion of gastrin, which in turn stimulates bile synthesis in the gallbladder.
D. The presence of fatty acids in the duodenum stimulates emptying of the stomach.

E. The presence of fatty acids in the stomach stimulates the secretion of secretin, which inhibits motility of the large intestine.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

26. Which is TRUE regarding the three phases of the control of HCl secretion?
A. In the intestinal phase, an increase in osmolarity of the contents of the duodenum decreases HCl secretion.
B. In the gastric phase, distension of the stomach decreases HCl secretion.
C. In the cephalic phase, increased nutrient concentration in the duodenum stimulates HCl secretion.
D.

In the intestinal phase, increased peptide concentration in the stomach inhibits HCl secretion.

E. In the gastric phase, decreased H^+ concentration in the stomach inhibits HCl secretion.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

27. Which of the following pathways is activated during the cephalic phase of gastrointestinal control?
A. sympathetic nerves to enteric nervous system
B. secretion of cholecystokinin
C. secretion of secretin
D. parasympathetic nerves to enteric nervous system
E. short reflexes between the small intestine and stomach

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

28. During the cephalic phase of gastric stimulation, which of the following does NOT occur?
A. Seeing, smelling, and/or tasting food reflexly increase(s) gastric acid secretion.
B. Parasympathetic stimulation of secretory cells in the gastric mucosa occurs.
C. Gastrin is secreted into the gastric lumen.
D. HCl is secreted into the gastric lumen.
E. Pepsinogen is secreted into the gastric lumen.

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

29.

Which of the following is NOT a part of the swallowing reflex?

A. Respiration is inhibited.
B. The glottis closes.
C. The upper esophageal sphincter relaxes.
D. The lower esophageal sphincter relaxes.
E. The pyloric sphincter relaxes.

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

30. The type of smooth muscle contraction occurring in the esophagus during swallowing is called:
A. peristalsis.
B. mass movement.
C. segmentation.
D. distension.
E. eccentric.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

31. Regurgitation of food from the stomach into the esophagus:
A. is ordinarily inhibited by the upper esophageal sphincter.
B. causes irritation of the esophageal mucosa.
C. is called retropulsion, and is essential for gastric digestion.
D. is ordinarily prevented by the pyloric sphincter.
E. is called secondary peristalsis.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

32. Which of these are secretions of the parietal cells of the gastric mucosa?
A. HCl and pepsinogen
B. pepsinogen and intrinsic factor
C. gastrin and intrinsic factor
D. HCl and gastrin
E. HCl and intrinsic factor

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05

Topic: Digestive System

33. Which of the following is secreted by the chief cells of the gastric mucosa?
A. pepsinogen
B. HCl
C. intrinsic factor
D. gastrin
E. pepsin

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

34. Which combination of substances would cause the greatest stimulation of gastric HCL secretion when applied to parietal cells?
A. somatostatin, gastrin, and histamine
B.

acetylcholine, histamine, and somatostatin

C. somatostatin and acetylcholine
D.

gastrin, histamine, and acetylcholine

E. histamine and gastrin

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

35. Which occurs during the secretion of hydrochloric acid by gastric epithelial cells?
A. There is a decrease in the pH of blood in the hepatic portal circulation.
B. Bicarbonate ions are secreted into the hepatic portal circulation.
C. Chloride ions are pumped from the cytosol of the gastric epithelial cells into the hepatic portal circulation blood.
D. Both H^+ and K^+ are actively pumped from the epithelial cell cytosol into the lumen of the stomach.
E. Vesicles containing H^+/K^+ -ATP-aseoteins are endocytosed into vesicles within the gastric epithelial cells.

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

36. Which is TRUE regarding the secretion of HCl in the stomach?

A.

H^+ is actively transported into the gastric lumen by ATPase pumps in the mucosal membrane.

B. H^+ is actively cotransported into the lumen by secondary active transporters coupled to K^+.
C. The pH of the blood leaving the area of the parietal cells is lower than the normal ECF value of 7.4.
D. H^+ diffuses passively from mucosal epithelial cells into the lumen of the stomach, following Cl^-.
E. Cl^- and HCO_3^- are exchanged across the luminal membrane of epithelial cells via a passive transport protein.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

37. During the contractions of gastric emptying:
A. the stomach is induced to contract by increased sympathetic activity.
B. the pyloric sphincter opens to allow stomach contents to pass quickly and completely into the duodenum.
C. the pyloric sphincter closes to allow only a small amount of liquefied chyme to pass into the duodenum with each contraction of the stomach.
D. the strength of stomach wall contractions is increased when the duodenum secretes cholecystokinin.
E. the strongest contractions are in the antrum of the stomach because the intrinsic pacemaker frequency is fastest there.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

38. Which of the following is the most potent inhibitor (directly or indirectly) of gastric motility and emptying?
A. fat in the duodenum
B. acid in the stomach
C. carbohydrate in the stomach
D. gastrin
E. distension of the stomach

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

39. Which of the following breakfasts would likely remain in the stomach longest?
A. toast, orange juice, and coffee
B. fried eggs, bacon, and hash browns
C. a bowl of cereal with skim milk
D. a boiled egg, toast, and juice
E.

The type of meal has no effect on the rate of gastric emptying.

Bloom's: Level 3. Apply
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

40. Segmentation of the small intestine:
A. occurs only between meals, and functions to stimulate the secretion of gastrin and the resulting mass-movements that empty the large intestine.
B. occurs at a rate of 3 contractions per minute throughout the small intestine, although the strength of contractions is much greater in the ileum, which has a much thicker layer of smooth muscle in its walls.
C. functions mainly to prevent any forward movement of chyme, so that all digestion and absorption is complete before undigestible materials move into the jejunum.
D. are peristaltic movements that sweep undigestible materials out of the small intestine between meals.
E. mixes chyme with digestive enzymes, brings food molecules near the wall for absorption, and slowly moves small intestine contents toward the cecum.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

41. The primary kind of motility in the stomach during digestion of a meal is:
A. peristalsis.
B. segmentation.
C. relaxation of the pyloric sphincter.
D. mass movement.
E. regurgitation.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

42. Which is TRUE about gastric motility?
A. The basic electrical rhythm of the gastric smooth muscle (three depolarizations per minute) is the same regardless of whether or not food is present.
B. Gastric contractions are strongest in the fundus of the stomach.
C.

The force of contraction is decreased by gastrin and increased by enterogastrones.

D. When a wave of excitation reaches the pyloric sphincter, action potentials become inhibitory and the sphincter opens wide to allow chyme to exit.
E. The term, "slow waves" refer to gastric contractions, while "pacemaker" refers to gastric action potentials.

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

43. Bicarbonate is:
A. secreted into the lumen by gastric epithelial cells and into the interstitial fluid by pancreatic duct cells.
B. secreted into the lumen by pancreatic acinar cells, and into the interstitium by pancreatic duct cells.
C. secreted into the lumen by pancreatic duct cells, and into the interstitium by pancreatic acinar cells.
D. secreted into the interstitial fluid by gastric epithelial cells, and into the lumen by pancreatic duct cells.
E. secreted into the lumen by both gastric epithelial cells and pancreatic duct cells.

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

44.

Which of the following is NOT secreted by the exocrine pancreas?

A. bicarbonate ions
B. amylase
C. bile salts
D. trypsinogen
E. lipase

Bloom's: Level 1. Remember
Learning Outcome: 15.01
Learning Outcome: 15.03
Learning Outcome: 15.05
Section: 15.01
Section: 15.03
Section: 15.05
Topic: Digestive System

45. Which of the following statements about pancreatic enzymes is FALSE?
A. Trypsinogen is secreted in an inactive form.
B. Pancreatic amylase digests carbohydrates.
C. Pancreatic lipase digests fats.
D. Except for trypsinogen, other proteolytic enzymes are secreted in active form.
E. Trypsinogen is activated by enterokinase.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

46. Which of these is a secretion of the endocrine portion of the pancreas?
A. trypsinogen
B. enterokinase
C. amylase

D. bicarbonate
E. insulin

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

47. Which of the following statements regarding protein digestion and absorption is TRUE?
A. Cells in the stomach secrete enterokinase, which breaks down proteins into smaller peptides.
B. Pepsin and trypsin are proteolytic enzymes that are most active in an acid pH.
C. More acid is secreted during the digestion of a high-protein meal than during the digestion of a meal containing little protein.
D. The presence of peptides in the stomach inhibits secretion of gastrin.
E. Proteins are too large to pass through the pyloric sphincter into the small intestine.

Bloom's: Level 2. Understand
Learning Outcome: 15.04
Learning Outcome: 15.05
Section: 15.04
Section: 15.05
Topic: Digestive System

48. Bile is synthesized and secreted by the:
A. gallbladder.
B. gastric mucosa.
C. pancreas.
D. duodenum.
E. liver.

Bloom's: Level 1. Remember
Learning Outcome: 15.03
Learning Outcome: 15.05
Section: 15.03
Section: 15.05
Topic: Digestive System

49. A person without a gallbladder:
A. cannot secrete bile.
B. cannot store bile.
C. will have no difficulty digesting a large, fat-rich meal.
D. cannot digest fats.
E. cannot store lipase.

Bloom's: Level 2. Understand
Learning Outcome: 15.03
Section: 15.03
Topic: Digestive System

50. Bile pigments:
A. are important for fat digestion.

B. are formed from catabolism of the globin part of hemoglobin.
C. impart color to the bile, feces, and urine.
D. are amphipathic molecules that emulsify fats.
E. are completely reabsorbed in the distal ileum.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

51. In which region(s) of the GI tract do peristaltic contractions occur?
A. the small intestine
B. the large intestine
C. the stomach
D. the esophagus
E.

All of these options are correct.

Bloom's: Level 2. Understand
Learning Outcome: 15.01
Learning Outcome: 15.02
Learning Outcome: 15.05
Section: 15.01
Section: 15.02
Section: 15.05
Topic: Digestive System

52. The primary kind of motility in the small intestine during digestion of a meal is:
A. peristalsis.
B. segmentation.
C. receptive relaxation.
D. migrating motility complex.
E. mass movement.

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

53. The small intestine:
A. normally contain millions of bacteria that digest complex polysaccharides and produce vitamin K.
B. secretes amylase, lipase, and various proteases from its epithelial cells.
C. is the main site of gastrin secretion.
D. absorbs a larger volume of fluid than any other region of the GI tract.
E. undergoes only peristaltic contractions, both during the digestion of meals and between meals.

Bloom's: Level 1. Remember
Learning Outcome: 15.03
Section: 15.03
Topic: Digestive System

54. Ulcers are:
A. most common in the gastric mucosa.
B. always caused by hypersecretion of gastric acid.
C. treated by interventions that inhibit acid secretion.
D.

caused by removal of the gallbladder.

E. most common in the large intestine.

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

55.

Which of the following is NOT true about gallstones?

A. They cause lactose intolerance.
B. They cause pain.
C. They cause impaired fat digestion.
D. They cause general nutritional deficiencies.
E. They cause jaundice.

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

56. Which of the following would be most likely to cause metabolic alkalosis?
A. severe vomiting
B. severe diarrhea
C. hyperventilation
D. strenuous exercise
E. hypoventilation

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

57. Which of the following would be most likely to cause metabolic acidosis?
A. severe vomiting
B. severe diarrhea
C. hyperventilation
D. hypoventilation

E. traveling to high altitude

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

58. Lactose intolerance:
A. is an inability to digest milk sugar.
B. is most common in very young children.
C. results from the inability to secrete insulin.
D.

results from removal of the gallbladder.

E. is an inability to digest proteins.

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

59. Constipation:
A. is associated with symptoms caused by accumulation of toxins present in feces.
B. is caused by failure to defecate at least once a day.
C. may be prevented by ingestion of foods with a high proportion of cellulose and other indigestible carbohydrates.
D. results in metabolic acidosis.
E. occurs in people who are lactose intolerant when they drink milk.

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

60. A bacterium that has been associated with ulcers is:
A.

Eschericia Coli.

B.

Clostridium Difficile.

C.

Staphylococcus aureus.

D.

Helicobacter pylori.

E.

Streptococcus pyogenes.

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

61. The enzyme, lactase:
A. is involved directly in the digestion of proteins.
B. is necessary for the breakdown of milk fats.
C. is embedded in the luminal plasma membranes of intestinal epithelial cells.
D. promotes the formation of and storage of bile by the gallbladder.
E. is overproduced and released by secretory cells in the small intestine in the condition known as lactose intolerance.

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

62. Which of the following is NOT characteristic of inflammatory bowel disease (IBD)?
A. bleeding, edema, and ulceration anywhere along the gastrointestinal tract
B.

pain relief when changing to a diet higher in fiber

C. perforations in the mucosa and intestinal wall leading to infection by bacteria which are normally present and benign
D. inflammation and thickening of the bowel wall to the point of preventing the usual passage of feces
E. pain in the lower right abdomen frequently mistaken for appendicitis

Bloom's: Level 2. Understand
Learning Outcome: Clinical Case Study
Section: Clinical Case Study
Topic: Digestive System

63. The exact causes of inflammatory bowel diseases continue to be explored, but it is relatively clear that:
A. it is equally common among people of all ages and racial groups within the population.
B. it is likely to result from a combination of environmental and genetic factors.
C. individuals suffering from its effects are largely experiencing the consequences of the absence of immune mechanisms in the gastrointestinal tract.
D. it can be easily diagnosed since its symptoms are always very specific and the affected areas are always limited to a very focused area within the small intestine.
E. the cause is allergy to a single particular food, and patients get immediate relief by simply not eating that

food.

Bloom's: Level 2. Understand
Learning Outcome: Clinical Case Study
Section: Clinical Case Study
Topic: Digestive System

64. The lumen of the gastrointestinal tract is continuous with the external environment.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.01
Section: 15.01
Topic: Digestive System

65. The liver contributes to GI function, although it is not technically part of the gastrointestinal tract.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 15.01
Learning Outcome: 15.05
Section: 15.01
Section: 15.05
Topic: Digestive System

66. The pH of the contents of the stomach lumen is considerably higher than that of interstitial fluid.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

67. The volume of fluids secreted by the gastrointestinal tract in a typical day is far greater than the volume of food and drink ingested.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 15.03
Section: 15.03
Topic: Digestive System

68. Glucose absorption across the luminal membrane of intestinal epithelial cells occurs by secondary active transport.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.04

Section: 15.04
Topic: Digestive System

69. Polysaccharides must be broken down to disaccharides in order to be absorbed.
FALSE

Bloom's: Level 2. Understand
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

70. The products of lipid digestion diffuse into the intestinal epithelium as micelles.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

71. In patients lacking exocrine pancreas secretion, fat digestion is normal provided bile is still produced.
FALSE

Bloom's: Level 3. Apply
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

72. The breakdown products of dietary triglycerides are resynthesized into triglycerides by intestinal cells and pass from these cells into lacteals.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

73. Contraction of the circular smooth muscle in the gastrointestinal tract wall decreases the diameter of the lumen, while contraction of the longitudinal smooth muscle shortens the tract.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.02
Section: 15.02
Topic: Digestive System

74. Amino acids are mainly absorbed across the epithelial wall in the stomach.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

75. Short chains of amino acids and some intact proteins are absorbed from the small intestine.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

76. Three enzymes secreted by the pancreas and important for protein digestion are trypsin, chymotrypsin, and pepsin.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

77. The function of micelles is to store the products of lipid digestion, facilitating their absorption.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

78. Food mixed with digestive juices in the stomach is called chyme.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.02
Section: 15.02
Topic: Digestive System

79. Neural regulation of digestive processes is accomplished exclusively by the enteric nervous system of the gastrointestinal tract.
FALSE

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

80. The presence of acid and peptides in the stomach stimulates the gastric phase of gastrointestinal control.

TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

81. The presence of food in the mouth stimulates salivary gland secretion.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

82. Food is propelled down the esophagus primarily as a result of segmentation contractions of esophageal smooth muscle.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

83. The amount of HCl secreted by the stomach during the digestion of a meal is dependent upon the type of food ingested.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

84. In general, sympathetic stimulation increases gastric secretion and motility, while parasympathetic stimulation decreases these two processes.
FALSE

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

85. Removal of the stomach would interfere with absorption of vitamin B12.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

86. "Heartburn" following a large meal is usually due to pressure of the stomach against the heart.
FALSE

Bloom's: Level 2. Understand
Learning Outcome: 15.04
Section: 15.04
Topic: Digestive System

87. Gastric chief cells secrete pepsin.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

88. Normally, the amount of bicarbonate ions secreted into the intestine nearly equals the amount of acid secreted by the stomach during digestion.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

89. About 95 percent of the bile salts secreted by the liver is recycled back to the liver by the enterohepatic circulation.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

90.

The hormone that stimulates secretion of bicarbonate by the pancreas is also the hormone principally responsible for stimulating contraction of the gallbladder.

FALSE

Bloom's: Level 1. Remember

Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

91. The same hormone that stimulates pancreatic enzyme secretion stimulates pancreatic bicarbonate secretion.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

92. Bile secreted by the liver contains the major enzymes for digesting fats.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
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Topic: Digestive System

93. During a meal, peristalsis is the predominant form of movement in the small intestine.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
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94. The presence of high-osmolarity chyme in the small intestine stimulates both water movement into the intestinal lumen from the blood and the discharge of more chyme from the stomach into the duodenum.
FALSE

Bloom's: Level 2. Understand
Section: 15.05
Topic: Digestive System

95. The gastroileal reflex coordinates the emptying of chyme from the ileum into the colon with the emptying of chyme from the stomach into the duodenum.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

96. The primary function of the large intestine is to store and dilute unabsorbed fecal material.

FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
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Topic: Digestive System

97. Because the large intestine has a greater diameter than the small intestine, the large intestine has a greater surface area.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
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Topic: Digestive System

98. Flatus is primarily a result of air being swallowed with food.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

99. Voluntary control of defecation requires learning to keep the external anal sphincter smooth muscle contracted.
FALSE

Bloom's: Level 2. Understand
Learning Outcome: 15.05
Section: 15.05
Topic: Digestive System

100. Lactose intolerance is caused by an amylase deficiency.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

101. Severe diarrhea can lead to metabolic acidosis.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 15.06
Section: 15.06
Topic: Digestive System

102. Any agent that interferes with water absorption or that causes water secretion into the gastrointestinal tract can cause diarrhea.
TRUE

Bloom's: Level 1. Remember
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Topic: Digestive System

Chapter 15 Test Bank Summary

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