

1. Which portion of the large intestine has folds in its mucosal membrane?

- a. The proximal portion
- b. The distal portion
- c. Both a and b
- d. None of the above

Answer: b. The distal portion

2. Which of the following is not present in the distal portion of the large intestine?

- a. Villi
- b. Absorptive cells
- c. Enteroendocrine cells
- d. None of the above

Answer: a. Villi

3. What is the main function of the large intestine?

- a. Digestion of food

- b. Absorption of nutrients
- c. Formation of fecal mass
- d. Secretion of enzymes

Answer: c. Formation of fecal mass

4. What is the characteristic feature of the intestinal glands in the large intestine?
- a. Abundance of goblet cells
  - b. Abundance of absorptive cells
  - c. Abundance of enteroendocrine cells
  - d. None of the above

Answer: a. Abundance of goblet cells

5. What is the structure of the absorptive cells in the large intestine?
- a. Cuboidal with long microvilli
  - b. Columnar with short, irregular microvilli
  - c. Squamous with no microvilli
  - d. None of the above

Answer: b. Columnar with short, irregular microvilli.

6. What is the main function of the simple columnar epithelial cells?

- a. Secretion of enzymes
- b. Absorption of nutrients
- c. Protection against pathogens
- d. None of the above

Answer: b. Absorption of water

7. Where are goblet cells located in relation to the simple columnar epithelial cells?

- a. On the surface
- b. In the glands
- c. Between the simple columnar epithelial cells

d. Both b and c

Answer: c. Between the simple columnar epithelial cells

8. What is the function of mucus in the intestine?

a. To absorb water

b. To provide nutrients

c. To lubricate the intestinal surface and cover bacteria and particulate matter

d. None of the above

Answer: c. To lubricate the intestinal surface and cover bacteria and particulate matter

9. What is the structure of the muscularis externa in the large intestine?

a. Ill-defined

b. Formed by two layers: inner circular and

outer longitudinal

c. Contains solitary lymphatic nodules and blood vessels

d. None of the above

Answer: b. Formed by two layers: inner circular and outer longitudinal

10. Why are mucus cells in the large intestine numerous?

a. To absorb nutrients

b. To protect against pathogens

c. To provide structural support

d. To lubricate the intestine

Answer: d. To lubricate the intestine

Sure, here are some more questions:

11. What is the role of stem cells in the

glands of the intestine?

- a. To produce mucus
- b. To absorb nutrients
- c. To protect against pathogens
- d. To divide and differentiate into specialized cells

12. What is the myenteric plexus and where is it located?

- a. A layer of epithelial cells in the large intestine
- b. A network of neurons in the muscularis externa of the intestine
- c. A lymphatic vessel in the submucosa of the intestine
- d. None of the above

13. What is the function of the lymphatics in the submucosa of the large intestine?

- a. To absorb nutrients
- b. To transport immune cells

- c. To secrete digestive enzymes
- d. None of the above

14. What is the difference between the muscularis externa in the small intestine and the large intestine?

- a. The muscularis externa is absent in the small intestine
- b. The muscularis externa is thinner in the small intestine
- c. The muscularis externa is thicker in the small intestine
- d. The muscularis externa is the same in both the small and large intestine

15. How does the absorption of water occur in the intestine?

- a. Through active transport of water molecules
- b. Through passive diffusion of water molecules

- c. Through active transport of sodium ions, followed by passive diffusion of water molecules
- d. None of the above.

here are the answers to the questions:

11. What is the role of stem cells in the glands of the intestine?

Answer: d. To divide and differentiate into specialized cells.

12. What is the myenteric plexus and where is it located?

Answer: b. A network of neurons in the muscularis externa of the intestine.

13. What is the function of the lymphatics in the submucosa of the large intestine?

Answer: b. To transport immune cells.



14. What is the difference between the muscularis externa in the small intestine and the large intestine?

Answer: c. The muscularis externa is thicker in the small intestine.

15. How does the absorption of water occur in the intestine?

Answer: c. Through active transport of sodium ions, followed by passive diffusion of water molecules.

16. Which of the following is a difference between the mucosa of the small and large intestine?

a. The mucosa is thinner in the large intestine

b. The mucosa contains villi in the large intestine

- c. The mucosa contains crypts but no villi in the large intestine
- d. The mucosa contains both crypts and villi in the large intestine

Answer: c. The mucosa contains crypts but no villi in the large intestine

17. Which type of epithelium is found in the small and large intestine?

- a. Stratified epithelium
- b. Squamous epithelium
- c. Simple columnar epithelium
- d. Cuboidal epithelium

Answer: c. Simple columnar epithelium

18. What is the difference between the crypts in the small and large intestine?

- a. The crypts are longer in the small intestine

- b. The crypts are longer in the large intestine
- c. The crypts are shorter in the small intestine
- d. The crypts are absent in the small intestine

Answer: b. The crypts are longer in the large intestine

19. What is the difference in the lamina propria between the small and large intestine?

- a. It is thicker in the large intestine
- b. It contains more lymph nodes in the small intestine
- c. It is reduced in the large intestine
- d. None of the above

Answer: c. It is reduced in the large intestine

20. What forms the tinea coli in the large intestine?

- a. The mucosa layer
- b. The muscularis mucosa layer
- c. The circular layer of the muscularis externa
- d. The longitudinal layer of the muscularis externa

Answer: d. The longitudinal layer of the muscularis externa

ial layer and same four layers), the appendix has some unique characteristics due to its lymphoid nature. Here are some multiple choice questions based on the paragraph:

21. What is the main concern regarding the narrow lumen of the appendix?

- a) It can cause diarrhea
- b) It can lead to infection
- c) It can cause constipation
- d) It can obstruct and rupture - Answer

22. What fills the lamina propria and submucosa of the appendix?

- a) Blood vessels
- b) Nerves
- c) Lymphatic nodules - Answer
- d) Goblet cells

23. Does the appendix have crypt of Lieberkühn in the lamina propria?

- a) No
- b) Yes, but they are abundant
- c) Yes, but they are small in number - Answer
- d) Yes, and they are the main component of the mucosa

24. What is the lining epithelium of the appendix?

- a) Stratified squamous
- b) Simple cuboidal
- c) Simple columnar - Answer
- d) Pseudostratified columnar

25. What is responsible for the circular layer in the mucosa of the appendix?

- a) Blood vessels
- b) Nerves
- c) Goblet cells
- d) Lymphoid follicles - Answer

26. What is the name of the thin connective tissue capsule covering the liver?

- a) Hepatic capsule
- b) Glisson's capsule - Answer
- c) Reticular capsule

d) Connective tissue capsule

27. Where does the Glisson's capsule become thicker?

- a) At the center of the liver
- b) At the edge of the liver
- c) At the hilum (porta hepatis) - Answer
- d) At the central vein

28. What enters and exits the liver through the hilum (porta hepatis)?

- a) The central vein
- b) The hepatic artery
- c) The portal vein and the hepatic artery - Answer
- d) The bile ducts and lymphatics

29. What is located in the middle of a hexagonal liver lobule?

- a) A bile duct
- b) A lymphatic vessel

c) A central vein - Answer

d) A portal vein

30. What is the characteristic of the nucleus of a hepatocyte?

a) It is elongated

b) It is triangular

c) It is central and rounded - Answer

d) It is located at the periphery

31. What is the staining property of the reticular fibers in the liver?

a) They cannot be stained

b) They can be stained with hematoxylin-eosin stain

c) They can be stained with silver nitrate stain - Answer

d) They can be stained with crystal violet stain

32. How many ways are there to define



liver lobule structure based on hepatocyte functions?

- a) One
- b) Two
- c) Three - Answer
- d) Four

33. Which function of hepatocytes is emphasized in the classical lobule structure?

- a) The exocrine secretion of bile
- b) The removal of small compounds from blood
- c) The endocrine function of producing factors for uptake by plasma - Answer
- d) The synthesis of plasma proteins

34. What is the center of the classical lobule?

- a) Portal triad
- b) Bile duct

c) Central venule - Answer

d) Hepatic artery

35. What is the endocrine function of hepatocytes in the classical lobule?

a) Synthesizing bile

b) Removing small compounds from blood

c) Synthesizing plasma proteins which enter circulation via the central vein -

Answer

d) Producing factors for uptake by plasma

36. Which function of hepatocytes is emphasized in the portal lobule structure?

a) The endocrine function of producing factors for uptake by plasma

b) The removal of small compounds from blood

c) The exocrine secretion of bile - Answer

d) The synthesis of plasma proteins

37. What is the center of the portal lobule?

- a) Central venule
- b) Bile duct in the portal triad - Answer
- c) Hepatic artery
- d) Portal vein

38. What separates endothelial cells from hepatocytes?

- A) Kupffer cells
- B) The space of Disse
- C) Fenestrae and discontinuity of the endothelium
- D) Blood sinusoids

Answer: B) The space of Disse.

39. What is the function of fenestrae and discontinuity of the endothelium?

- A) They allow the free flow of plasma and cellular elements into the space of Disse.
- B) They prevent the exchange of molecules between the sinusoidal lumen

and hepatocytes.

C) They allow the free flow of plasma but not of cellular elements into the space of Disse, permitting an easy exchange of molecules.

D) They have no function in the exchange of molecules between the sinusoidal lumen and hepatocytes.

Answer: C) They allow the free flow of plasma but not of cellular elements into the space of Disse, permitting an easy exchange of molecules.

40. What are Kupffer cells?

A) Endothelial cells in the liver

B) Macrophages of the liver

C) Cells that line the sinusoidal lumen

D) Cells that directly contact hepatocytes

Answer: B) Macrophages of the liver.

41. Do hepatocytes have direct contact

with blood sinusoids?

A) Yes

B) No

C) Only in the presence of Kupffer cells

D) Only in the absence of the space of Disse

Answer: B) No.

42. What are Kupffer cells?

A) Endothelial cells in the liver

B) Macrophages of the liver

C) Cells that line the sinusoidal lumen

D) Cells that directly contact hepatocytes

Answer: B) Macrophages of the liver.

43. Where are Kupffer cells found in the liver?

A) In the space of Disse

B) Within hepatocytes

C) On the luminal surface of the endothelial cells in the sinusoids

D) In the portal vein

Answer: C) On the luminal surface of the endothelial cells in the sinusoids.

44. What are the main functions of Kupffer cells in the liver?

A) To produce bile, store glycogen, and detoxify drugs

B) To metabolize aged erythrocytes, digest hemoglobin, secrete proteins related to immunological processes, and destroy bacteria

C) To synthesize and secrete albumin and other plasma proteins

D) To regulate blood glucose levels and lipid metabolism

Answer: B) To metabolize aged erythrocytes, digest hemoglobin, secrete proteins related to immunological processes, and destroy bacteria.

45. What percentage of the liver cell population do Kupffer cells account for?

- A) 5%
- B) 10%
- C) 15%
- D) 20%

Answer: C) 15%.

46. In which region of the liver lobule are most Kupffer cells found?

- A) In the central vein
- B) Around the bile canaliculi
- C) In the periportal region
- D) In the space of Disse

Answer: C) In the periportal region.

47. What are fat-storing cells in the space of Disse called?

- A) Hepatocytes
- B) Endothelial cells
- C) Kupffer cells

D) Stellate or Ito's cells

Answer: D) Stellate or Ito's cells.

48. What do stellate or Ito's cells in the space of Disse contain?

A) Vitamin D rich lipid inclusions

B) Vitamin E rich lipid inclusions

C) Vitamin A rich lipid inclusions

D) Vitamin K rich lipid inclusions

Answer: C) Vitamin A rich lipid inclusions.

49. What functions do stellate or Ito's cells have in the healthy liver?

A) Uptake and storage of iron

B) Breakdown of glycogen

C) Uptake, storage, and release of retinoids; synthesis and secretion of several extracellular matrix proteins and proteoglycans; secretion of growth factors and cytokines, and regulation of the sinusoidal lumen diameter in response to



different regulators

D) Secretion of bile salts

Answer: C) Uptake, storage, and release of retinoids; synthesis and secretion of several extracellular matrix proteins and proteoglycans; secretion of growth factors and cytokines, and regulation of the sinusoidal lumen diameter in response to different regulators.

50. What is the function of stellate or Ito's cells in regulating the sinusoidal lumen diameter?

A) To increase the diameter in response to different regulators

B) To decrease the diameter in response to different regulators

C) To maintain a constant diameter regardless of regulators

D) To have no effect on the diameter of the sinusoidal lumen

Answer: A) To increase the diameter in response to different regulators, such as prostaglandins and thromboxane A<sub>2</sub>.

51. What is the main reason for the eosinophilic nature of the cytoplasm of the hepatocyte?

- a) Large number of mitochondria and some rough endoplasmic reticulum
- b) Large number of mitochondria and some smooth endoplasmic reticulum
- c) Large number of ribosomes and some smooth endoplasmic reticulum
- d) Large number of ribosomes and some rough endoplasmic reticulum

Answer: b) Large number of mitochondria and some smooth endoplasmic reticulum

52. What is the composition of Hering's canals?

- a) Simple cuboidal cells
- b) Simple columnar cells
- c) Stratified squamous cells
- d) Pseudostratified columnar cells

Answer: a) Simple cuboidal cells

53. What is the pathway of bile flow in the liver?

- a) Hering's Canals > Canaliculi > Bile duct in portal triad
- b) Canaliculi > Bile duct in portal triad > Hering's Canals
- c) Bile duct in portal triad > Canaliculi > Hering's Canals
- d) Hering's Canals > Bile duct in portal triad > Canaliculi

Answer: b) Canaliculi > Bile duct in portal triad > Hering's Canals

54. What is the lining of bile ducts?

- a) Simple squamous cells
- b) Simple cuboidal cells
- c) Pseudostratified columnar cells
- d) Stratified squamous cells

Answer: b) Simple cuboidal cells

55. What is the arrangement of hepatocyte cells in the liver lobule?

- a) Irregular arrangement
- b) Diagonal arrangement
- c) Radial arrangement
- d) Circular arrangement

Answer: c) Radial arrangement

56. What is the location of hepatocyte cells in relation to the central vein and portal triad?

- a) Above the central vein

- b) Below the central vein
- c) Between the central vein and portal triad
- d) Away from the central vein and portal triad

Answer: c) Between the central vein and portal triad

57. What is the characteristic feature of the cytoplasm of hepatocytes?

- a) Eosinophilic bodies
- b) Basophilic bodies
- c) Acidophilic bodies
- d) Chromophilic bodies

Answer: b) Basophilic bodies

58. What is the possible number of nuclei in a hepatocyte?

- a) Uninucleated
- b) Binucleated

- c) Trinucleated
- d) Multinucleated

Answer: b) Binucleated

59. What type of epithelium lines the gallbladder?

- a) Simple cuboidal epithelium
- b) Simple squamous epithelium
- c) Simple columnar epithelium
- d) Stratified squamous epithelium

Answer: c) Simple columnar epithelium

60. What is the composition of the gallbladder wall?

- a) Mucosa, smooth muscle, peritoneum, and serous membrane
- b) Mucosa, smooth muscle, perimuscular connective tissue, and serous membrane
- c) Mucosa, skeletal muscle, peritoneum,

and serous membrane

d) Mucosa, skeletal muscle, perimuscular connective tissue, and serous membrane

Answer: b) Mucosa, smooth muscle, perimuscular connective tissue, and serous membrane

61. What is the appearance of the gallbladder mucosa when it is empty?

- a) Smooth
- b) Folded
- c) Striated
- d) Flattened

Answer: b) Folded

62. What is the main characteristic of the epithelial cells in the gallbladder?

- a) Abundance of ribosomes
- b) Abundance of rough endoplasmic

reticulum

c) Abundance of smooth endoplasmic reticulum

d) Abundance of mitochondria

Answer: d) Abundance of mitochondria

63. What is the appearance of the gallbladder lining when it is observed under the microscope?

a) Smooth appearance

b) Honeycomb appearance

c) Striated appearance

d) Flattened appearance

Answer: b) Honeycomb appearance

64. Which layer of the gallbladder wall is poorly developed?

a) Mucosa

b) Lamina propria



- c) Muscularis mucosa
- d) Muscularis externa

Answer: b) Lamina propria

65. Which layer of the gallbladder wall is absent?

- a) Mucosa
- b) Lamina propria
- c) Muscularis mucosa
- d) Muscularis externa

Answer: c) Muscularis mucosa

66. Does the gallbladder exhibit peristaltic movement?

- a) Yes
- b) No

Answer: b) No

67. What distinguishes the pancreas from the parotid gland in histological sections?
- a) Presence of striated ducts and absence of islets of Langerhans in the pancreas
  - b) Absence of striated ducts and presence of islets of Langerhans in the pancreas
  - c) Presence of striated ducts and islets of Langerhans in both glands
  - d) Absence of striated ducts and islets of Langerhans in both glands

Answer: b) Absence of striated ducts and presence of islets of Langerhans in the pancreas

68. What is the difference in the presence of Centroacinar cells between the parotid gland and the pancreas?
- a) Both have Centroacinar cells
  - b) Only the parotid gland has Centroacinar cells

- c) Only the pancreas has Centroacinar cells
- d) Neither gland has Centroacinar cells

Answer: c) Only the pancreas has Centroacinar cells

69. Which duct is present in both the parotid gland and the pancreas?

- a) Striated duct
- b) Intercalated duct
- c) Interlobular duct
- d) Excretory duct

Answer: b) Intercalated duct

70. What happens to the intercalated duct as it continues within the gland?

- a) It becomes the excretory duct
- b) It becomes the striated duct
- c) It becomes the interlobular duct
- d) It becomes the Centroacinar cells

Answer: c) It continues as the interlobular duct

71. Which type of epithelium is found in the intercalated ducts of the pancreas?

- A) Stratified squamous
- B) Simple cuboidal
- C) Simple columnar
- D) Pseudostratified columnar

Answer: B) Simple cuboidal

72. What type of epithelium is found in the intralobular and interlobular ducts of the pancreas?

- A) Stratified squamous
- B) Simple cuboidal
- C) Simple columnar
- D) Pseudostratified columnar

Answer: C) Simple columnar

73. What is the name of the main duct that runs the length of the pancreas?

- A) Intralobular duct
- B) Intercalated duct
- C) Interlobular duct
- D) Pancreatic duct

Answer: D) Pancreatic duct

74. What is the characteristic of the cells in the pancreas?

- A) Stratified squamous epithelium
- B) Pseudostratified columnar epithelium
- C) Simple cuboidal epithelium
- D) Polarity due to zymogen granules in the apex

Answer: D) Polarity due to zymogen granules in the apex

75. What is the type of epithelium found in the pancreatic duct?

- A) Simple squamous
- B) Stratified squamous
- C) Simple cuboidal
- D) Simple columnar

Answer: B) Stratified squamous

76. Which of the following is NOT a type of epithelium found in the pancreas?

- A) Simple squamous
- B) Stratified squamous
- C) Simple cuboidal
- D) Simple columnar

Answer: A) Simple squamous