



PTS Reading Week Question Series 2021

GI and Liver

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Editor

Faith Solanke

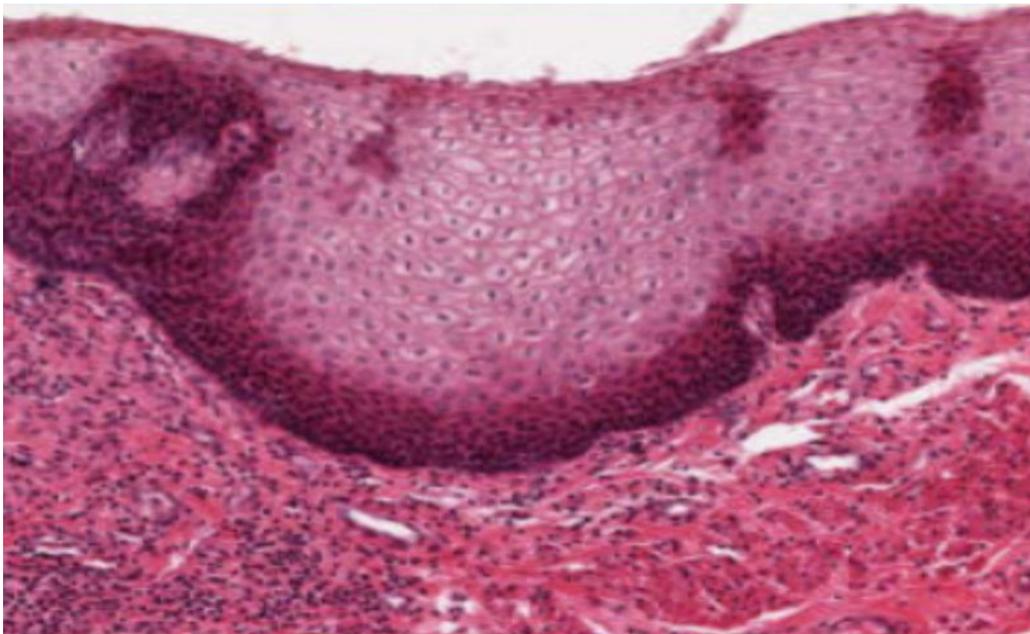
Question contributor

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1. Which gastric cells secrete intrinsic factor and describe the function of intrinsic factor.
 - a) Chief cells. Intrinsic factor stimulates HCL secretion
 - b) D cells. Intrinsic factor binds to vitamin B12, facilitates absorption in the terminal ileum
 - c) Parietal cells. Intrinsic factor binds to vitamin B12, facilitates absorption in the terminal ileum
 - d) Parietal cells. Intrinsic factor binds to vitamin B12, facilitates absorption in the proximal ileum
 - e) ECL cells. Intrinsic factor stimulates histamine secretion

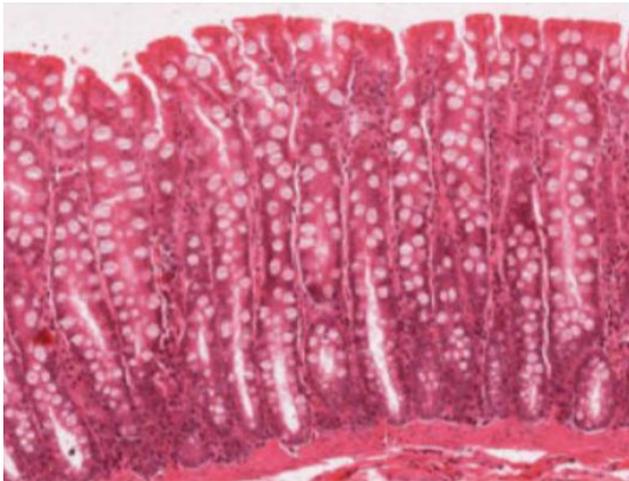
2. Describe the following epithelium. Where in the GI tract could this epithelium be from?



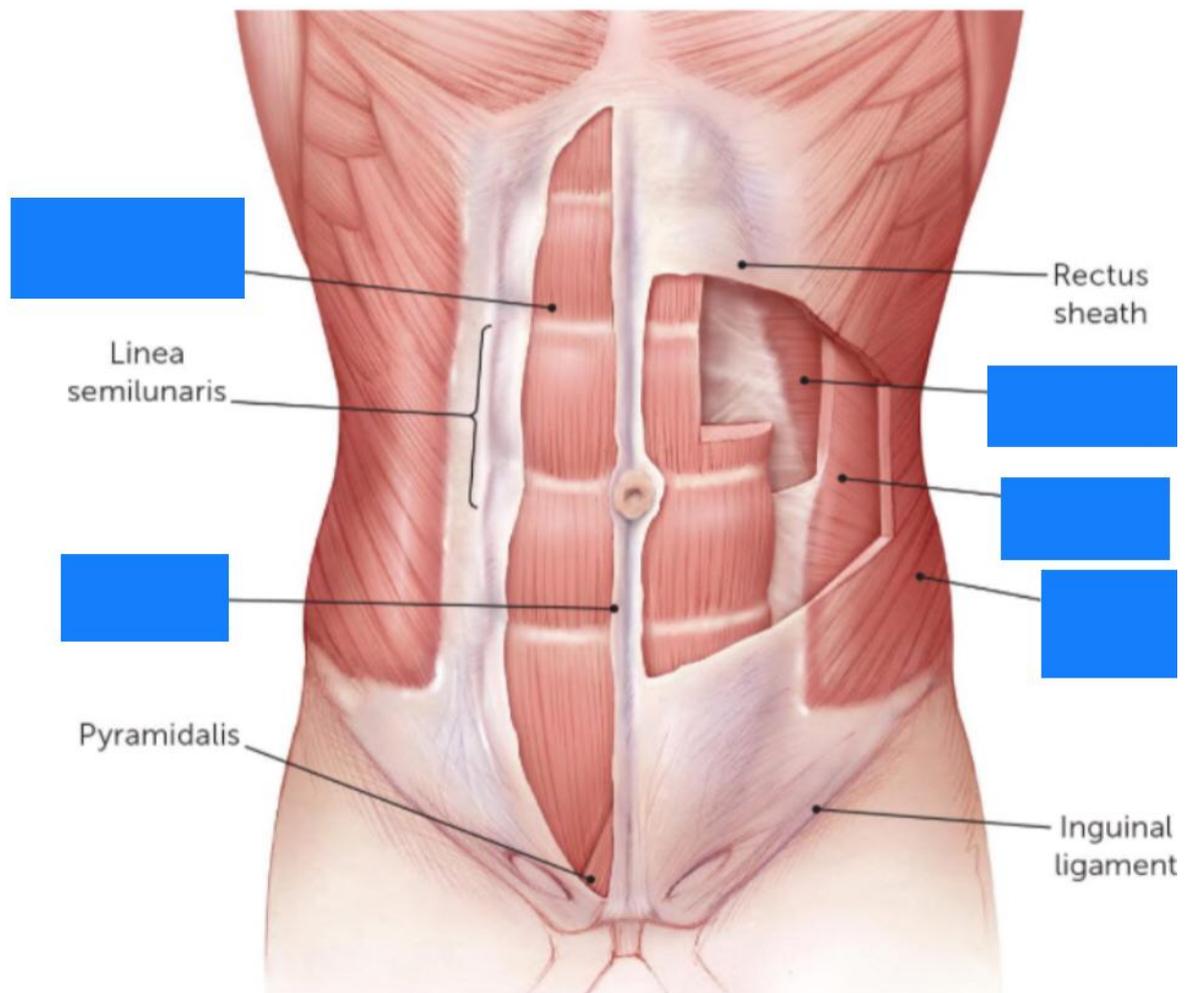
- a) Stomach
- b) Oesophagus
- c) Small intestine
- d) Colon
- e) Bladder

3. Which of the following statements about gastric acid production is false?
- CO₂ and H₂O are converted into bicarbonate via the enzyme carbonic anhydrase
 - HCO₃⁻ is secreted into capillaries in exchange for Cl⁻ ions
 - H⁺ ions are pumped into the stomach lumen via H⁺/Na⁺ ATPase pumps
 - In the stomach, H⁺ ions and Cl⁻ ions react to form HCL
4. Which of the following embryologically arises from the hindgut:
- Right 2/3rds of the transverse colon
 - Appendix
 - Ileum
 - Left 1/3 of the transverse colon
 - Stomach
5. Hormone X reduces blood sugar levels. Where is hormone X produced?
- Pancreas
 - Alpha cells
 - Beta cells
 - Epsilon cells
 - Delta cells
6. Which of these statements about saliva are false?
- Has beta amylase for starch digestion
 - Lubricant for mastication
 - Maintains oral pH
 - Secreted by the thymus gland
7. Which of these statements is true?

- a) The left gastric artery supplies the entirety of the lesser curvature of the stomach
 - b) The left gastric artery arises from the common hepatic artery
 - c) The superior pancreaticoduodenal artery arises from the gastroduodenal artery
 - d) The coeliac axis has 4 branches
8. Name the type of saliva produced by the parotid gland and fill in the blank
9. Which statement about the organ this tissue originates from is true?



- a. Blood supply originates from the coeliac axis
 - b. Contains hepatic lobules
 - c. Has many plicae circulares
 - d. Has many haustra
10. Label the missing structures:



11. At what level does the duodenal papilla enter the duodenum?

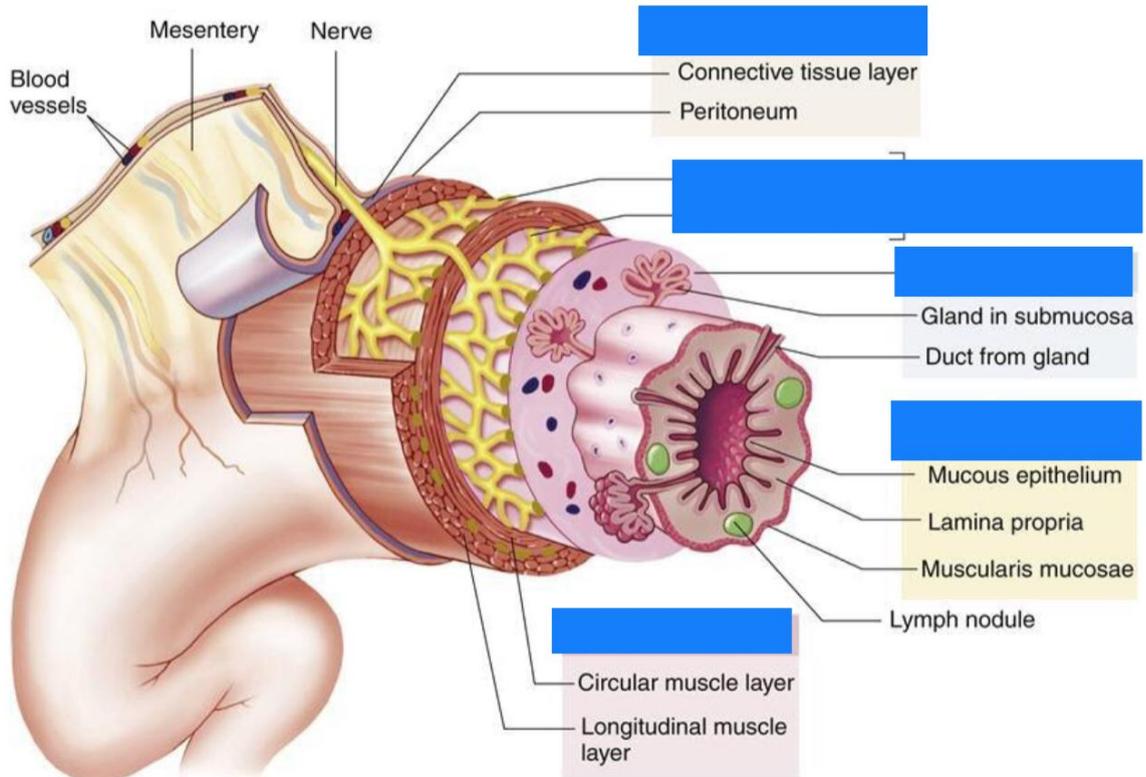
- a. L1
- b. L3
- c. L3-L2
- d. L1-L3
- e. T12

12. Which of the following is not a true sphincter?

- a. Pyloric sphincter
- b. Cardiac sphincter
- c. Ileocecal valve

- d. Sphincter of Oddi
- e. Anal sphincter

13. Label the blanked structures



14. Which coagulation factor is not produced in the liver?

- a. VII
- b. II
- c. X
- d. IX
- e. XI

15. Which of the statements is true?

- a) Ito cells store vitamin k
- b) Kupffer cells store iron in the form of ferritin
- c) Hepatic stellate cells secrete bile
- d) The liver receives 75% of its blood supply from the hepatic artery proper

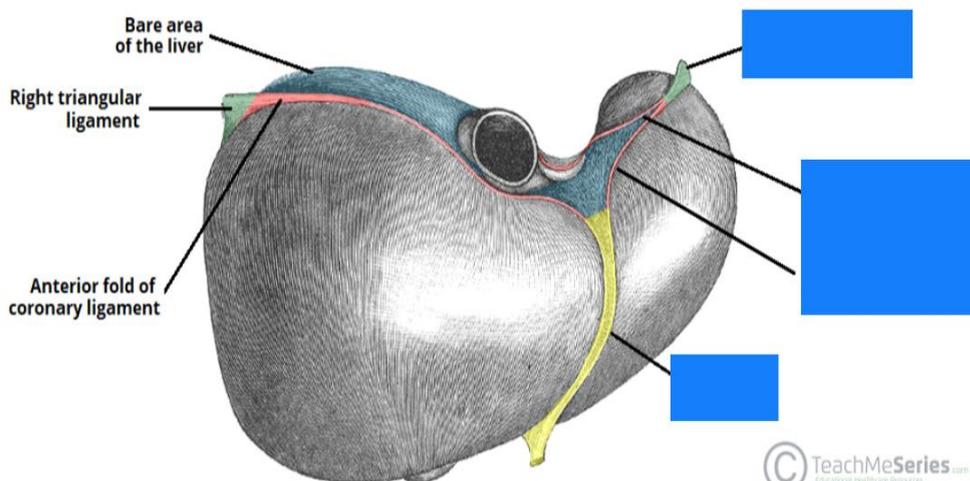
16. Which statement is true for phase 2 reactions?

- a) They are conjugation reactions which slightly increase hydrophilicity
- b) Phase 2 reactions are catalysed by microsomal enzymes, hydroxylation is an example.
- c) glucuronidation is a phase 2 reaction which is done by a microsomal enzyme (UGT)
- d) CYP450 is a non-microsomal enzyme

17. Which of the following about bile is false?

- a. Is released in response to CCK
- b. Produced and stored in the gallbladder
- c. Contains lecithin
- d. Emulsifies fats
- e. Enters duodenum at D2

18. Name the blank labels:

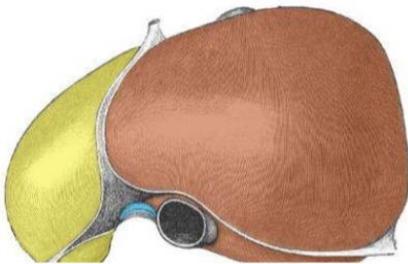


19. Which of the following lies at the centre of the classic liver lobule?

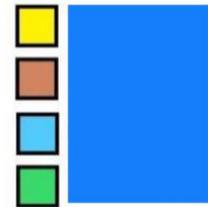
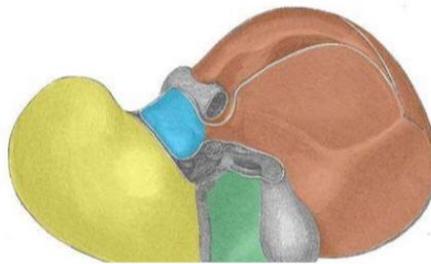
- a. Bile ductule
- b. Central hepatic venule
- c. Hepatic arteriole
- d. Hepatic portal venule
- e. Hepatic vein

20. Name the blank labels:

Superior Surface



Inferior Surface



Answers and Explanations

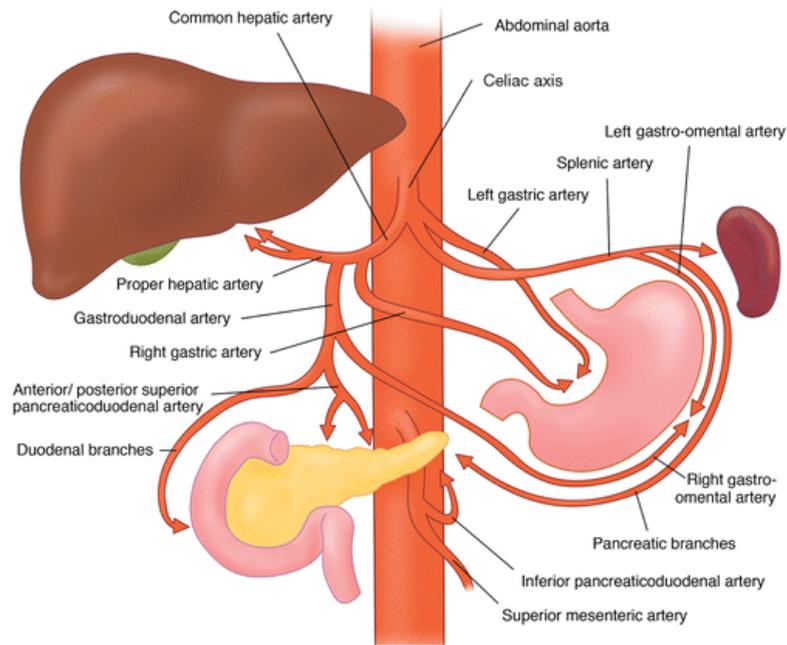
1.

Cell type	Secretion	Function
Mucous cells	Mucous	Lubrication, protection of mucosa
Parietal Cells	Gastric acid (HCl)	Digestion, activates pepsinogen, kills pathogens
	Intrinsic factor	Absorption of Vitamin B12 – in terminal ileum
Chief cells	Pepsinogen	Converted to pepsin – protease enzyme for digestion
Enterochromaffin (ECL)-like cells	Histamine	Stimulates HCl secretion
G cells	Gastrin	Stimulates HCl secretion, Stimulates histamine secretion
D cells	Somatostatin	Inhibits HCl secretion

2. Non-keratinising stratified squamous, oesophagus

Location	Cell type
Oral cavity	Stratified squamous non-keratinising
Lips	Stratified squamous non-keratinising (keratinised at its margin)
Tongue	Stratified squamous (dorsal is keratinised, ventral is non-keratinised)
Oesophagus	Stratified squamous non-keratinising
Stomach	Simple columnar (glandular)
Small intestine	Simple columnar (with crypts and villi and goblet cells)
Colon and rectum	Simple columnar (no villi and abundance of goblet cells)
Anal canal	Stratified squamous → becomes keratinised at distal end

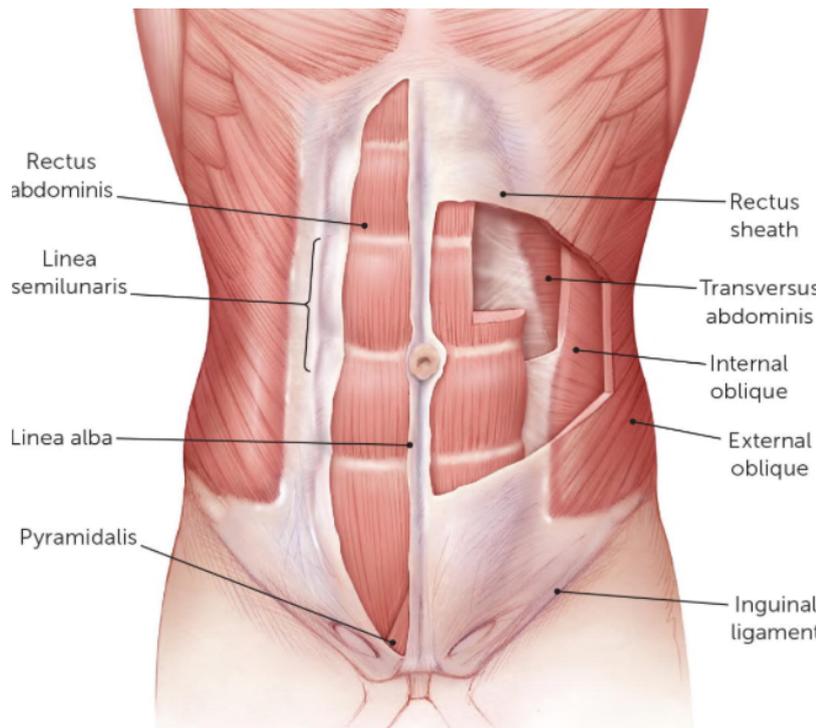
3. C – is carried out by H⁺/K⁺ ATPase
4. D – rest arise from midgut and foregut
5. C – Beta cells in the Islet of Langerhans produce insulin
6. A – has alpha (not beta) amylase for starch digestion



7. C -

8. Serous and Glossopharyngeal

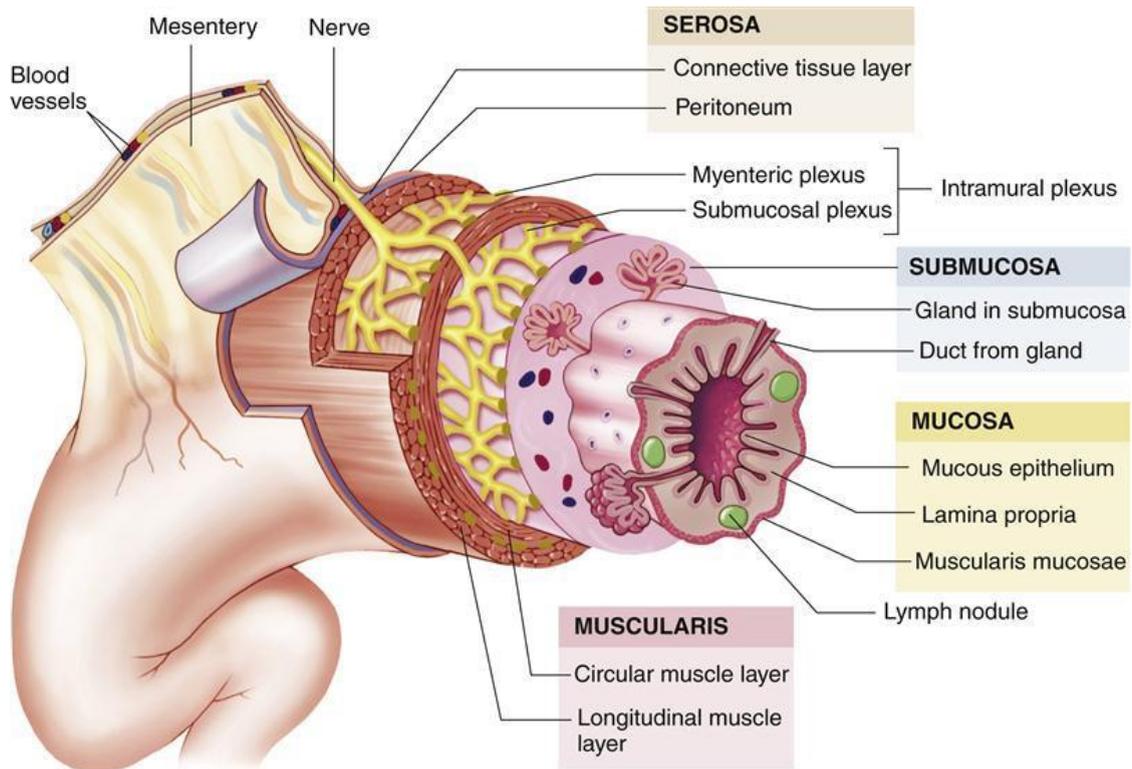
9. D



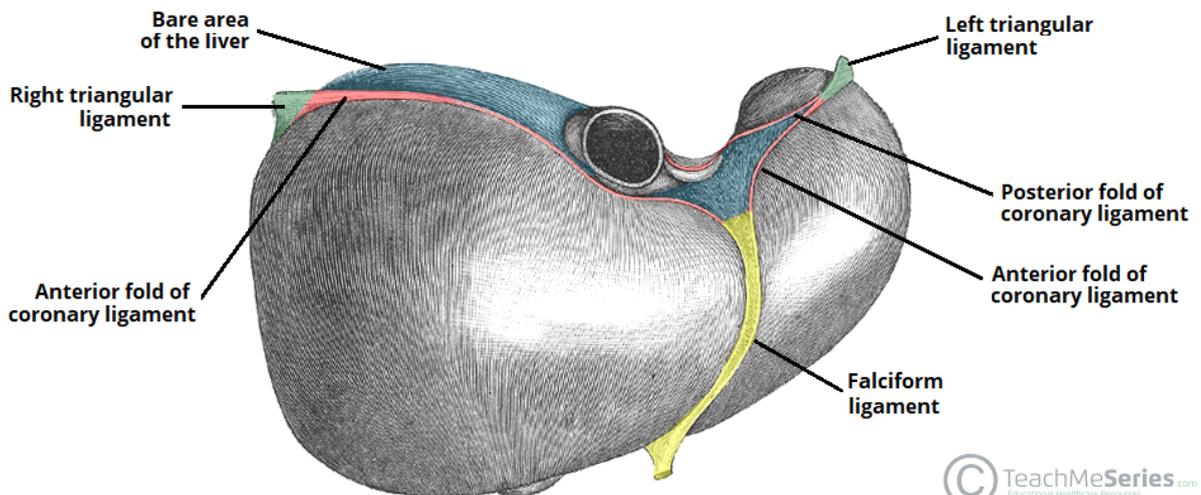
10.

11. D L1-3 (second portion of the duodenum)

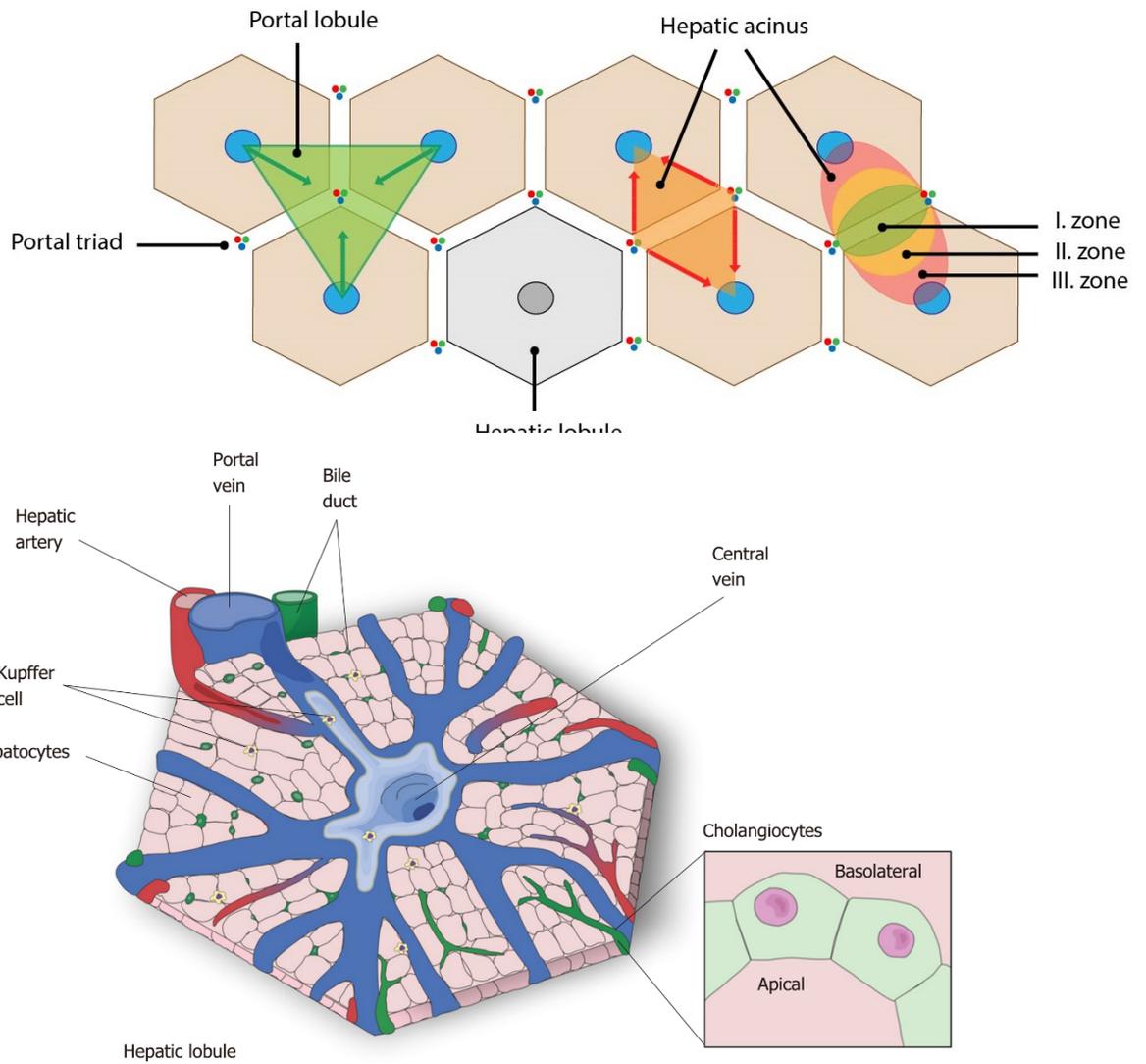
12. B- the cardiac sphincter is a physiological sphincter not a true sphincter



- 13.
14. E- remember 1972 (10,9,7,2)
15. B- the macrophages also store iron. Its cells store lipids and vit a!
16. C
17. B – produced by hepatocytes stored and concentrated in gallbladder
- 18.



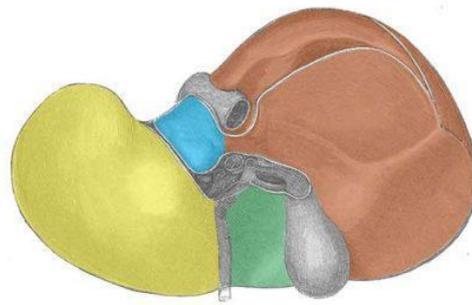
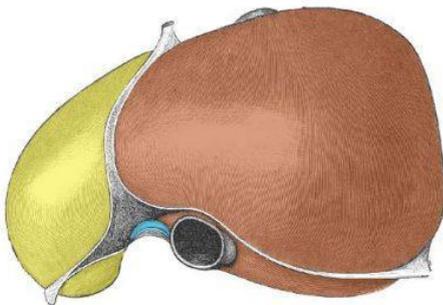
19. B



20.

Superior Surface

Inferior Surface



- Left
- Right
- Caudate
- Quadrate

We hope you have found these questions useful. Please fill out our feedback form so we can improve;

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