Study Guide / Tortora & Derrickson
The Digestive System & Metabolism (C24 & C25)

1. What are the functions of the digestive system? What is the purpose of each function?

2. What is the alkaline tide? What "familiar" chemical reaction is responsible for this event?

3. What are the accessory organs of the digestive system?

4. What are the two types of digestion? Where do these events occur?

5. Where is glucose stored in the body? In what form?

6. What are the two types of contractions in the small intestine? Purpose of each?

7. What is the relative length of the three segments of the small intestine?

8. What is the main function for the stomach, small intestine, and large intestine?

9. What is the importance of the hepatic portal vein? Where is the first set of capillaries located? Where is the second set of capillaries located? Why does the liver get "first pass" of these nutrients? What nutrient is not transported by the hepatic portal pathway? Why?

10. What two muscles regulate defecation? Are these muscles voluntary or involuntary? Explain.

11. What three structures increase the surface area of the small intestines? Why is this important (structure vs function)?

12. How many layers of smooth muscle make up the wall of the GI tract? What organ is the exception?

13. What is the enteric nervous system? What are the two plexus? Location? Functions?

14. What cell types are found in a gastric gland? What is the function of the molecules secreted by the cells in the gastric gland?

15. What is a zymogen? Why are zymogens important?

16. Where is the swallowing center located?

17. What types of cells are found in liver sinusoids that can engulf bacteria?

18. What is the only essential function of the stomach?

19. What is a general term that describes a chylomicrons? Where are chylomicrons formed? Function? How do they get into the blood stream?

20. What is the significance of the micelle's enterohepatic circulation?

21. What is the enterogastric reflex?

22. What is the function of the gastric rugae?

23. What are sphincter muscles and where are they located along the digestive tract?

24. What does the hepatopancreatic sphincter regulate?

25. What is bile? What are the two "general" components of bile? Functions?

26. What is the function of enterokinase?

27. What type of gland is the pancreas? Explain? Which one is associated with the digestive system?

28. What substances found in pancreatic juice are used in the digestive process? Which secretion is produced by the cells which form the ducts?

29. What types of nutrient(s) are absorbed by the lacteals?

30. What is contact digestion? How do they differ from the enzymes produced by the pancreas?

31. Where are Peyer's patches located and what are their function?

32. What are the four major classes of macromolecules? What are the monomers of the four macromolecules? How are they absorbed?

33. What is the function of the following hormones: cholecystokinin, secretin, glucose-dependent insulinotropic peptide, grelin?

34. How many different types of bacteria are found in the mouth? In the large intestine?

35. What role does lecithin play in the digestion of fat? What are two other components found in bile? Function?

36. What nutrient requires vitamin D to be absorbed by the small intestine?

37. What are the three phases of gastric secretion?

38. What is glycolysis? Where is it located? Requirements? Net outcome?

39. What is the Krebs cycle? Where is it located? Requirements? Net outcome?

Hot List Questions:

1. What are the functions of the digestion system? Significance of each function?
2. What are the organs of the digestive system? Function of each segment?

3. What are the accessory organs of the digestive system?
4. What are the four classes of macromolecules and what are their monomoers called?
5. What is the structure of a gastric pit? Type of secretions produced by different cell types?
6. What is the difference between chemical and mechanical digestion? Significance?
7. What is a zymogen?
8. What is the enterogastric reflex?
9. How long does it take to empty the stomach after a meal?
10. Where and how is glucose stored in the body? Time to deplete stored glucose when running?
11. What are the three components of bile? Function of each component?
12. What is an enteroendocrine cell?
13. What is secretin? Produced by? Significance?
14. What is cholecytokinin? Produced by? Significance?
15. What is glucose-dependent insulinotropic peptide? Significance?
16. What is grelin?
17. What is contact digestion? Explain function.
18. What is a migrating motor complex called?
19. How is peristalisis different than segmentation? Significance of each?
20. What is the difference between chylomicrons, micelles, HDL, and LDL?
21. How is the surface area of the small intestine increased?
22. What is the volume of the stomach when empty? After normal meal? After holiday meal?
23. What three terms describe food as it passes through the alimentary canal?
24. How much food passes into the duodenum with each stomach contraction?
25. Where does most of the nutrient absorption and digestion occur?
26. Where does carbohydrate digestion begin?
27. Where does protein digestion begin?
28. What are sphincter muscles? Where are they located in the digestive system? Significance?
29. What molecule alters your behavior so you search for food? When does this occur?
30. What is the significance of the hepatic portal vein?
31. What class of nutrient does not travel in the hepatic portal vein? Why?
32. What are the three phases of gastric regulation? Explain
33. What three factors protects the stomach mucosa from “digestion”?
34. What is the enterohepatic circulation? Significance?
35. What is the structure and function of HDL, VLDL, and LDL?
36. What is the alkaline tide?
37. What is the only essential function of stomach?
38. What is the significance of glcolysis and the Kreb's Cycle? Where do they occur?
39. What is the function of enterokinase?
40. What is the significance of the enteric nervous system?