The Digestive System: Digestion and Absorption

1. List the three major nutrient classes (a.k.a. macronutrients).

   __________
   __________
   __________

2. Which of the following carbohydrates is NOT a disaccharide?

   maltose
   lactose
   starch
   sucrose

3. Match the following pairs of molecules with their monomers by placing the number next to the matching letter:

   Sucrose _________
   Maltose _________
   Starch _________
   Lactose _________

   The monomers:
   1. Many glucose monomers
   2. glucose + fructose
   3. glucose + galactose
   4. glucose + glucose

4. The breakdown products (monomers) of proteins are _________ _________.

5. The breakdown products of triglycerides include monoglycerides and _________ _________.

6. Place the following labels on the diagram below:
7. Once food is acidified in the stomach, amylase continues to digest starch.
   a. True
   b. False

8. The digestive enzyme ________ begins the breakdown of proteins in the stomach.

9. Pepsin is inactivated in the duodenum.
   a. True
   b. False

10. Pancreatic __________ is responsible for the majority of fat digestion.

11. Most water and salt are absorbed in the colon.
    a. True
b. False

12. The active transport of sodium is necessary for water absorption in the small intestine.
   a. True
   b. False

13. The final digestion of carbohydrates is accomplished with ______ ______ enzymes.

14. Which of the following is NOT a brush border enzyme?
   a. Amylase
   b. Sucrase
   c. Dextrinase
   d. Glucoamylase
15. Place the following labels on the figure below:

Luminal side
Facilitated diffusion transporter
Basolateral side

16. List the three major pancreatic proteases.

   a. __________
   b. __________
   c. __________

17. Only single amino acids are absorbed in the small intestine.

   a. True
   b. False

18. List the two main brush border proteases
19. List the two mechanisms that help to increase the surface area of lipids for subsequent digestion with pancreatic lipase.
   a. __________
   b. __________

20. Bile salts surround monoglycerides and free fatty acids to form tiny droplets called ________.

21. Triglycerides combine with lipoproteins inside the intestinal epithelial cells to form __________.

22. Chylomicrons exit the intestinal epithelial cells and then enter the ________ lymphatic capillaries.

23. The colon epithelium produces substantial amounts of digestive enzymes.
   a. True
   b. False

24. Colic bacteria produce substantial quantities of ________ as a by product of their metabolism.

25. List the three main substances that are absorbed in the large intestine.
   a. __________
   b. __________
   c. __________