The Digestive System: Secretion

1. Of the approximately 9.0 L of fluids contained in the digestive tract daily, only _______ L are eliminated with the feces.

2. Of the approximately 800 g of food ingested during a typical day, only about ____ g are eliminated as undigested food in the feces.

3. Label the parotid, submandibular, and sublingual salivary glands in the figure below:
4. List the four major functions of saliva.
   a. __________
   b. __________
   c. __________
   d. __________

5. Parasympathetic innervation to the salivary glands is transmitted by cranial nerves number_______ and _______.

6. Both the sympathetic and parasympathetic divisions of the ANS stimulate the salivary glands.
   a. True
   b. False

7. _______ division innervation stimulates watery, enzyme-rich saliva secretion, whereas _______ division innervation stimulates, a mucus-rich, more viscous saliva secretion.

8. Label the figure below with the terms parasympathetic and sympathetic.
9. The esophagus secretes digestive enzymes.

   a. True
   b. False
10. The four main components of gastric juice are:
   a. ________
   b. ________
   c. ________
   d. ________

11. Gastrin is released from the ______ region of the stomach.

12. Place the following labels on the figure below:
   - parietal cell: HCl + IF
   - chief cell: pepsinogen
   - paracrine cell: histamine
   - mucus neck cells

13. Gastrin producing G-cells are found in the gastric glands located in the ______ region of the stomach.

14. List the only two substances that are absorbed across the stomach’s mucosal epithelium
15. HCl in the stomach produces a pH of between _______ in the luminal fluid.

16. Which of the following is a function of HCl in the stomach?
   a. Activates pepsinogen
   b. Breaks down cell walls
   c. Kills most bacteria
   d. Denatures proteins in food
   e. All of the above are functions of HCl

17. Without _______ _______, vitamin B₁₂, necessary for normal RBC development, can not be absorbed by the intestine.

18. List the two secretions that stimulate HCl release from parietal cells.
   a. __________
   b. __________

19. During the cephalic phase _________ neural reflexes stimulate an increased production of gastric juice.

20. Lipids in the intestine cause the release of the hormone_______, while acid in the intestine causes the release of ______.

21. Match the following pairs of terms:
    CCK & secretin - bicarbonate pancreatic juice & enzyme-rich pancreatic juice

22. List the three major proteases (inactive forms) secreted by the exocrine pancreas
   a. ________
   b. ________
   c. ________

23. Intestinal _______ converts (activates) trypsinogen into trypsin.

24. The pancreatic hormone _______ regulates the absorptive state, while _______ regulates the post-absorptive state.
25. List the four organic components of bile:
   a. ________
   b. ________
   c. ________
   d. ________

26. Intestinal digestive enzymes that are embedded in the epithelial microvilli membranes are called ________ ________ enzymes.

27. The intestinal hormone _____ causes contraction of the gall bladder and release of bile into the duodenum.

28. ________ ________ protects the wall of the large intestine from mechanical damage and from damage by bacterial acid.