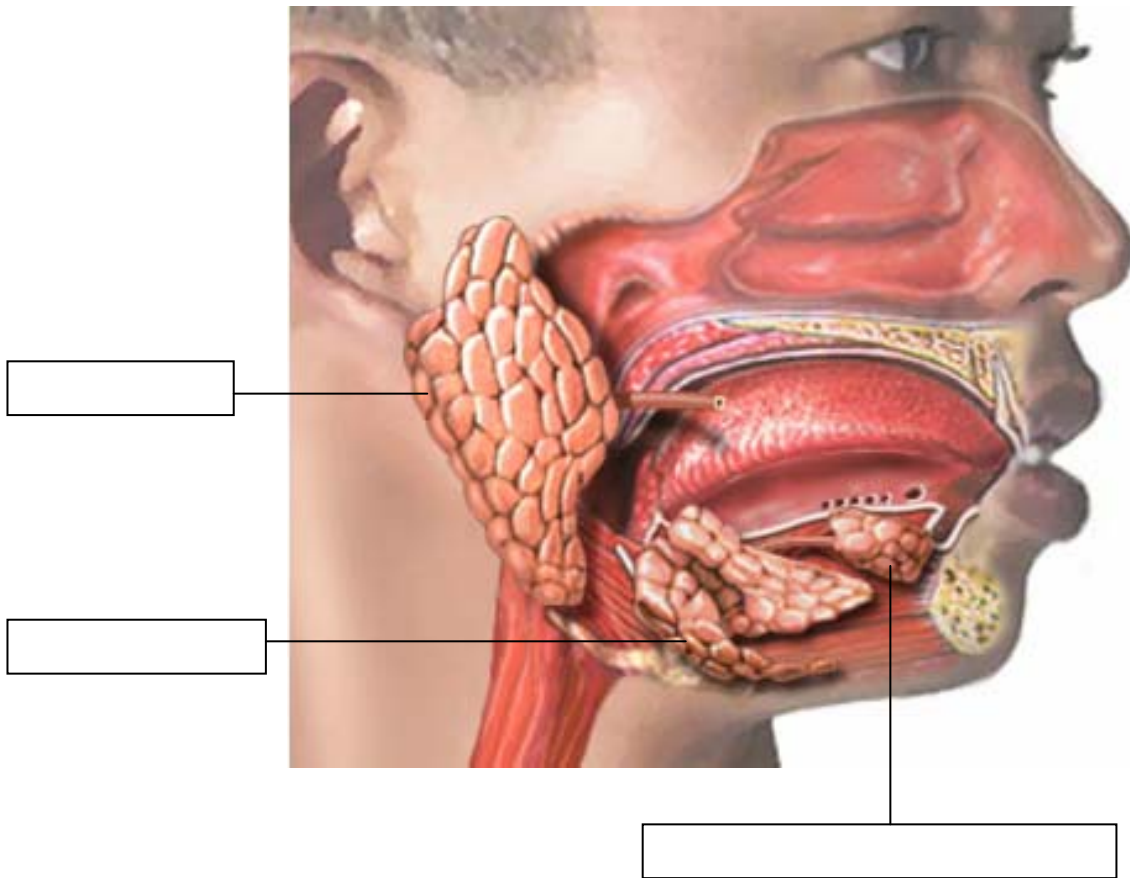


### The Digestive System: Secretion

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 \_\_\_\_\_.

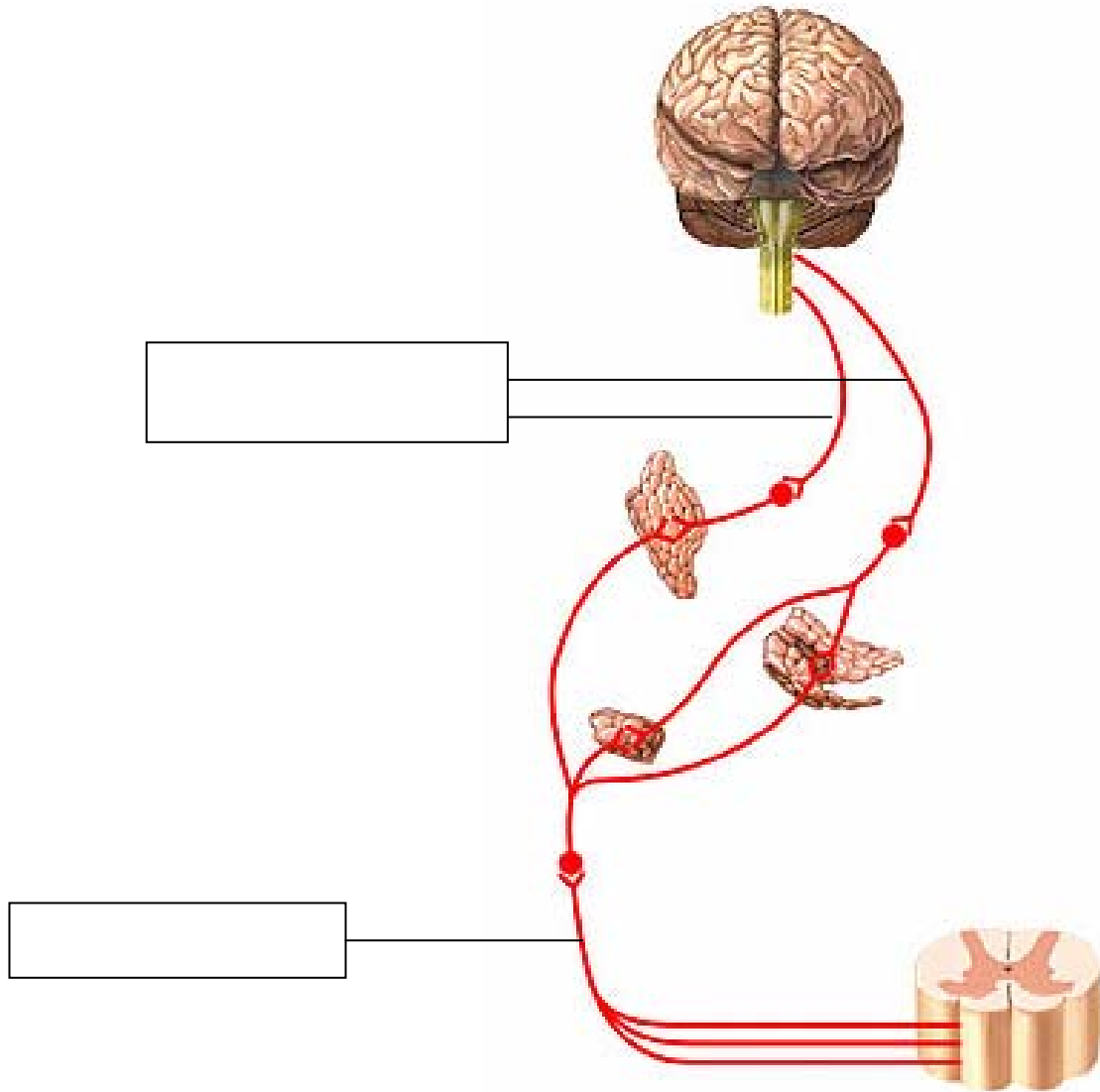
6. Both the sympathetic and parasympathetic divisions of the ANS stimulate the salivary glands.

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

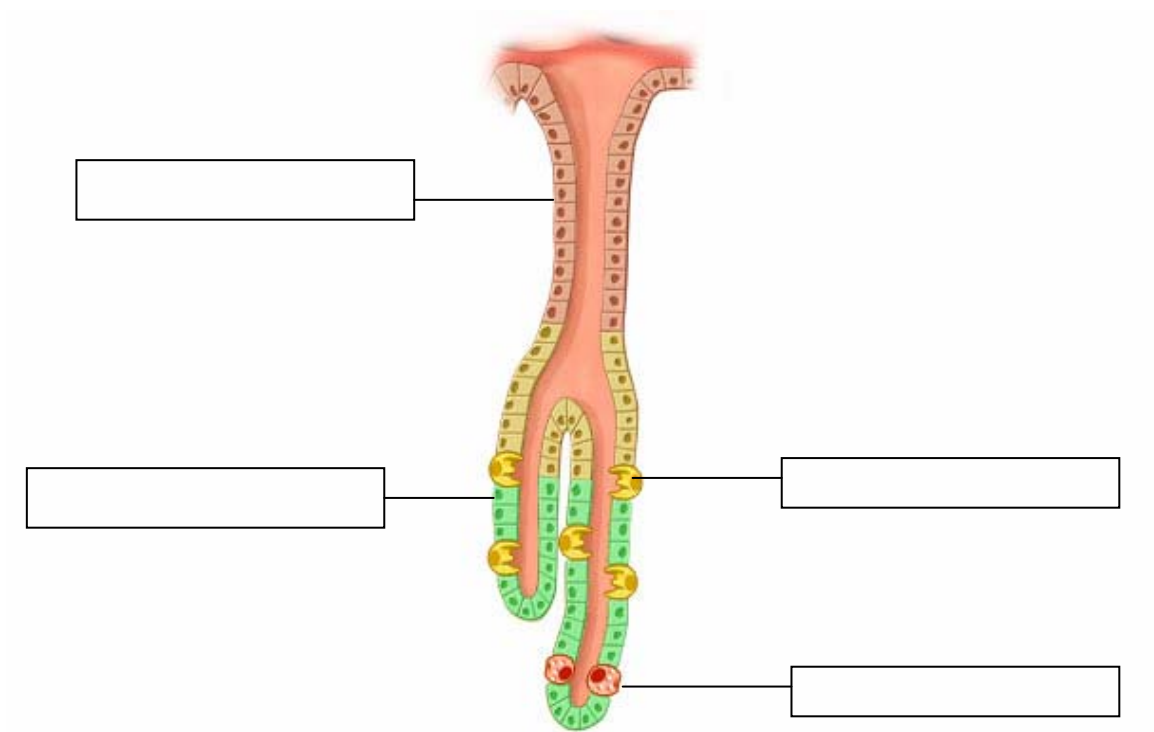
10. The four main components of gastric juice are:
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
11. Gastrin is released from the \_\_\_\_\_ region of the stomach.
12. Place the following labels on the figure below:

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

a. \_\_\_\_\_

b. \_\_\_\_\_

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 B<sub>12</sub>, 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.