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Section 33–3 Form and Function in Chordates

(pages 857–864)

Key Concept

- How do the organ systems of the different groups of chordates carry out essential life functions?

Feeding (pages 857–858)

1. Most tunicates and all lancelets are _____. They remove plankton from the water that passes through their _____.
2. Circle the letter of the vertebrates that are filter feeders.
   a. tunicates **b.** flamingoes **c.** manta rays **d.** crocodiles
3. What adaptations do vertebrates have to feed on nectar? _____
   _____
4. Is the following sentence true or false? Mammals with sharp canine teeth and incisors are filter feeders. _____
5. Circle the letter of the vertebrates that typically have short digestive tracts that produce enzymes.
   a. herbivores **b.** endotherms **c.** carnivores **d.** ectotherms

Respiration (pages 858–859)

6. Is the following sentence true or false? Generally, aquatic chordates use lungs for respiration. _____
7. List three examples of respiratory adaptations or structures used by chordates in addition to gills and lungs.
   a. _____
   _____
   b. _____
   _____
   c. _____
   _____
8. Describe the basic process of breathing among land vertebrates. _____
   _____
   _____
   _____
   _____
9. Is the following sentence true or false? Mammals typically have more surface area in their lungs than amphibians. _____
10. Bubblelike structures in the lungs that provide an enormous surface area for gas exchange are called _____.

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11. Complete the flowchart that describes the path of water as it moves through a fish. See Figure 33–9 on page 859.

Water flows in through the fish's _____, where muscles pump the water across the _____.

↓

As water passes over the gill filaments, _____ molecules diffuse into blood in the capillaries. At the same time, _____ diffuses from blood into water.

↓

Water and carbon dioxide are pumped out through the _____.

12. Why do mammals need large amounts of oxygen? _____

_____

_____

13. Why are the lungs of birds most efficient? _____

_____

_____

Circulation (pages 860–861)

14. Is the following sentence true or false? Chordates that use gills for respiration have a single-loop circulatory system. _____

15. Identify where the blood is carried in each loop of a double-loop circulatory system.
First loop: _____
Second loop: _____

16. Is the following sentence true or false? In a double-loop system, oxygen-poor blood from the heart is carried to the body. _____

17. In vertebrates with gills, the heart consists of _____

18. What is the advantage of the reptilian heart over the amphibian heart? _____

_____

_____

19. Why is a four-chambered heart sometimes described as a double pump? _____

_____

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Excretion (page 861)

20. In nonvertebrate chordates and fishes, _____ play an important role in excretion. However, most vertebrates rely on _____.

21. Circle the letter of each chordate that eliminates nitrogenous wastes as urea.

a. tunicates **c.** birds

b. reptiles **d.** mammals

22. How do vertebrate kidneys help maintain homeostasis? _____

_____

_____

Response (page 862)

23. Is the following sentence true or false? Nonvertebrate chordates have a complex brain with distinct regions. _____

24. Circle the letter of the part of the brain that controls the function of many internal organs.

a. medulla oblongata **c.** olfactory bulbs

b. optic lobes **d.** cerebrum

25. Is the following sentence true or false? The cerebrum and cerebellum are most developed in birds and mammals. _____

Movement (page 863)

26. Although nonvertebrate chordates lack bones, they do have _____.

27. What structures make it possible for vertebrates to control movement? _____

_____

_____

Reproduction (page 864)

28. Is the following sentence true or false? Vertebrate evolution shows a general trend from internal to external fertilization. _____

29. Circle the letter of development in which the eggs develop internally and the embryos receive nutrients from the yolk surrounding them.

a. oviparous **c.** viviparous

b. ovoviviparous **d.** asexual

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