Bio-G10-Q3W4-Echinodermata and invertebrate chordata- H.W

Matching

Match each item with the correct statement below.

a. brittle star
b. sea star
c. sand dollar
d. sea lily
e. sea cucumber

____ 1. Has thin, flexible rays made up of small, overlapping, calcified plates
____ 2. Has tiny, calcified plates embedded in fleshy skin
____ 3. Has feathery, branching rays made up of tiny, calcified plates
____ 4. Has a flattened, immovable endoskeleton made up of fused plates
____ 5. Has a flexible endoskeleton divided into rather long, tapering rays

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 6. What are the structures used by echinoderms to pry open the shells of bivalves called?
a. Rays
b. Tube feet
c. Pedicellariae
d. Ampullas

____ 7. Which of the following structures is the progenitor of the central nervous system in chordates?
a. Dorsal hollow nerve cord
b. Notochord
c. Muscle blocks
d. None of the above

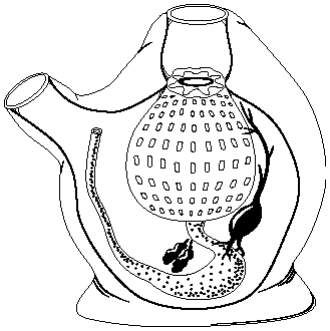

Figure 29-5

____ 8. Where is the dorsal nerve cord in Figure 29-5?
a. it disappeared after the larval stage
b. within the tunic
c. surrounding the pharynx
d. along the heart and circulatory system

____ 9. What structure shown in the adult sea squirt in Figure 29-5 indicates it's a chordate?
a. gill slits
b. ciliated grooves
c. anus
d. heart

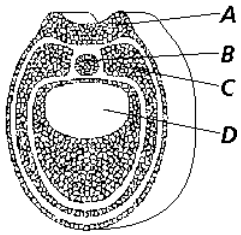

Figure 29-3

____ 10. Identify the notochord in Figure 29-3.
a. A
b. B
c. C
d. D

____ 11. The notochord shown in Figure 29-3 is surrounded on two sides by what?
a. ectoderm
b. endoderm
c. mesoderm
d. exoderm

____ 12. Which of the following echinoderms has a sessile lifestyle?
a. Sea lily
b. Sea cucumber
c. Sea urchin
d. Brittle star

____ 13. Which structure in Figure 29-4 is a characteristic only chordates have?

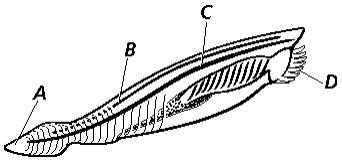

Figure 29-4

a. B
b. A
c. C
d. D

____ 14. The type of symmetry found in all adult echinoderms is _____.
a. bilateral
b. radial
c. horizontal
d. regional

____ 15. Which of the following structures allows water into and out of the water vascular system?
a. Pedicellariae
b. Ampulla
c. Madreporite
d. Anus

____ 16. A seastar can hold tightly to the surface it is touching because of the _____.
a. suction in the tube feet
b. eyespots
c. sieve in the madreporite
d. endoskeleton

____ 17. What is the tunic produced by adult sea squirts made of?
a. Chitin
b. Calcium carbonate
c. Cellulose
d. None of the above

____ 18. Which of the following characteristics can be found in the development of invertebrate chordates?
a. Notochord
b. Postanal tail
c. Gill slits
d. All of the above

____ 19. Tunicates and lancelets are filter feeders. In order to trap food, they secrete mucus from the —
a. gill slits.
b. pharynx.
c. ciliated groove.
d. None of the above

____ 20. What is the endoskeleton of echinoderms composed of?
a. Cellulose
b. Chitin

c. Echinoderms do not have endoskeletons.
d. Calcium carbonate

____ 21. What are the long, tapering arms of echinoderms called?
a. Tube feet
b. Pedicellariae
c. Ampullas
d. Rays

____ 22. Which of the following nutritional lifestyles are found in populations of echinoderms?
a. Decomposers
b. Carnivorous
c. Herbivorous
d. All of the above

____ 23. An animal that retains its chordate features throughout life is the _____.
a. sand dollar
b. lancelet
c. sea squirt
d. seastar

True/False
Indicate whether the statement is true or false.

____ 24. The fact that echinoderms have deuterostome development is strong evidence that they are most closely related to chordates.

____ 25. Most echinoderms have highly developed sense organs.

____ 26. If a sea urchin population underwent a population explosion, you might expect to see a rapid decline in the amount of algal life in the area.

____ 27. Sea stars and brittle stars both eat suspended organic particles.

Completion
Complete each statement.

A. backbone
B. bilateral
C. tube feet
D. notochord, a dorsal hollow nerve cord, pharyngeal pouches and a postanal tail.

28. Larval forms of tunicates have _____ symmetry.
29. At some time in their life, all chordates possess the following 4 characters: _____
30. Echinoderms have _____, which are hollow, thin-walled structures that each have a suction cup on the end.
31. During your early development, your notochord became your _____, and your pharyngeal pouches disappeared.
32. The earliest echinoderms in the fossil record had _____ symmetry.

A. anterior portion of the dorsal nerve cord
B. posterior of the dorsal nerve cord
C. madreporite
D. notochord

33. The spinal cord is derived from the _____

34- whereas the brain _____ is derived from the _____

35. The _____ is a semirigid, rodlike structure in chordates that becomes a backbone in vertebrates.

36. In a sea star, water enters and exits the water vascular system through a structure called the _____, a sievelike, disc-shaped opening on the dorsal side of the body.,

A. free swimming
B. pharyngeal pouches
C. ampulla
D. gill slits

37. The _____, paired openings located in the pharynx behind the mouth, are present only during embryonic development in some chordates.

38. Adult sea squirts retain only their _____ as indicators of their chordate relationship.

39. Some chordate adults are sessile, while all the larvae are _____.

40. The _____ is a round, muscular structure that is located on the opposite end from the suction cup on the tube feet.

A. madreporite
B. rays
C. pedicellarias
D. Lancelets

41. The sievelike, disc-shaped opening in an echinoderm's body through which water enters and leaves is called the _____.
42. Jawlike appendages called _____ are modified spines found on seastars.

43. The long, spine-covered, tapered arms of seastars are called _____.
44. _____ can swim freely in the water, but these filter feeders spend most of their time buried in the sand with only their heads sticking out.

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