Chapter 32

Introduction to Animal Evolution

1) Which of the following is descriptive of protostomes?
   A) spiral and indeterminate cleavage, coelom forms as split in solid mass of mesoderm
   B) spiral and determinate cleavage, blastopore becomes mouth, schizocoelous development
   C) spiral and determinate cleavage, enterocoelous development
   D) radial and determinate cleavage, enterocoelous development, blastopore becomes anus
   E) radial and determinate cleavage, blastopore becomes mouth, schizocoelous development

2) A new species of marine animal is discovered with the following characteristics: bilateral symmetry; pseudocoelom; complete digestive tract. Further examination of this organism would probably show
that
   A) in embryological development, its blastopore becomes an anus.
   B) it has a fluid-filled body cavity.
   C) it has cnidocytes containing nematocysts.
   D) it has an external skeleton (shell).
   E) it is segmented.

3) All of the following are protostomes EXCEPT
   A) mollusks.
   B) echinoderms.
   C) segmented worms.
   D) insects.
   E) spiders.

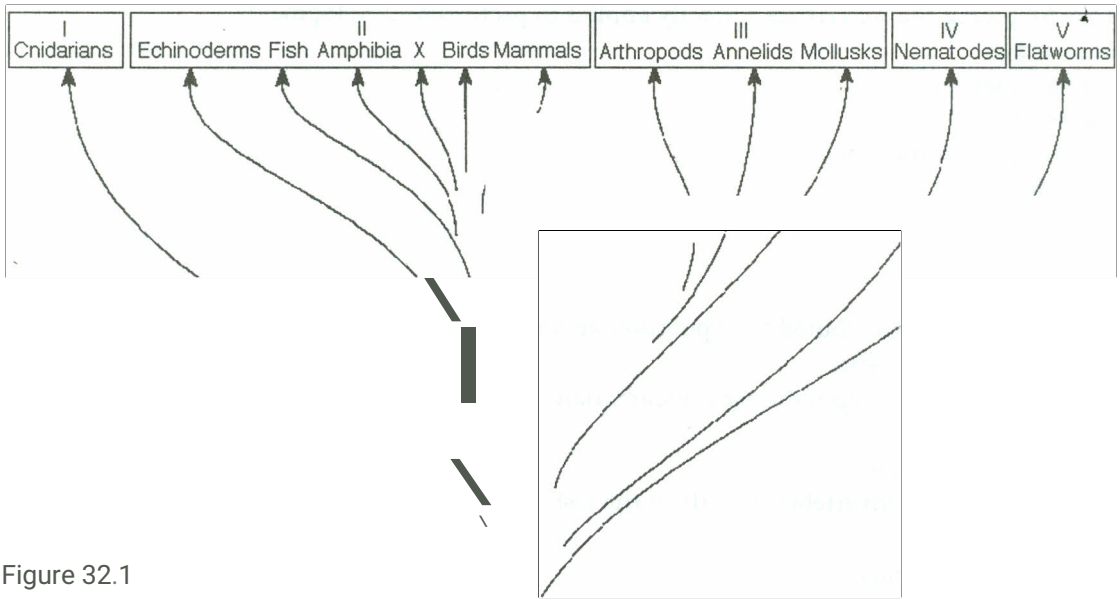

Figure 32.1

Figure 32.1 *shows a chart of the Animal Kingdom set up as a modified phylogenetic tree. Use the diagram to answer the following questions.*

4) A pseudocoelom is characteristic of which of the following groups?
   A) I
   B) IT
   C) III
   D) N
   E) V

5) One opening to the digestive tract is characteristic of which of the following groups?
   A) lonly
   B) Illonly
   C) Nonly
   D) V only
   E) land V

6) Which group includes organisms that are deuterostomes with radial symmetry?
   A) I
   B) IT
   C) III
   D) *N*
   E)V

7) Which of the following characteristics correctly applies to protosome development?
A) radial cleavage
B) determinate cleavage
C) enterocoelous
D) blastopore becomes the anus
E) archenteron absent

8) All of the following have contributed to hypotheses about the origins of multicellular animals EXCEPT
A) embryological development.
B) increased atmospheric oxygen during the Cambrian.
C) the ediacaran fauna.
D) the vertebrate fossil record.
E) the diversity of simple invertebrates early in the fossil record.

9) All of the major body plans we see today appeared in the fossil record over 500 million years ago at the
beginning of the
A) Cambrian period.
B) Ediacaran period.
C) Burgess period.
D) Carboniferous period.
E) Cretaceous period.

10) Cephalization is primarily
A) Both Band C below are correct.
B) an adaptation to the method of feeding.
C) due to the fate of the blastopore.
D) the result of the type of digestive system.
E) an adaptation to movement.

11) Which of the following is NOT generally an animal characteristic?
A) nervous and muscle tissue
B) unique types of intercellular junctions such as tight and gap
C) autotrophic nutrition
D) sexual reproduction
E) multicellularity

12) Which of the folowing terms or structures are NOT associated with animal cells?
A) eukaryotic
B) cell wall
C) desmosomes
D) zygote
E) blastula

13) According to most systematists, the animal kingdom is
A) monophyletic.
B) para phyletic.
C) polyphyletic.
D) euphyletic.
E) multiphyletic.

14) The common ancestor of all animals was probably a
A) bacterium.
B) prokaryote.
C) plant.
D) fungus.
E) protist.

15) Multicellular animals lacking true tissues are called the
A) eumetazoa.
B) metazoa.
C) protozoa.
D) parazoa.
E) hydrozoa.

16) The major branches of eumatazoa are the readiata and the bilateria. These names refer to what aspect
of their included animals?
A) size
B) symmetry
C) embryonic cleavage
D) types of appendages
E) presence or absence of a nucleus in their cells

17) Which of the following five structures would you be more likely to find in an organism showing radial
symmetry?
A) tube feet
B) a head
C) a well-developed central nervous system
D) fins
E) a muscular tail

18) Organisms showing radial symmetry would likely
A) be good swimmers.
B) have rapid escape behavior.
C) move from place to place relatively little.
D) be able to fly.
E) have many legs.

19) Cephalization is generally not associated with
A) bilateral symmetry.
B) concentration of sensory structures at the anterior end.
C) a brain.
D) a longitudinal nerve cord.
E) a sessile existence.

20) Putting all existing organisms with radial symmetry in the same taxon would produce a taxon that is
A) monophyletic.
B) polyphyletic.
C) para phyletic.
D) accepted today, i.e., the radiata.
E) accepted today, i.e., the eumetazoa.

21) Organisms with radial symmetry that evolved secondarily from ancestors with bilateral symmetry
include the
A) ctenophores.
B) cnidarians.
C) echinoderms.
D) sponges.
E) parazoa.

22) The blastopore is a structure that is evident in the ,(
A) zygote.
B) blastula.
e) eight-cell stage.
D) gastrula.
E) egg and sperm.

23) The process of gastrulation produces which of the following germ layers?
A) ectoderm
B) endoderm
e)
mesoderm
C) A and B
D) A, B,and e

24) The blastopore denotes the presence of an endorderm-lined tube in the developing embryo known as
the
A) archenteron.
B) blastula.
e) coelom.
C) germ layer.
D) diploblast.

25) Which of the following is an INCORRECT association of an animal germ layer with the tissues or organs to which it gives rise?
A) ectoderm-outer covering
B) endoderm-digestive tract
C) mesoderm-nervous system
D) mesoderm-muscle
E) endoderm-liver and lungs

26) Your professor has a preserved organism hidden behind her back She gives you the following clues to
its identity. It is an animal but it contains no muscle tissue. Futher, it is not diploblastic. It must be a
A) flatworm.
B) jellyfish.
C) comb jelly.
D) sponge.
E) round worm.

27) You have before you an unknown organism that you examine carefully. Which of the following would convince you it is NOT an aceolomate?
A) It responds to food by moving towards it.
B) It is triploblastic.
C) It has bilateral symmetry.
D) It possesses sensory structures at the anterior end.
E) It exuces a fluid when you make an incisoin in its side.

28) Which of the following is an improtant distrinction betweena coelomate and a pseudocoelomate?
A) The former has a body cavity, while the latter has a solid body.
B) The former contains tissues derived from mesoderm, while the latter has no such tissue.
C) The former has a body cavity completely lined by mesodermal tissue, while the latter's body cavity does not.
D) The former has a complete digestive system with mouth and anus, while the latter has a digestive tract with only one opening.
E) The former has a gut that lacks suspension within the body cavity, while the latter has mesenteries that hold the digestive system in place.

29) Which of the following is NOT a function that can be served by a fluid-filled body cavity?
A) It can serve as a storage compartment for food.
B) It helps prevent internal injury by cushioning internal organs.
C) It enables organs to grow and move independently of the outer body wall.
D) It can act as a hydrostatic skeleton.
E) All of the above are correct.

30) Which of the following organisms are deuterostomes?
A) molusks
B) annelids
C) echinoderms
D) humans
E) Both C and Dare deuterostomes.

31) Which of the following organisms are protostomes?
A) sponges
B) flatworms
C) arthropods
D) roundworms
E) Both A and Bare protostomes.

32) Protostome characteristics include all of the following EXCEPT
A) a mouth that develops from the blastopore.
B) schizocoelous development.
C) spiral cleavage.
D) indeterminate cleavage .
E) solid masses of mesodermal tisue that splits to form the body cavity.

33) Which of the folowing characterists do protostomes and deuterostomes share?
A) a digestive tract in which the anus develops first
B) a body cavity lined completely with mesodermally derived tissue
C) enterocoelus development
D) the possibility of identical twin offspring
E) a cleavage pattern in which the planes of cell division are diagonal to the vertical axis of the embryo.