Bio-G10-Q3W1-Introduction to animals-Qs Bank

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

____ 1. Animals with bilateral symmetry find food and mates and avoid predators more efficiently because they have _____.
a. body cavities
b. more muscular control
c. tails
d. the ability to see in all directions

____ 2. Which of these animals has bilateral symmetry?
a. sponge
b. hydra
c. jellyfish
d. flatworm

____ 3. What type of symmetry does a penny have?
a. bilateral symmetry
b. radial symmetry
c. no symmetry
d. biaxial symmetry

____ 4. Which of the following applies to a sponge?
a. intracellular digestion
b. has a gastrula stage
c. bilateral symmetry
d. develops three embryonic layers

____ 5. The animal's digestive tract forms from the _____.
a. endoderm
b. mesoderm
c. ectoderm
d. protostome

____ 6. The embryo layer that forms the skin and nervous tissue is the _____.
a. endoderm
b. mesoderm
c. ectoderm
d. protostome

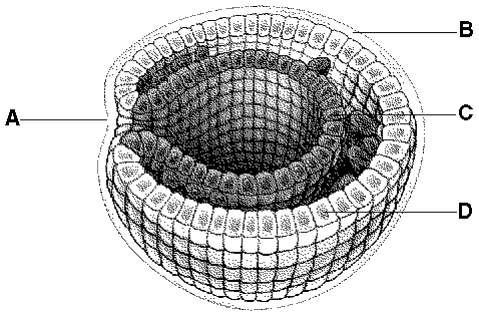

Figure 25-2

____ 7. In Figure 25-2, where is the ectoderm?
a. A
b. B
c. C
d. D

____ 8. In Figure 25-2, where is the endoderm?
a. A
b. B
c. C
d. D

____ 9. In Figure 25-2, where is the mesoderm?
a. A
b. B
c. C
d. D

____ 10. In Figure 25-2, where is the gastrula?
a. A
b. B
c. C
d. D

____ 11. In Figure 25-2, if part A develops into a mouth, this organism will be a _____.

a. protosome
b. deuterosome
c. autosome
d. autotroph

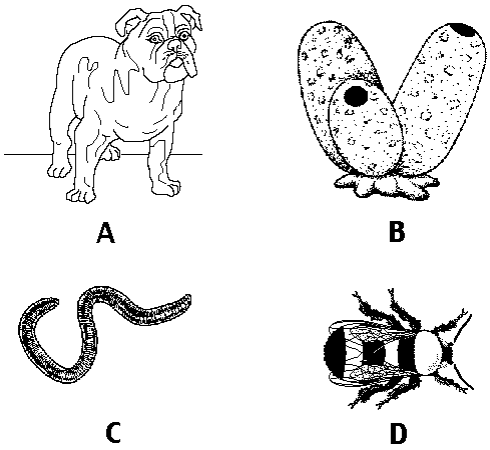

Figure 25-3

____ 12. Which of the organisms in Figure 25-3 is asymmetrical?

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

____ 13. Which of the organisms in Figure 25-3 probably has the most muscular control?

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

____ 14. Which of the organisms in Figure 25-3 has the most complex systems developed from coelom?

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

____ 15. Which of the organisms in Figure 25-3 has bilateral symmetry but no endoskeleton?

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

Matching

Match each item with the correct statement below.

a. deuterostome
b. coelom
c. ectoderm
d. mesoderm
e. sessile
f. gastrula
g. radial symmetry
h. protostome
i. acoelomate
j. endoderm
k. blastula
l. pseudocoelom
m. bilateral symmetry

____ 16. animal with a mouth that develops from the opening in the gastrula
____ 17. embryonic structure of an animal that consists of two cell layers
____ 18. describes organisms that don't move from place to place
____ 19. body cavity partly lined with mesoderm, such as found in roundworms
____ 20. layer of cells lining the inner surface of the gastrula
____ 21. a fluid-filled body cavity completely surrounded by mesoderm
____ 22. body plan of an organism that can be divided down its length into right and left halves that form mirror images
____ 23. layer of cells on the outer surface of the gastrula
____ 24. animal in which the mouth does not develop from the gastrula's opening
____ 25. single layer of cells surrounding a fluid-filled space that forms during early development
____ 26. animal that has three cell layers, with a digestive tract but no body cavities
____ 27. body plan of an organism that can be divided along any plane, through a central axis, into roughly equal halves
____ 28. third cell layer formed in the developing embryo

Match each item with the correct statement below.

a. bilateral symmetry
b. radial symmetry
c. one opening in digestive tract
d. openings at either end of digestive tract
e. filtering
f. tentacles
g. swimming

____ 29. used for obtaining food in fishes
____ 30. used to obtain food in sponges
____ 31. used for obtaining food in corals
____ 32. digestive tract of flatworms
____ 33. digestive tract of earthworms
____ 34. body plan of starfishes
____ 35. body plan of a fish

Short Answer

36. Identify each location on the drawing of the flatworm in Figure 25-1.

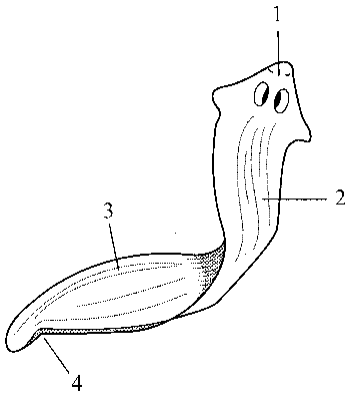

Figure 25-1

37. What types of body plans do flatworms, roundworms, and earthworms have? Compare the efficiency of locomotion of the three groups of worms and describe how their movement is dependent on their body plans.
38. List the characteristics common to all animals.
39. How is a pseudocoelom different from a coelom?
40. Why are acoelomate animals so small?
41. Animals with coeloms have more complex organ systems and behavior than animals without coeloms. Explain how a coelom enables more complex organ systems and behavior to develop.
42. Briefly identify the three cell layers formed during embryonic development, and give examples of the body organs and tissues that each layer gives rise to.
43. In flatworms, different types of tissues are organized into organs, but unlike earthworms, flatworms lack a coelom in which their internal organs are suspended. Where are the internal organs of the flatworms located?
44. What are the early stages of development from zygote to gastrula?
45. How do the structures of the digestive tracts of a flatworm and an earthworm differ?
46. In what way does a sponge qualify as a heterotroph?
47. What are the main characteristics of an animal?
48. Simpler animals are small in size. As large animals evolved, they tended to become more complex. Hypothesize as to why this was necessary.

Animal	**Body Mass Moved**	**mL O_2 Required per 1 g of Body Mass**
Mouse	10 g	4.00 mL
Kangaroo rat	45 g	2.00 mL
Ground squirrel	140 g	0.80 mL
Dog	13 kg	0.40 mL
Horse	500 kg	0.04 mL

Table 25-1

49. Where in Table 25-1 do you think a 90-kg human adult would fall? Estimate about how many mL of O_2 the human would require per 1 g of body mass.
50. After studying Table 25-1, what generalization can you make about the amount of oxygen used by animals of different body mass?
51. How many mL of O_2 would a mouse require in all? Refer to Table 25-1.
52. How many mL of O_2 does a kangaroo rat require per 1 g of body mass? Refer to Table 25-1.

The scientific team you are working with wishes to demonstrate that animals become more efficient in interacting with their external environment when the body plan that evolved included bilateral symmetry. You have chosen to work with mealworms, the larvae of grain beetles (*Tenebrio molitor*).

53. Hypothesize what would happen if you were to provide the mealworm with a vertical pane or wall on both its left and right sides.
54. How could you prove that mealworms are equally sensitive on both the right and left sides of their body?
55. What will be your control in this experiment?
56. Plan an experiment to prove your hypothesis.
57. Hypothesize how a mealworm's moving along the sides of a box is related to its bilateral body plan.
58. You watch the mealworms moving along the sides of the box in which they are housed. State which factors other than the body plan of the mealworms might affect their behavior.

Bio-G10-Q3W1-Introduction to animals-Qs Bank
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: B OBJ: 25-4
   NAT: A1 | C3 | C5
2. ANS: D PTS: 1 DIF: B OBJ: 25-4
   NAT: A1 | C3 | C5
3. ANS: B PTS: 1 DIF: B OBJ: 25-4
   NAT: A1 | C3 | C5
4. ANS: A PTS: 1 DIF: B OBJ: 25-1
   NAT: C5 | C6 | G1
5. ANS: A PTS: 1 DIF: B OBJ: 25-3
   NAT: C5 | C6 | G1
6. ANS: C PTS: 1 DIF: B OBJ: 25-3
   NAT: C5 | C6 | G1
7. ANS: B PTS: 1 DIF: B OBJ: 25-2
   NAT: C3
8. ANS: C PTS: 1 DIF: B OBJ: 25-2
   NAT: C3
9. ANS: D PTS: 1 DIF: B OBJ: 25-2
   NAT: C3
10. ANS: A PTS: 1 DIF: B OBJ: 25-2
    NAT: C3
11. ANS: A PTS: 1 DIF: A OBJ: 25-3
    NAT: C5 | C6 | G1
12. ANS: B PTS: 1 DIF: B OBJ: 25-4
    NAT: A1 | C3 | C5
13. ANS: A PTS: 1 DIF: A OBJ: 25-4
    NAT: A1 | C3 | C5
14. ANS: A PTS: 1 DIF: A OBJ: 25-4
    NAT: A1 | C3 | C5
15. ANS: D PTS: 1 DIF: A OBJ: 25-4
    NAT: A1 | C3 | C5

MATCHING

16. ANS: H PTS: 1 DIF: B OBJ: 25-5
    NAT: A1 | C3 | C5
17. ANS: F PTS: 1 DIF: B OBJ: 25-5
    NAT: A1 | C3 | C5
18. ANS: E PTS: 1 DIF: B OBJ: 25-1
    NAT: C5 | C6 | G1
19. ANS: L PTS: 1 DIF: B OBJ: 25-6
    NAT: A1 | C3 | C5

20. ANS: J PTS: 1 DIF: B OBJ: 25-3
NAT: C5 | C6 | G1
21. ANS: B PTS: 1 DIF: B OBJ: 25-6
NAT: A1 | C3 | C5
22. ANS: M PTS: 1 DIF: B OBJ: 25-4
NAT: A1 | C3 | C5
23. ANS: C PTS: 1 DIF: B OBJ: 25-2
NAT: C3
24. ANS: A PTS: 1 DIF: B OBJ: 25-5
NAT: A1 | C3 | C5
25. ANS: K PTS: 1 DIF: B OBJ: 25-2
NAT: C3
26. ANS: I PTS: 1 DIF: B OBJ: 25-6
NAT: A1 | C3 | C5
27. ANS: G PTS: 1 DIF: B OBJ: 25-4
NAT: A1 | C3 | C5
28. ANS: D PTS: 1 DIF: B OBJ: 25-2
NAT: C3

29. ANS: G PTS: 1 DIF: B OBJ: 25-1
NAT: C5 | C6 | G1
30. ANS: E PTS: 1 DIF: B OBJ: 25-1
NAT: C5 | C6 | G1
31. ANS: F PTS: 1 DIF: B OBJ: 25-1
NAT: C5 | C6 | G1
32. ANS: C PTS: 1 DIF: B OBJ: 25-6
NAT: A1 | C3 | C5
33. ANS: D PTS: 1 DIF: B OBJ: 25-6
NAT: A1 | C3 | C5
34. ANS: B PTS: 1 DIF: B OBJ: 25-5
NAT: A1 | C3 | C5
35. ANS: A PTS: 1 DIF: B OBJ: 25-5
NAT: A1 | C3 | C5

SHORT ANSWER

36. ANS:
1. anterior, 2. dorsal, 3. ventral, 4. posterior

PTS: 1 DIF: B OBJ: 25-6 NAT: A1 | C3 | C5
37. ANS:
Flatworms are acoelomate and do not move as efficiently as roundworms that have pseudocoeloms against which muscles can brace. Earthworms have a coelom that acts as a watery skeleton against which muscles can work. Earthworms have the most efficient movement of the three types of worms.

PTS: 1 DIF: A OBJ: 25-4 NAT: A1 | C3 | C5
38. ANS:
multicellular, eukaryotic, and have ways of moving that help them reproduce, obtain food, and protect themselves

PTS: 1 DIF: A OBJ: 25-1 NAT: C5 | C6 | G1

39. ANS:
The pseudocoelom is a fluid-filled body cavity partly lined with mesoderm. The coelom is a fluid-filled body cavity completely surrounded by mesoderm.

PTS: 1 DIF: A OBJ: 25-6 NAT: A1 | C3 | C5

40. ANS:
In acoelomate animals, food and oxygen move by diffusion to all cells. Therefore, no cell can be far from the exterior of the animal as diffusion is slower than transport of nutrients by circulatory systems.

PTS: 1 DIF: A OBJ: 25-6 NAT: A1 | C3 | C5

41. ANS:
The coelom provides space for more complex organs and acts as a watery skeleton against which muscles can work.

PTS: 1 DIF: A OBJ: 25-6 NAT: A1 | C3 | C5

42. ANS:
The ectoderm is the outer layer, which eventually develops into the skin and the nervous tissue of the animal. The mesoderm is the middle layer, which develops between the ectoderm and the inner layer, or endoderm. The mesoderm gives rise to muscles, reproductive organs, and circulatory vessels, while the endoderm cells develop into the lining of the digestive tract.

PTS: 1 DIF: A OBJ: 25-3 NAT: C5 | C6 | G1

43. ANS:
The organs of the flatworms are embedded in the solid tissues of their bodies.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

44. ANS:
After the zygote completes a series of continuous cell divisions, the result is a single layer of cells that forms a hollow ball called the blastula. The blastula folds inward to form the gastrula, a hollow area surrounded by two cell layers.

PTS: 1 DIF: A OBJ: 25-3 NAT: C5 | C6 | G1

45. ANS:
The digestive tract of a flatworm has only one opening for ingesting food and getting rid of wastes. An earthworm's digestive tract has two openings--one for ingesting food and the other for eliminating digestive wastes.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

46. ANS:
A heterotroph obtains energy and nutrients from outside sources. A sponge filters food out of the water surrounding it.

PTS: 1 DIF: A OBJ: 25-1 NAT: C5 | C6 | G1

47. ANS:
An animal is a heterotroph that digests its food inside the body. Typically, it has some type of locomotion, is multicellular, and its cells have no cell walls.

PTS: 1 DIF: A OBJ: 25-1 NAT: C5 | C6 | G1

48. ANS:
As animals grew larger, supplying nutrients and oxygen to all their cells became more difficult. Larger animals needed a transport system to carry oxygen and nutrients throughout the body, as well as muscles and a skeletal system to support their body and move it around. They required still another system to excrete wastes produced by cell metabolism, and a nervous system to coordinate all their body processes.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

49. ANS:
The human would fall between the dog and the horse. Estimates will vary; 0.1-0.2 mL is reasonable.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

50. ANS:
As body mass increases, the amount of oxygen needed to move 1 g of body mass over a given distance decreases. So, to move 1 g of its body mass a given distance, much less oxygen is used by a larger animal than by a smaller animal.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

51. ANS:
40 mL

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

52. ANS:
2 mL

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

53. ANS:
Answers will vary, but if the mealworm receives the touch stimuli from both sides, it will probably keep going forward between the plates, rather than crawling up over the plates.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

54. ANS:
You could turn them around, but place them so that they are still touching the wall surface with a side of their body to see whether they will continue in the new direction or whether they will turn around to go in their original direction.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

55. ANS:
The mealworms that are placed far from the pane or the wall tend to be disoriented until they find a surface they can touch with at least one side of their body.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

56. ANS:
Answers will vary. Students may plan different kinds of walls or even provide a vertical pane of glass or hard, clear plastic along which a mealworm can move. They may note that the mealworm always touches the plate with one side of its body. They may observe what happens when the mealworm reaches the end of the glass plate. (It will turn toward the plate.) They may move the mealworm away from the plate and observe whether it tries to return to touching the plate with its side. (If it is not moved too far from the plate, it will return to the plate.) They should include numerous trials and recordings of data.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5

57. ANS:
Answers will vary. In an effort to protect themselves from predators, mealworms may use the sides of their body to remain in contact with a safe place; in this case, that safe place seems to be the sides of the box.

PTS: 1 DIF: A OBJ: 25-4 NAT: A1 | C3 | C5

58. ANS:
Light, warmth, humidity, and presence of food would all affect the behavior of the mealworms and should be controlled in all the experiments you carry out.

PTS: 1 DIF: A OBJ: 25-5 NAT: A1 | C3 | C5