1. Which of the following organisms is able to regulate its own body temperature?

A. Frog

B. Fish

C. Snake

D. Sparrow

E. Turtle

2. A virus is considered a parasite because it

I. harms its host

II. kills its host

III. cannot reproduce outside its host

A. I only

B. II only

C. I and III only

D. II and III only

E. I, II, and III

3. An organism that feeds at several trophic levels is

A. a carnivore

B. an omnivore

C. a primary consumer

D. an herbivore

E. a primary producer

4. Yeast are cultured in a flask of nutrient broth under anaerobic conditions. The yeast that are most fit are those that

A. ferment the fastest

B. consume less of the limited oxygen supply

C. survive the longest

D. produce the most ATP

E. produce the most buds

5. A mushroom is most like a

A. moss

B. fern

C. yeast

D. pine

E. seaweed

6. In a certain ecosystem, the primary producers represent 100,000 kcal of energy. Assuming a 10% transfer of energy between trophic levels, how much energy is available to the fourth trophic level?

A. 10 kcal

B. 100 kcal

C. 1,000 kcal

D. 10,000 kcal

E. 100,000 kcal

7. Which of the following represents the proper ecological hierarchy?

A. Population → community → ecosystem → biosphere

B. Ecosystem → community → population → biosphere

C. Population → ecosystem → community → biosphere

D. Biosphere → ecosystem → population → community

E. Community → population → biosphere → ecosystem

8. The following data table shows the number of different amino acids in the beta hemoglobin chain of various organisms compared to the human beta chain.

Organism	Number of different amino acids
Human	0
Mouse	27
Frog	68
Monkey	11
Lamprey	125
Chicken	35
Gibbon	2

To which of the following organisms are humans m

A. Mouse

B. Monkey

C. Chicken

D. Gibbon

E. Lamprey

9. The following data table shows the number of different amino acids in the beta hemoglobin chain of various organisms compared to the human beta chain.

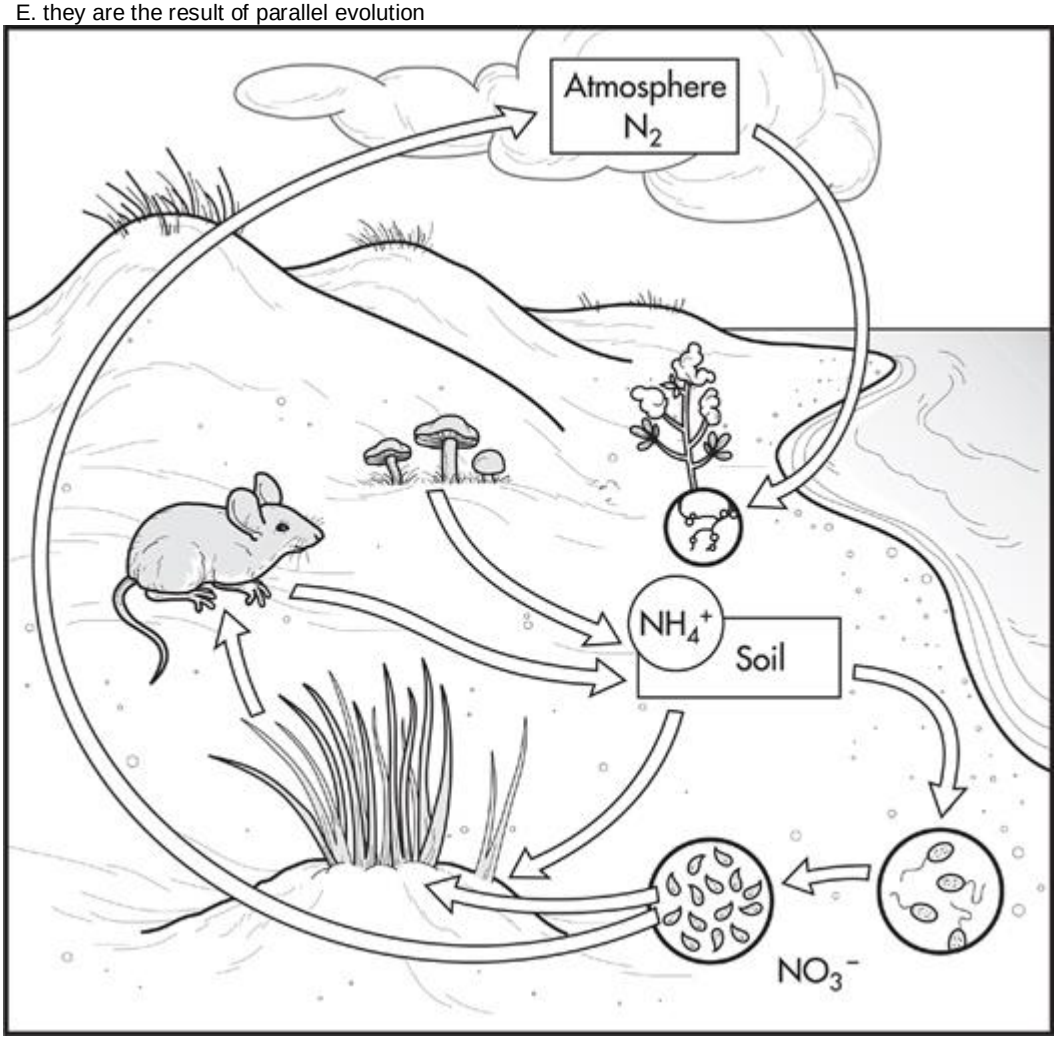
Organism	Number of different amino acids
Human	0
Mouse	27
Frog	68
Monkey	11

Lamprey	125
Chicken	35
Gibbon	2

Human hemoglobin and gorilla hemoglobin are even

- A. their hemoglobin chains differ by a single amino acid
- B. human hemoglobin and gorilla hemoglobin have different functions
- C. they are unable to interbreed
- D. they are the result of convergent evolution
- E. they are the result of parallel evolution

10.



Nitrogen Cycle

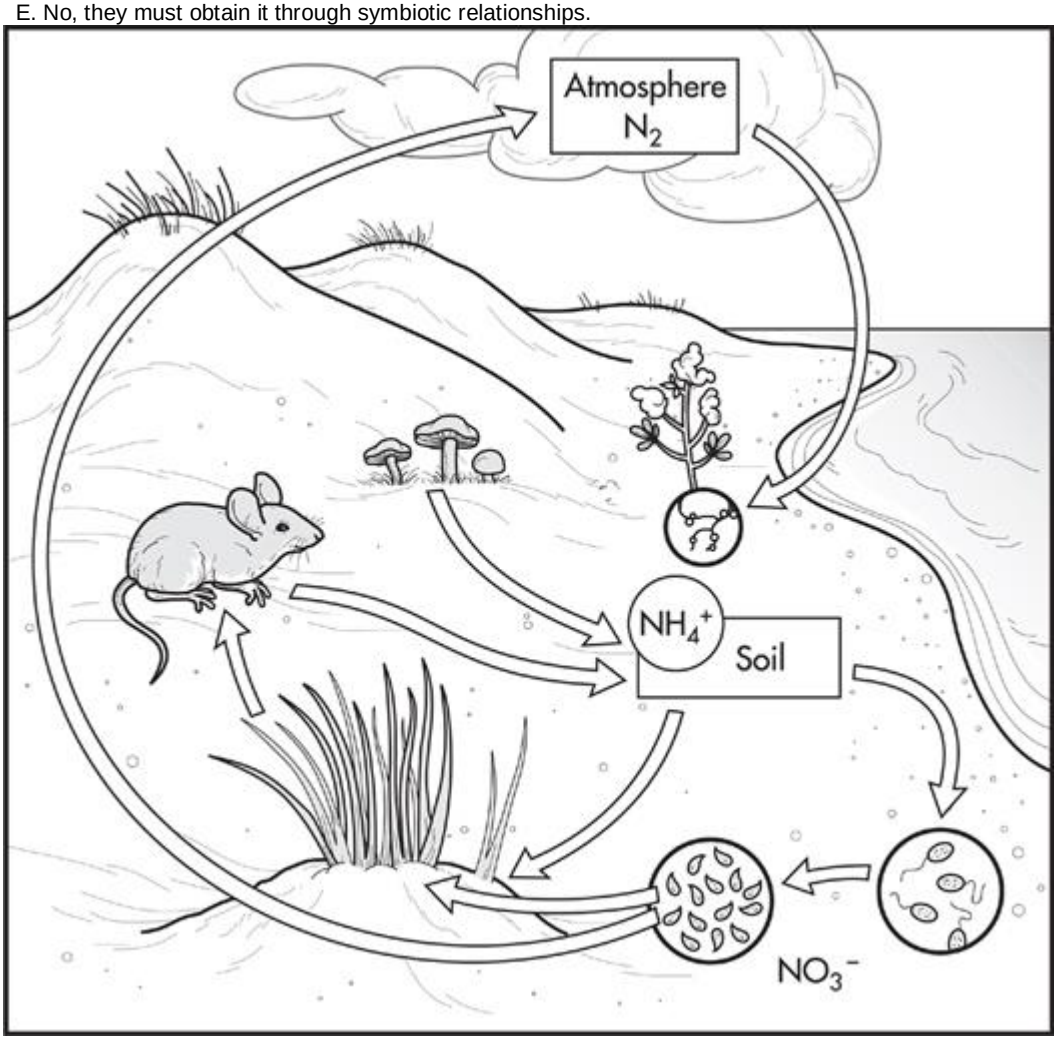
Can both animals and plants obtain their nitrogen from the atmosphere?

- A. Yes, both animals and plants take in nitrogen during respiration.
- B. Yes, most of the nitrogen in the cycle is in the atmosphere.

C. No, only plants can take in nitrogen from the atmosphere.

D. No, they must consume it through eating or uptake from the soil.

E. No, they must obtain it through symbiotic relationships.



11.
Nitrogen Cycle

Bacteria in the soil are

A. primary producers

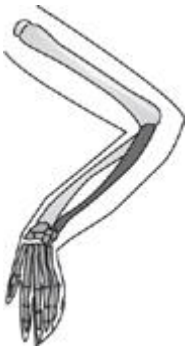
B. primary consumers

C. secondary consumers

D. tertiary consumers

E. decomposers

12.



1

2

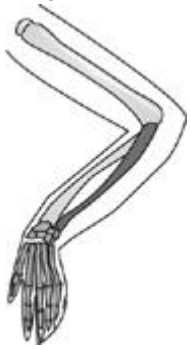
3

4

5

Which of these structures would be used for grasping?

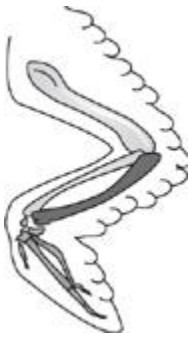
- A. 1
- B. 2
- C. 3
- D. 4
- E. 5



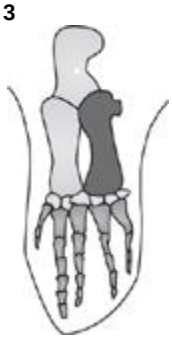
13.

1

2



3



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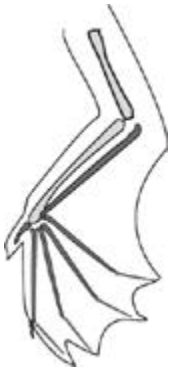
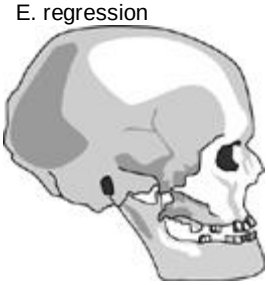


5

All of the structures are the result of

- A. mutation
- B. succession
- C. convergent evolution
- D. divergent evolution
- E. regression



14.

1

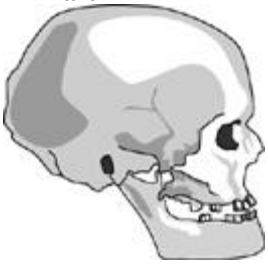
Homo sapiens (modern human)

2
Australopithecus afarensis

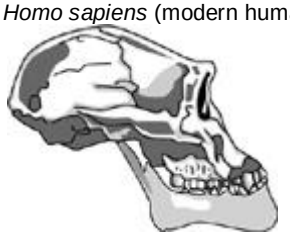
3
Australopithecus africanus

4
Pan troglodytes (modern chimpanzee)
Based on physical similarity, which skulls appear to be most closely related?

- A. 1 and 2
- B. 1 and 3
- C. 2 and 3
- D. 2 and 4
- E. 1 and 4



15.
1
Homo sapiens (modern human)



2
Australopithecus afarensis

3
Australopithecus africanus

4
Pan troglodytes (modern chimpanzee)
What is the most advantageous difference between the ancestral primate skulls and the modern human skull?

A. Forward-facing eyes

B. Increased brain capacity

C. Loss of canine teeth

D. Loss of brow ridge

E. Reduction in jaw size

16. Six pairs of bald eagles were released into the wild in Indiana. Four of the pairs of birds successfully nested and raised young. Two of the pairs nested near an industrial complex that released waste products (PCBs) into a nearby lake. These birds laid eggs, but the embryos failed to develop.
Which of the following is the LEAST likely reason for the failure of the embryos to develop?

A. Mutations in the embryos halted their development.

B. The adult birds failed to exhibit proper nesting behavior and did not care for the eggs.

C. The contaminated lake water that the birds consumed affected the development of their young.

D. The sperm of the males were affected by the PCBs in such a way that they were unable to fertilize the eggs.

E. Indiana is not a good location for bald eagles to mate and reproduce.

17. Six pairs of bald eagles were released into the wild in Indiana. Four of the pairs of birds successfully nested and raised young. Two of the pairs nested near an industrial complex that released waste products (PCBs) into a nearby lake. These birds laid eggs, but the embryos failed to develop.
The eggshells of the embryos that failed to develop were tested and were found to contain more PCBs than the nearby plants and insects. This is due to

A. biomagnification

B. increased levels of PCBs in the lake

C. the resistance of the insects to PCBs

D. failure of the plants to take up PCBs

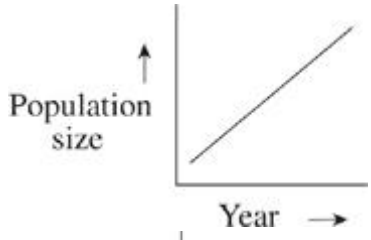
E. absorption of PCBs from the nesting site into the eggshell

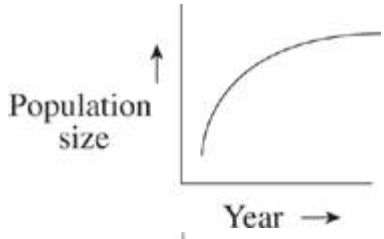
18. Questions below wrefers to the following data obtained for a rabbit population over a period of several years.

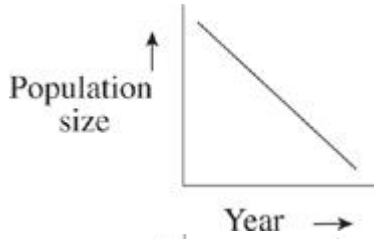
Year	Number of rabbits
1	4

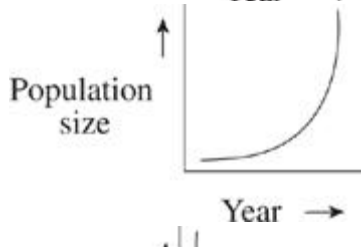
2	17
3	62
4	245

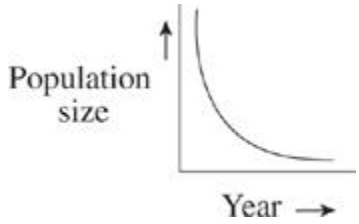
Which of the following graphs best represents the data on rabbit population size?

A.


B.


C.


D.


E.


19. Questions below wrefers to the following data obtained for a rabbit population over a period of several years.

Year	Number of rabbits
1	4
2	17
3	62
4	245

Assuming unlimited resources, what would be the approximate expected rabbit population in Year 5 ?

A. 5000

B. 1000

C. 500

D. 300

E. 100

20. Questions below wrefers to the following data obtained for a rabbit population over a period of several years.

Year	Number of rabbits
1	4
2	17
3	62
4	245

Ultimately, the amount of nutrients and other resources would become limiting. What would happen to the rabbit population at that time?

I. It would reach the carrying capacity of the environment.

II. It would continue to grow indefinitely.

III. It would engage in intraspecific competition.

A. I only

B. II only

C. I and II only

D. I and III only

E. I, II, and III