Evolution Questions

Name: _____ **Date:** _____

1. Geologic activity on an island physically separates a population of animals into two populations. Many generations later, when the two populations are no longer separated, they do not interbreed. What was the result of natural selection during this period of separation?

   A. a decrease in variation

   B. a decrease in diversification

   C. an increase in extinction

   D. an increase in speciation

2. A termite population was sprayed with a certain brand of insecticide. After being sprayed, the number of surviving termites within the population were counted and recorded as a percentage of the total. This process was repeated until a total of six generations of termites had been sprayed. The results are shown in the table below.

Termite Generation	Percentage of Surviving Termites After Spraying
1	5%
2	10%
3	25%
4	40%
5	60%
6	80%

   Which statement *best* explains why later generations had higher percentages of termites that survived?

   A. Earlier generations had several members that were old and weak.

   B. Earlier generations had smaller numbers of termites than later generations.

   C. Later generations were able to live through the spraying because they were used to it.

   D. Later generations were the offspring of termites that were more resistant to the spraying.

3. Which statement about fossils could be used as evidence that evolution by natural selection has been in effect for millions of years?

   A. Fossils found in higher layers of rock are older than those found in lower layers.

   B. Fossils found in lower layers of rock are more complex than those found in higher layers.

   C. Fossils of current species have been found throughout rock layers that are billions of years old.

   D. Fossils of species that no longer exist but are ancestors of current species have been found in rock layers.

4. A tree frog population lives in the canopy of a tropical rain forest. In this tree frog population, a mutation occurs that results in a new allele for skin coloration causing stripes on their legs.

   Which of the following factors has the *greatest* effect on whether leg stripes will become more common in the tree frog population?

   A. if the reproduction rate of the tree frog population remains constant over time

   B. if the new allele for stripes is dominant or recessive in the tree frog population

   C. if the new allele for stripes increases the survival of the tree frogs in their environment

   D. if enough food and water is available in the rain forest canopy for the tree frog population

5. How is natural selection in the evolution of long necks in giraffes *best* explained?

   A. Shorter-necked giraffes were killed by long-necked giraffes.

   B. Giraffe necks grew longer because of the bone structure of the animals.

   C. Giraffes with longer necks survived because they were better suited to the environment.

   D. Long-necked giraffes mated only with other long-necked giraffes.

6. Which of the following explains why natural selection acts on the phenotype of an organism instead of its genotype?

   A. Phenotypes directly influence the interaction of an organism with its environment.

   B. Genotypes do not change except by the process of transcription.

   C. Genotypes change in direct response to habitat changes.

   D. Phenotypes can be inherited by offspring.

7. Which of the following is a source of genetic variation within a species?

   A. cloning B. mutation

   C. selective breeding D. natural selection

8. Which of these *best* illustrates natural selection?

A. An organism with favorable genetic variations will tend to survive and breed successfully.

B. A population monopolizes all of the resources in its habitat, forcing other species to migrate.

C. A community whose members work together utilizes all existing resources and migratory routes.

D. The largest organisms in a species receive the only breeding opportunities.

9. A species of finch has been studied on one of the geographically isolated Galapagos Islands for many years. Since the island is small, the lineage of every bird for several generations is known. This allows a family tree of each bird to be developed. Some family groups have survived and others have died out. The groups that survive *probably* have

A. interbred with other species.

B. inherited some advantageous variations.

C. found new places on the island to live.

D. been attacked by more predators.

10. A population of termites initially consists of darkly colored and brightly colored members. After several generations, the termite population consists almost entirely of darkly colored members because the brightly colored termites are easier for a predatory species of insectivores to locate. This situation is an example of

A. the evolution of a new species.

B. natural selection.

C. artificial selection.

D. adaptive radiation.

11. A small portion of a population that is geographically isolated from the rest of the population runs the risk of decreased

A. genetic drift.

B. mutation rate.

C. natural selection.

D. genetic variation.

12. Fossil evidence suggests that a number of members of one fish species from an ancient lake in Death Valley, California, became several isolated species. Each of these new species lived in a different pond. Which of the following *best* explains the cause of this speciation?

A. episodic isolation

B. temporal isolation

C. geographic isolation

D. behavioral isolation

13. Over time, new species have evolved while others have become extinct.

Which of the following *most likely* supports how giraffes evolved long necks?

A. More long-necked giraffes survived to pass on their genes.

B. More short-necked giraffes survived to pass on their genes.

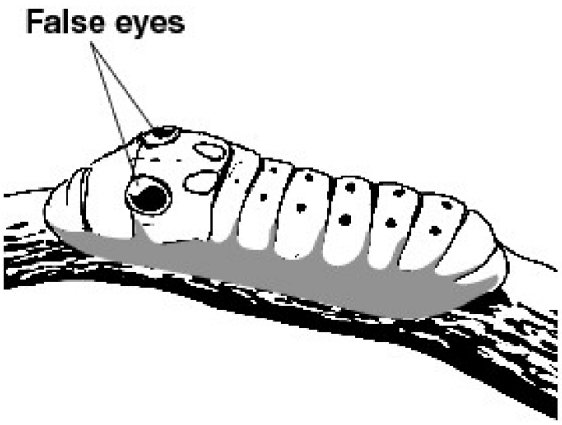
C. Short-necked giraffes modified their diets to evolve into a new species.

D. Short-necked giraffes grew longer necks to reach higher leaves.

14. The caterpillar has two large spots that look like large eyes as shown.

How do these large false eyes help the caterpillar survive?

Swallowtail Caterpillar



A. They allow the caterpillar to see farther than other insects.

B. They allow the caterpillar to scare away predators.

C. They allow the caterpillar to move around at night.

D. They allow the caterpillar to find more food.

15. When meiosis and fertilization occur, genes from both parents are combined, producing unique offspring.

How does this benefit a species?

A. The production of more cells leads to faster population growth.

B. Greater genetic variation increases the chances for survival of a species.

C. The mixing of parent genes reduces the chance of mutation in a species.

D. The variation between individuals decreases competition for resources.

16. In which population would reproducing **asexually** be *most* advantageous?

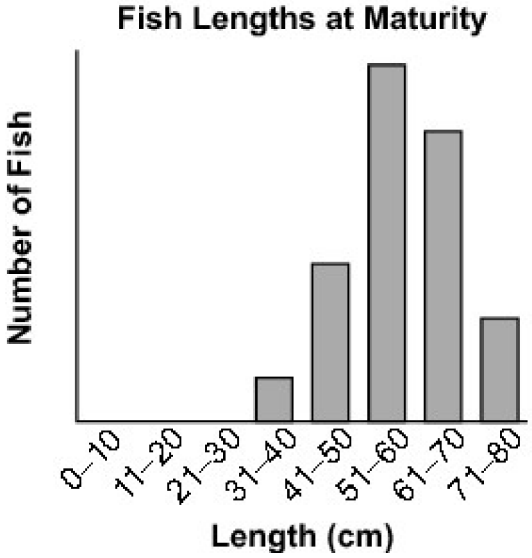
A. A population living in a changing environment

B. A population too large for the available resources

C. A population heavily hunted by many different types of predators

D. A population living successfully in stable environmental conditions

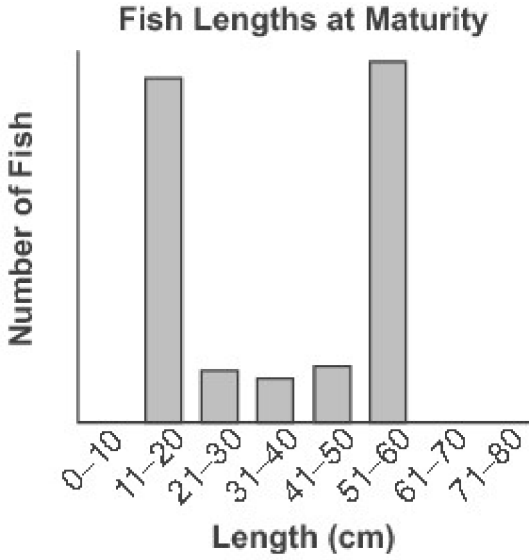
17.



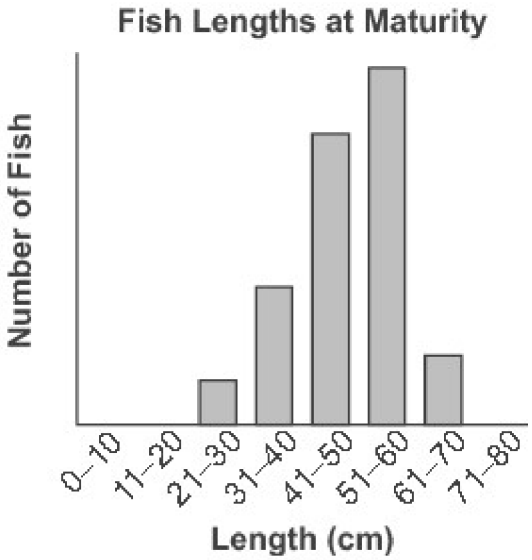
The graph shows the length distribution at maturity for a population of fish. Policy makers are enacting regulations that will require releasing all fish that are under 60 centimeters (cm) long back into the water.

Which graph *best* predicts how the fish population will change after ten generations as a result of this regulation?

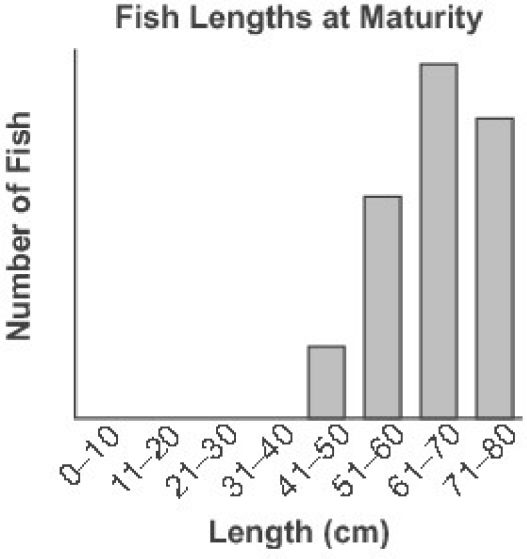
A.



B.



C.



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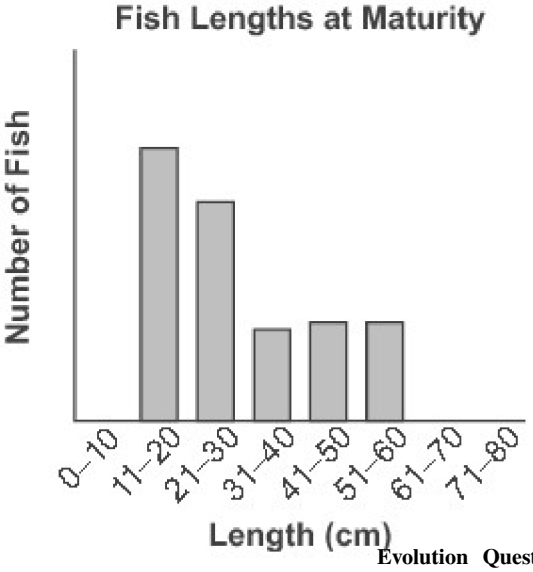
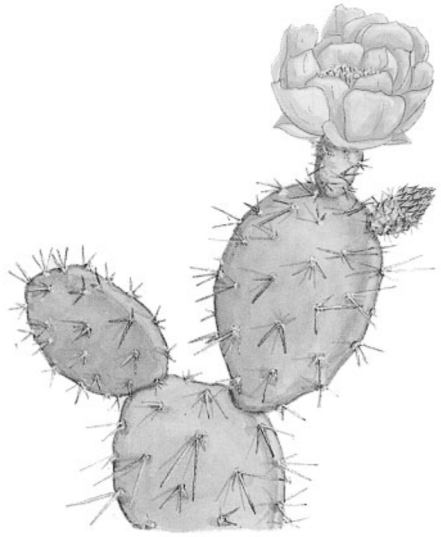


18. Use the picture below to answer the following question.



The cactus plant shown above lives in a desert environment.

Which characteristic of this plant could be found in many other desert plants?

A. a deep root system for gathering water

B. lush growth that serves to trap water if it rains

C. broad leaves that protect the plants from the hot sun

D. leaves and stems that are adapted to conserve water

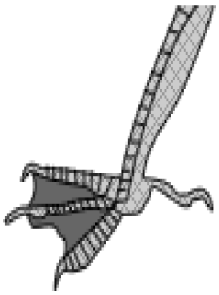
19. Which adaptation prevents armadillos from being eaten by predators?

A. large wings B. sharp curved claws

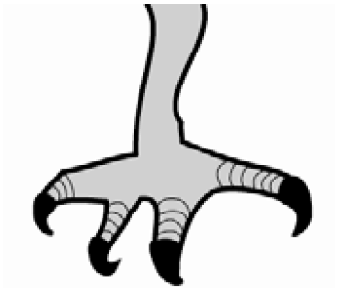
C. hard outer covering D. long legs

20. Which foot would *most likely* help a bird live in water?

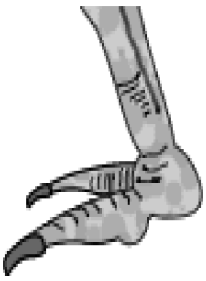
A.



B.



C.



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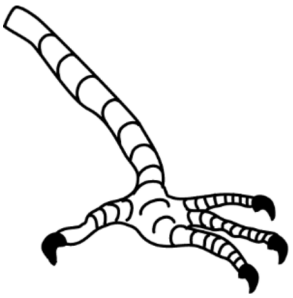
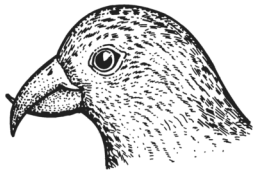


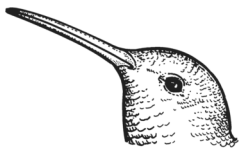
21. The picture below shows a flower with a long slender bloom.

The size and shape of a bird's beak are related to the type of food that the bird eats. Which of the following beaks is suitable for drinking nectar located deep within flowers such as the one shown above?

A. 

B. 

C. 

D. 

22. Comparing the skeletons of which of the following fish would *best* show the evolution of a fish species?

A. a male fish and a female fish that could produce offspring

B. the same fish just before it received a cut and after it healed

C. a fish that lived recently and a fish that lived a long time ago

D. the same fish just after it hatched and when it was full-grown

23. In comparisons of the evolutionary relationships between four species of birds, which of the following would be *most* useful?

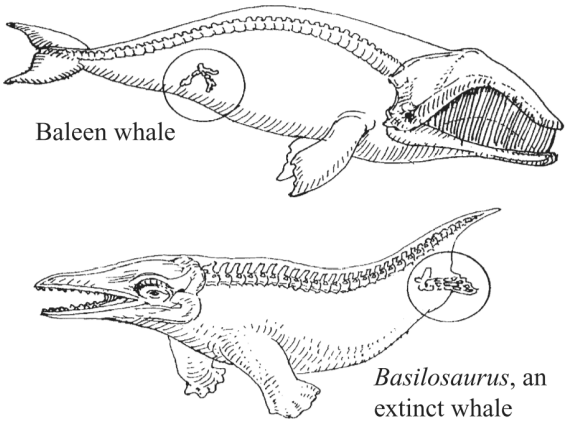
A. color of feathers

B. gene sequences

C. nesting behaviors

D. patterns of migration

24. The illustrations below show vestigial pelvic bones of a baleen whale and vestigial hind limb bones of an extinct whale.



The presence of these bones in the baleen whale and extinct whale provides evidence of which of the following?

A. Whales can travel on land when necessary.

B. Whales evolved from four-legged animals.

C. Whales have functional legs that are hidden by fat and skin.

D. Whales are developing into animals with four functioning limbs.

25. The outermost tail feather of the male barn swallow is longer than that of the female barn swallow. The long tail feather helps the males attract females, but it also requires the males to use extra energy to fly.

The long tail feather trait is maintained in the barn swallow populations because, compared to males with a shorter tail feather, males with a longer tail feather are more likely to

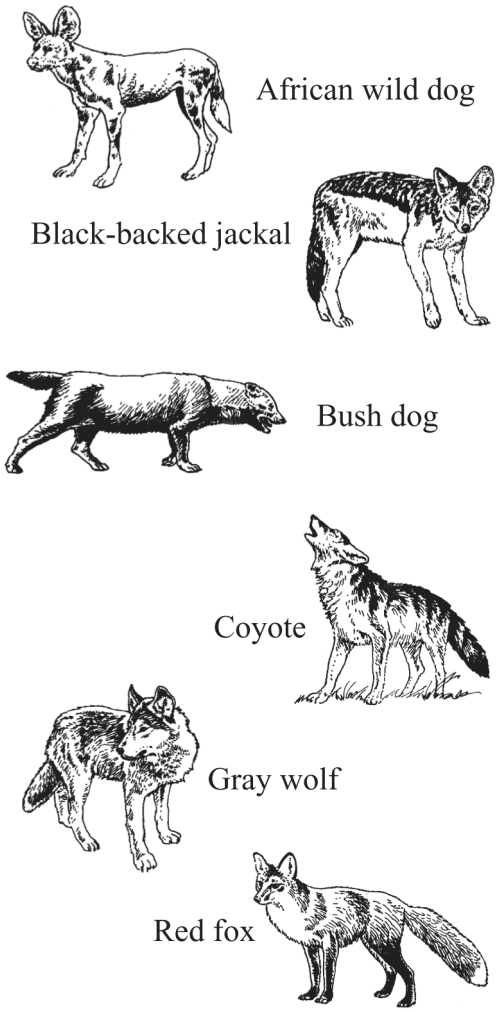
A. build a large nest.

B. produce offspring.

C. migrate each winter.

D. escape from predators.

26. The illustration below shows several wild canine species that descended from a common canine ancestor.



As a result of natural selection, canine biodiversity increased as all of these species developed from a common ancestor. Which of the following factors contributed *most* to the evolution of these diverse canine species?

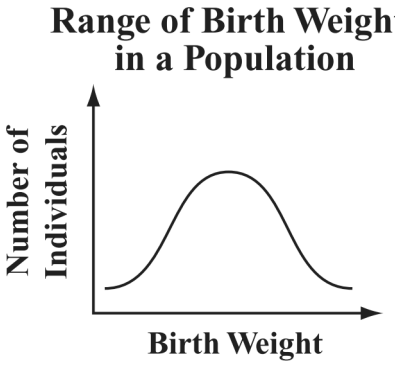
A. differences in environment

B. selective breeding programs

C. inheritance of learned behaviors

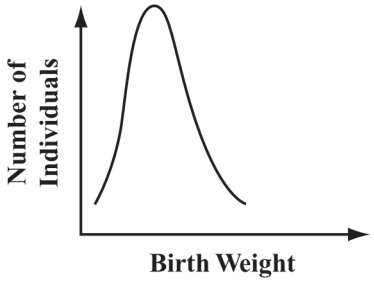
D. interbreeding with unrelated species

27. The graph below represents the range of birth weights for offspring in a mammal population.



As is typical in many mammal populations, offspring with an average weight at birth have a higher survival rate than offspring with a very low or very high birth weight. Based on this information, which of the following graphs is the *best* prediction of what will happen to the range of birth weights in this population over time?

A.



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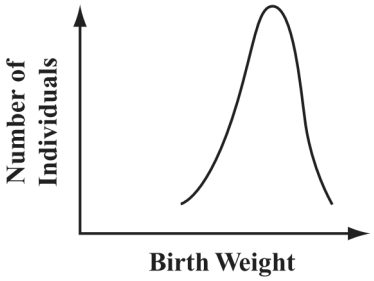
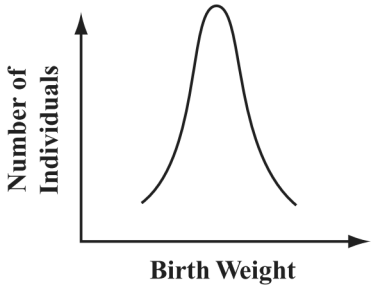
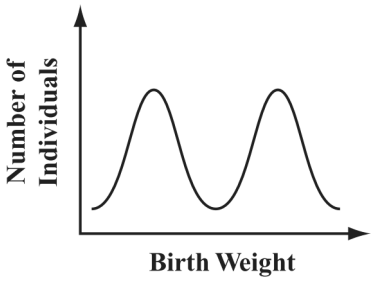


C.

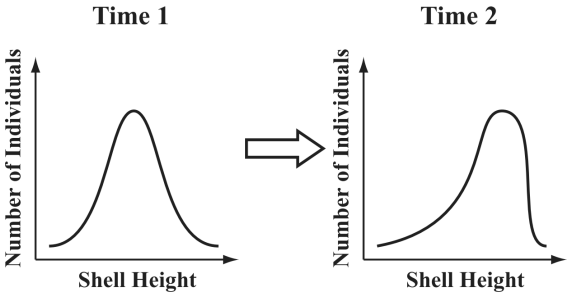


D.



28. The shape and height of a tortoise's shell influence how high the tortoise can raise its head. A tortoise with a high shell that leaves a large gap can raise its head higher than a tortoise with a lower shell and a smaller gap.

In a population of herbivorous tortoises, a shift in the frequency of different shell heights is observed over time. A set of graphs representing the change in frequency of the different shell heights is shown below.



Which of the following selection pressures *most likely* produced the shift in frequency?

A. lack of vegetation at ground level

B. dry, hot weather conditions for several years

C. habitat changes that forced nesting sites farther inland

D. intense competition with other species of tortoises with high shells

29. A population is separated into two groups by a geographic barrier. Over time, enough differences develop between the two groups that they do not interbreed when reunited.

Which of the following terms *best* describes the process that has occurred?

A. extinction

B. hybridization

C. immigration

D. speciation

30. Two groups of organisms are found living on opposite sides of an island. An active volcano prevents each group from traveling to the opposite side of the island. Scientists want to know if these two groups of organisms belong to the same species.

The answer to which of the following questions would *most* help scientists determine whether the two groups belong to the same species?

A. Do the two groups eat the same kinds of food?

B. Are the two groups active at the same times each day?

C. Can the two groups interbreed to produce fertile offspring?

D. Do the two groups use similar anatomical structures for the same purpose?

31. The papaya mealybug is a pest that poses a threat to many tropical plants. Which fate of the mealybug would result from the inability of the species to reproduce?

A. The species would mutate.

B. The species would increase.

C. The species would become extinct.

D. The species would continue to thrive.

32. Theodosius Dobzhansky discovered that successful species tend to have a wide variety of genes that do not appear to be useful to the species in its present environment What did this discovery help explain about genetics and the changes that occur in a species over time?

A. Environments with more organisms tend to have more successful species.

B. Species with greater genetic diversity adapt more easily to changing environments.

C. Changing environments prevent species from adapting and surviving.

D. Species in a stable environment are more resistant to a changing environment.

33. Which of the following explains why small, isolated populations are more likely to undergo speciation if geographic separation occurs?

A. Individuals in small populations produce fewer offspring than individuals in large populations.

B. Genetic diversity increases as the population decreases, giving small populations a large gene pool.

C. Small populations express significant changes due to the effect of natural selection on a small gene pool.

D. Small populations are less vulnerable to natural selection, producing more species than large populations.

34. Which argument by Malthus did Darwin incorporate into his theory of natural selection?

A. The reproductive rate of humans exceeds availability of resources.

B. Organisms more adapted to their environment will survive.

C. Changes in organisms result from everyday occurrences.

D. Experience acquired by individuals will be passed to their offspring.

35. Which could be considered biochemical evidence of an evolutionary relationship?

A. absence of vestigial structures

B. presence of embryonic gill slits

C. similar anatomical structures

D. presence of identical proteins

Evolution Questions 04/22/2015

1.
Answer: D

2.
Answer: D

3.
Answer: D

4.
Answer: C

5.
Answer: C

6.
Answer: A

7.
Answer: B

8.
Answer: A

9.
Answer: B

10.
Answer: B

11.
Answer: D

12.
Answer: C

13.
Answer: A

14.
Answer: B

15.
Answer: B

16.
Answer: D

17.
Answer: B

18.
Answer: D

19.
Answer: C

20.
Answer: A

21.
Answer: D

22.
Answer: C

23.
Answer: B

24.
Answer: B

25.
Answer: B

26.
Answer: A

27.
Answer: C

28.
Answer: A

29.
Answer: D

30.
Answer: C

31.
Answer: C

32.
Answer: B

33.
Answer: C

34.
Answer: A

35.
Answer: D