1. The diagrams below show changes in a desert lizard population.

1. Population with variety of inherited traits
2. Predation of individuals with particular traits
3. Reproduction of survivors

Which biological concept is illustrated?

A. polygenic traits  B. natural selection  C. sex-linked inheritance  D. silent mutations

2. Antibiotic resistance can vary within a population of bacteria. The diagram below represents the changes in a population of bacteria as a result of exposure to an antibiotic over time.

The changes in the population are most likely the result of which of the following?

A. exponential growth  B. genetic crosses  C. immigration  D. natural selection
3. On island chains like the one shown below, animal populations that spread from the main island to the other islands can evolve into separate species.

Which of the following best explains what favors speciation in these situations?

A. Predators on the main island can easily migrate to follow the populations to the other islands.
B. Lack of disease on the other islands enables the populations to grow and change without limit.
C. The physical separation of the islands limits gene flow and interbreeding between the populations.
D. The climatic conditions of the islands allow the populations to breed all year and produce several generations.
4. 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  

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?
5. The illustration below shows two snakes of the same species that have different striping.

California king snakes may exhibit different patterns of stripes. According to evolution by natural selection, which of the following is the *most likely* result if a snake-eating predator can more easily detect the snakes with the crosswise stripes?

A. The percentages of snakes born of each type will not change.
B. Snakes with lengthwise stripes will become more common.
C. Snakes with crosswise stripes will learn to move faster.
D. A new type of king snake with no stripes will emerge.

6. A mutation in an allele in an individual newt gave that newt faster reflexes. It is found that, after many generations, most of the newt population has the new allele. Which of the following *most likely* caused this change?

A. The newt gave its mutated allele to other adult newts.
B. Other newts learned to copy the strategies of the mutated newt.
C. The same mutation occurred in other newts as a result of environmental conditions.
D. Newts with the mutation are better able to survive and reproduce than newts without the mutation.

7. Which of the following statements gives the *most likely* explanation for the presence of two very similar species of squirrels living on opposite sides of the Grand Canyon?

A. One squirrel traveled across the canyon and started a new population on the other side.
B. One squirrel traveled across the canyon and interbred with a different population on the other side.
C. Members of a single squirrel species were geographically separated by the formation of the canyon.
D. Members of two different squirrel species migrated from two different places to opposite sides of the canyon.
8. The diagram below shows many finch species that originated from a single ancestral finch species in the Galapagos Islands.

Which of the following statements best explains why many different finch species originated from the single ancestral species?

A. Populations adapted to environmental pressures.

B. Recessive traits in populations were eliminated over time.

C. Individuals acquired unique characteristics during their lifetimes.

D. Random mutation caused some individuals to have harmful traits.
9. The diagram below shows the beaks of five species of birds that developed over time from one parent species. The five species of birds can be found living in the same area.

Which of the following best explains why the beak shape of each species of bird developed differently?

A. Each beak shape helps the birds to produce different songs.
B. Each beak shape is an adaptation to a specific source of food.
C. Each beak shape is designed to construct a different type of nest.
D. Each beak shape helps protect the birds from a different predator.

10. Which of the following is a reason loggerhead turtles bury their eggs in holes that they dig on the beach?

A. to keep the eggs covered with water  
B. to provide the eggs with nutrients  
C. to hide the eggs from predators  
D. to protect the eggs from sand

11. 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
12. A species of newt produces a toxin that can kill predators. Scientists have observed that some garter snakes can feed on the newts because they have a natural resistance to the toxin.

In areas where populations of newts and garter snakes interact, which of the following predictions is best supported by evolutionary theory?

A. The garter snakes with resistance to the toxin will successfully reproduce and pass the trait on to their offspring.
B. The garter snakes without resistance to the toxin will acquire resistance by increasing the rate at which they feed on the newts.
C. The newts that produce low levels of toxin will also develop camouflage adaptations that allow them to hide from the garter snakes.
D. The newts will stop making the toxin rather than continue to use energy to make a toxin that is ineffective against the garter snakes.

13. Some lizards have an adaptation that allows their tails to break off with minimal damage to bones, nerves, blood vessels, and muscles. This type of lizard can then regrow the missing portion of the tail.

Which of the following statements best explains why this adaptation is selected for in lizard populations?

A. Lizards with this adaptation are better at climbing trees.
B. Lizards with this adaptation are more likely to escape from predators.
C. Lizards with this adaptation can use their tails as lures to attract more food.
D. Lizards with this adaptation can camouflage themselves more easily in vegetation.
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