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Part 1

Instructions: Select the best answer and circle the correct letter. (2 points each)

1. Which sentence about natural selection is true?
 - a. Natural selection only occurs in human populations.
 - b. Variations of a single trait do not naturally exist in populations.
 - c. Natural variations of a single trait exist in populations.
 - d. Human activities do not alter natural selection.

2. Which of these sentences about evolution is true?
 - a. When species evolve, they always become more complex.
 - b. Evolutionary changes rarely occur.
 - c. Evolution happened in the past, but does not happen in the present.
 - d. Evolution results in change over time of the frequency of traits in a population.

3. Which of the following environmental factors can put pressure on species?
 - a. changing climate
 - b. the introduction of a new predator
 - c. changing the chemistry of soil
 - d. All of the above.

4. Which of these characteristics is an adaptation that allows pupfish to live in the desert?
 - a. the ability to lay eggs when it is very hot
 - b. bright stripes
 - c. the ability to tolerate cold
 - d. tails designed for fast swimming

5. Which of these sentences best describes the term “species”?
 - a. All members of a species are genetically identical.
 - b. Members of one species can mate with members of other species.
 - c. Individuals are members of the same species if they can mate and produce fertile offspring.
 - d. A single species cannot live in a variety of environments.

6. Which of these is not an inherited trait that would allow a species to survive or reproduce?
 - a. the size of horn on bighorn sheep
 - b. having access to more food
 - c. the ability to sing songs to attract mates
 - d. colors on a lizard that provide camouflage

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Part 2

Instructions: Read the following paragraph and use the information to answer questions 7–10. (2 points each)

Guppies are a kind of fish that live in streams on the island of Trinidad. In some pools, guppies are very colorful. In other pools, guppies are very drab and match the color of the bottom of the pool. Guppies that stand out are more likely to find mates. Guppies that blend in are less likely to be eaten by predators.

7. According to the reading, what trait varies for these guppies?
 - a. length
 - b. speed
 - c. coloring
 - d. egg-laying behavior

8. What kinds of guppies would you expect to find in a pool that contains many predators?
 - a. mostly bright guppies
 - b. mostly drab, colorless guppies
 - c. an equal mixture of bright and drab guppies
 - d. There is not enough information to make a prediction.

9. If you removed all the predators from a pool, how would natural selection proceed for the guppies?
 - a. Bright guppies would be more likely to attract mates, so they would be more likely to reproduce. The bright-color gene's frequency would increase in future generations.
 - b. Drab guppies would be more likely to survive, so they would be more likely to pass on their genes. The drab-color gene's frequency would increase in future generations.
 - c. Without predators, the color of guppies would not matter for future generations. Some fish would be drab and some would be bright.
 - d. Current guppies would be larger because more of their energy can now go into feeding instead of avoiding predators.

10. Which of the following statements is true if predators had a mutation that allowed them to see drab-colored guppies just as well as they could see bright-colored guppies?
 - a. The guppies would need a new adaptation to avoid the predators, so they would develop one.
 - b. Fewer guppies would be eaten.
 - c. Being a bright-colored guppy has a lower survival rate than being drab colored.
 - d. Being able to avoid predation is no longer a selective advantage for drab-colored guppies.

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Part 3

Instructions: Select the best answer and circle the correct letter. (2 points each)

11. If a species does not have traits with much variation, and the environment changes, what might happen?
- a. The species may be at risk of extinction. It may not have any individuals with adaptations that help it cope with the new environment.
 - b. The species can develop new adaptations on the spot, if it needs them.
 - c. The species will be more successful, because all of its members can work together since they are so alike.
 - d. The species will reproduce, and the new offspring will develop the adaptations needed to survive.
12. Which of the following environmental factors can influence how a species evolves?
- a. climate
 - b. other kinds of plants and animals that live there
 - c. geography
 - d. all of the above
13. Humans have dramatically changed the environment in the San Joaquin Valley in California. In this region, 95% of the land has been altered for human use. These environmental changes have _____.
- a. led to more species diversity
 - b. increased species' habitat range
 - c. put several species at risk of extinction
 - d. had little effect on species

Part 4

Instructions: Complete the following tasks in the spaces provided. (3 points each)

14. Give an example of an adaptation and the environment that it evolved in.

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15. Why does California have so many different kinds of species?

16. List three examples of human activities that have changed the environment.

17. Pick one of the examples above. How has this activity influenced the evolution of a species?
