Evaluate: Biodiversity and Evolution SCA 2

INSTRUCTOR:
no_reply@example.com

Section 1: Matching Vocabulary (10 points)

Match the word with its definition by writing the correct letter in the blank.

1. **___ Bottleneck Effect**
2. **___ Anatomical Homology**
3. **___ Environmental Conditions**
4. **___ Mutation**
5. **___ Genetic Drift**

Definitions:

A. Physical structures shared by different species because they have a common ancestor.
B. A big drop in population size that reduces genetic variety in a species.
C. Factors like climate, food, and water that affect where plants and animals can live.
D. A random change in the frequency of traits in a population, especially in small populations.
E. A change in DNA that can introduce new traits.

Section 2: Multiple Choice (16 points)

Circle the correct answer for each question.

6. **Which is an example of stasis?**
   A. A population developing many new traits quickly.
   B. A species staying mostly the same for a long time.
   C. Animals competing for food.
   D. New species appearing suddenly in the fossil record.
7. **What is the bottleneck effect?**
   A. A decrease in genetic variety due to a population shrinking.
   B. The mixing of genes between populations.
   C. The struggle between organisms for food and space.
   D. A type of natural selection favoring average traits.

8. **Which factor helps species survive environmental changes?**
   A. Having no variation in traits.
   B. A big drop in population size.
   C. Adaptations that fit the new environment.
   D. Lack of competition for resources.
9. **What is stabilizing selection?**
   A. Natural selection favoring extreme traits over average ones.
   B. Natural selection favoring average traits.
   C. A random change in the frequency of traits.
   D. A type of selection that causes new species to form.
10. **What happens when gene flow occurs?**
   A. Species migrate to new environments.
   B. Genes move between populations, increasing variety.
   C. Mutations spread through a population.
   D. All members of a species develop the same traits.
11. **What is an example of biogeography?**
   A. Fossils showing a common ancestor for many species.
   B. Animals on islands having unique traits not found elsewhere.
   C. Random changes in traits within a population.
   D. Plants and animals living in the same area competing for resources.
12. **What does gradualism describe?**
   A. Evolution happening quickly in short bursts.
   B. Evolution happening slowly over a long time.
   C. Random changes in traits in small populations.
   D. The process of traits mixing during reproduction.
13. **How does genetic recombination affect evolution?**
   A. It creates new combinations of traits during reproduction.
   B. It reduces the variety of traits in a population.
   C. It causes traits to disappear randomly.
   D. It stops evolution from happening.

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Section 3: Short Constructed Response (4 points each)

Answer the following questions.

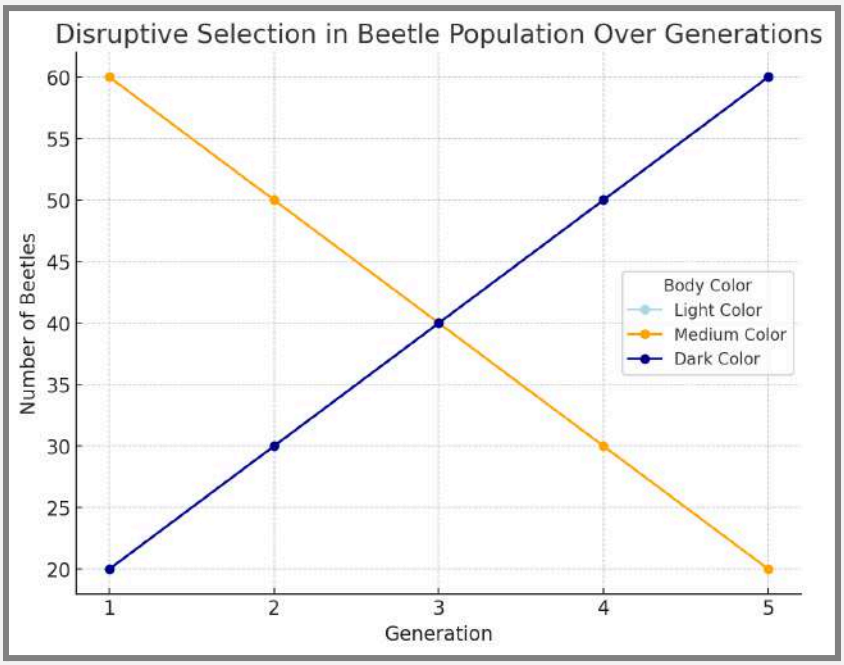
1. **Describe how environmental conditions might cause a population to grow, create a new species, or go extinct.**

2.

3. **The table below shows the number of beetles with different body colors in a population over five generations. In this environment, predators easily spot beetles with medium body color, but both very light and very dark beetles are harder for predators to see.**

Generation	Light Color	Medium Color	Dark Color
1	20 beetles	60 beetles	20 beetles
2	30 beetles	50 beetles	30 beetles
3	40 beetles	40 beetles	40 beetles
4	50 beetles	30 beetles	50 beetles
5	60 beetles	20 beetles	60 beetles

Name: _____ Date: _____



Question:

Based on the data in the table, explain how disruptive selection is affecting the beetle population. Which body colors are favored, and why?