1. Which situation would result in the greatest increase in the human population?
   A. decreased birth rate and increased death rate
   B. increased infant mortality and decreased death rate
   C. decreased death rate and increased birth rate
   D. increased birth rate and increased infant mortality

2. A local scientist has studied the population distribution of a species of snail that lives on the sandy beaches of an island. The island experiences a volcanic eruption. The data from the scientist's study of the snail population is summarized below.

<table>
<thead>
<tr>
<th>Time Reference</th>
<th>Percentage of Black Snails</th>
<th>Percentage of Light Brown Snails</th>
</tr>
</thead>
<tbody>
<tr>
<td>prior to volcanic eruption</td>
<td>9%</td>
<td>91%</td>
</tr>
<tr>
<td>one year after eruption</td>
<td>84%</td>
<td>16%</td>
</tr>
<tr>
<td>five years after eruption</td>
<td>91%</td>
<td>9%</td>
</tr>
<tr>
<td>ten years after eruption</td>
<td>75%</td>
<td>25%</td>
</tr>
<tr>
<td>fifteen years after eruption</td>
<td>51%</td>
<td>49%</td>
</tr>
</tbody>
</table>

Prior to the volcanic eruption, which of the following could explain why the percentage of black snails was so much lower than the percentage of light brown snails?

A. The black color made them more likely to find food successfully.
B. The allele for black color is lethal in the homozygous condition.
C. The black snails were easier for predators to locate on the light-colored beach.
D. The light brown snails were better than the black snails at using all the available resources.
3. In a forest ecosystem, which is an abiotic factor?

A the amount of rainfall
B the size of the deer
C the type of trees
D the number of birds

4. A community is studied and several interactions are observed and recorded.

<table>
<thead>
<tr>
<th>Type of Interaction</th>
<th>Effect on Organism X</th>
<th>Effect on Organism Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Harms</td>
<td>Harms</td>
</tr>
<tr>
<td>B</td>
<td>Benefits</td>
<td>Harms</td>
</tr>
<tr>
<td>C</td>
<td>Benefits</td>
<td>No effects</td>
</tr>
<tr>
<td>D</td>
<td>Benefits</td>
<td>Benefits</td>
</tr>
</tbody>
</table>

Which type of interaction could illustrate the process of mutualism?

A interaction A
B interaction B
C interaction C
D interaction D
5. In the carbon cycle, atmospheric carbon dioxide is converted into organic material by which process?

A. cellular respiration
B. decomposition
C. photosynthesis
D. transpiration

6. Why do ecosystems rarely contain more than a few trophic levels?

A. Energy transfer efficiency is high.
B. Energy transfer efficiency is low.
C. Energy amounts remain constant.
D. Energy cannot flow through levels.

7. Recent climate data suggests a global warming trend. The most likely cause could be an increase in which gas?

A. oxygen
B. carbon dioxide
C. nitrogen
D. hydrogen sulfide

8. Silt and nutrients from eroding farmland flow into a lake. As a result, which will most likely increase first?

A. fish population
B. shore vegetation
C. algae growth
D. dissolved oxygen

End of Goal 5 Sample Items
1  **Objective: 5.01**
Investigate and analyze the interrelationships among organisms, populations, communities, and ecosystems.
   a. Techniques of field ecology.
   b. Abiotic and biotic factors.
   c. Carrying capacity.
   **Thinking Skill:** Analyzing  
   **Correct Answer:** C

2  **Objective: 5.01**
Evaluate the survival of organisms and suitable adaptive responses to environmental pressures.
   **Thinking Skill:** Analyzing  
   **Correct Answer:** C

3  **Objective: 5.01**
Evaluate the survival of organisms and suitable adaptive responses to environmental pressures.
   **Thinking Skill:** Knowledge  
   **Correct Answer:** A

4  **Objective: 5.01**
Evaluate the survival of organisms and suitable adaptive responses to environmental pressures.
   **Thinking Skill:** Analyzing  
   **Correct Answer:** D

5  **Objective: 5.02**
Assess and examine plant tropisms and other responses.
   **Thinking Skill:** Knowledge  
   **Correct Answer:** C

6  **Objective: 5.02**
Assess and examine plant tropisms and other responses.
   **Thinking Skill:** Analyzing  
   **Correct Answer:** B

7  **Objective: 5.03**
Assess, describe, and explain types of animal behaviors (taxis, reflexes, instincts, and learned behavior).
   **Thinking Skill:** Knowledge  
   **Correct Answer:** B

8  **Objective: 5.03**
Assess, describe, and explain types of animal behaviors (taxis, reflexes, instincts, and learned behavior).
   **Thinking Skill:** Analyzing  
   **Correct Answer:** C