Biology 211 (1) Exam 5

Chapter 25:

Vocabulary: http://www.superteachertools.us/speedmatch/speedmatch.php?gamefile=6762#.VkZJCGRVhHw

1. For each individual, describe their philosophy on the idea of species changing.

<table>
<thead>
<tr>
<th>Plato</th>
<th>Aristotle</th>
<th>Lamarck</th>
<th>Darwin</th>
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2. What is “Scala Naturae?”

1.

3. What is inheritance of acquired characteristics? Provide an example.

1.

4. Define descent with modification:

1.

5. Compare and contrast natural selection vs artificial selection.

1. Natural selection:
2. Artificial selection:

6. What is the smallest unit that can evolve - individuals, populations or species? Do individuals evolve?

1.

7. When looking at rock layers (paleontology), where are the oldest fossils generally found (on the top or bottom)?
8. What are vestigial traits? Give several examples. Why are these evidence supporting the theory of evolution?
   1.

9. Define and provide examples that describe the following homologies: genetic, developmental and structural.
   1. Genetic homology:
      1. Ex:
   2. Developmental homology:
      1. Ex:
   3. Structural homology:
      1. Ex:

10. What are the 4 observations/postulates Darwin made that supported natural selection as the mechanism of evolution?
    1.
    2.
    3.
    4.

11. Selection acts on _____________; Evolutions acts on ________________.

12. What is internal consistency?
    1.
Chapter 26:

Vocabulary: [Link](http://www.superteachertools.us/speedmatch/speedmatch.php?gamefile=6763#.VkZLv2RVhHw)

<table>
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<tr>
<th>Agent In Changing Genotypic Frequency, no Allele Frequency</th>
<th>Description</th>
<th>Example</th>
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<th>Agents of Change in Allele Frequency</th>
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1. Describe the two types of sexual selection.
   1. Intersexual selection:
   2. Intrsexual selection:
2. What theory states that sexual selection acts more strongly on males than females?
   How is male and female fitness affected?
   1.
3. What is an example for intersexual selection and intrasexual selection?
   1. Intersexual selection:
   2. Intrsexual selection:
4. _______________ refers to any trait that differs between males and females of the same species. Provide examples.
   1. Ex:
5. What is the only agent of evolution that results in adaptation?
   1.
6. Does genetic drift have a larger effect on small or large populations?
   1.
7. Most mutations result in _______________ alleles.
8. How does inbreeding influence evolution?
   1.
9. What is an inbreeding depression?
   1.
10. When disadvantageous alleles decline in frequency, ______ _______ is said to occur.
11. What is a fitness trade-off? Provide an example.
   1.
12. Name and describe two natural causes of genetic drift.
   1.
   2.

<table>
<thead>
<tr>
<th>Natural Selection Patterns</th>
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**Crocodile Survey**

You and your team have been hired by G. H. Hardy and Wilhelm Weinberg to survey a new species of crocodiles. Populations of these crocodiles have been spotted in North America, South America, Africa, and Asia. You will need to calculate the allele frequency and genotypic frequency of the current populations future offspring. You will be looking at a gene that codes for skin color with two alleles: brown and grey (Brown being dominant.)

1. **North American Crocodiles (Find the Allele Frequencies):**
   Population Genotypes:
   
   36 BB, 48 Bb, 16 bb

   Allele frequencies?
   
   B = 0.6  
   b = 0.4

2. **South American Crocodiles (Find the Allele Frequencies):**
   Population Genotypes:
   
   49 BB, 42 Bb, 9 bb

   Allele frequencies?
   
   B = 0.7  
   b = 0.3

3. **African Crocodiles (Find the Genotypic Frequencies):**
   Population Allele Frequencies:
   
   B: 0.8, b: 0.2

   Population Genotypic Frequencies?
   
   BB: 64  
   bb: 4  
   Bb: 32

4. **Asian Crocodiles (Find the Genotypic Frequencies):**
   Population Allele Frequencies:
   
   B: 0.9, b: 0.1

   Population Genotypic Frequencies?
   
   BB: 81  
   bb: 1  
   Bb: 18
Chapter 27:

Vocabulary: [link](http://www.superteachertools.us/speedmatch/speedmatch.php?gamefile=6764#.VkZNVWRVhHw)

5. What are the 3 most common approaches for identifying species?
   a. 1)
   b. 2)
   c. 3)

6. State the biological species concept in your own words. What are the disadvantages of this species concept? Name and describe the two mechanisms that stop gene flow between populations.
   a.

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7. What is the main criterion for identifying populations as different species according to
the morphospecies concept? What are advantages and disadvantages of this concept?

   a.

8. Why are cryptic species a problem for the morphospecies concept?

   a.

9. How are species classified according to the phylogenetic species concept? What is a
monophyletic group? What are the advantages and disadvantages of this species
concept?

   a.

10. In actual practice, researchers use which of the species concepts to identify
evolutionary independent populations in nature?

   a.

11. Compare and contrast allopatric and sympatric speciation.

   a. Allopatric:

   b. Sympatric:
Chapter 28:

1. What is the relationship between synapomorphies and monophyletic groups?
   1. 

2. What are the four limitations of the fossil record?
   1. 
   2. 
   3. 
   4. 

3. The Earth started to form__________years ago.
4. Life began around ____________ years ago.
5. The Precambrian Eon was before____________years ago.
6. The ___________ ___________ was when there was a major diversification in organisms
   that occurred 50 million years after early sponges first appeared (~635 mya).
7. What was the largest mass extinction?
   1. 
8. What is the title for the extinction that killed the dinosaurs?
   1. 

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