

Chapter 22

1. What is biogeography?
2. What is descent with modification?
3. How is artificial selection different from natural selection?
4. What is a scientific theory?
5. What did Lamarck get right? What did he get wrong? In his hypothesis about species change over time.

Chapter 23

1. Define population.
2. Define fitness?
3. What is genetic drift?
4. What is a bottleneck event? Is a small or large population more likely to experience genetic drift after a bottleneck event?
5. What is heterozygote advantage? Connect it to the prevalence of the allele for sickle-cell anemia in hot, humid areas.

Chapter 24

1. If you are presented with similar fossilized remains of species of mollusk from a particular area and asked to separate them into different species, which species concept will you need to use?
2. What is the difference between allopatric and sympatric speciation?
3. What type of reproductive barrier: Two flowers have incompatible floral anatomy preventing fertilization.
4. Explain what exaptation is and provide an example.
5. What is “evo-devo” and what is its connection to macroevolution?

Chapter 25

1. What do the internal nodes on a cladogram represent?
2. You use BLAST to compare the gene sequence for keratin to other species. Your results return a list of the most similar gene sequences in other species. These close matches are examples of molecular _____.
3. List the levels of classification from the most general to the most specific.
4. What is the concept of a molecular clock based on?
5. Why might analogous features be misleading when it comes to constructing a phylogeny? In your answer explain what an analogous feature is and what process they result from.

Chapter 26

1. This term refers to a glob of abiotically produced molecules surrounded by a membrane like structure which can perform some very basic, forms of reproduction and metabolism
2. What were Miller and Urey trying to recreate in their lab set up? What were the products of their experiment?
3. What is the importance of cyanobacteria in the evolution of life on Earth?
4. What are two advantages of DNA as a genetic material over RNA?
5. Provide two pieces of evidence, observable in eukaryotes today, that supports the theory of endosymbiosis.

Hardy Weinberg

1. What should you look for first in order to solve a HW problem?
2. Define Q.
3. Which variable represents the frequency of the homozygous dominant genotype?
4. 91 individuals in a population of 100 displays the dominant phenotype for trait x. Assuming this population is large enough to meet the requirements for Hardy Weinberg, how many of those organisms are homozygous dominant?
5. What 5 conditions must be met in order for Hardy-Weinberg equilibrium to hold up?

Chi-squared test

1. What does e represent?
2. What does sigma mean?
3. What is a null hypothesis?
4. Mrs. Wareham spent Friday night tallying the number of times each letter in the alphabet was used in the classic novel "Crime and Punishment". How many degrees of freedom would she use?
5. Why are the degrees of freedom the number of conditions - 1

Miscellaneous

1. How can mass extinctions be beneficial?
2. What is a cline?
3. Explain directional selection and give an example.
4. Describe two types of sexual selection.
5. What is polyploidy? What type of speciation does it represent?