**Evolution Review** **Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Look over the topics and vocabulary listed below as you prepare for your upcoming test on evolution.

**Vocabulary to be familiar with**:

Evolution Embryology Fitness

natural selection vestigial structures Adaptation

artificial selection (selective breeding) Homologous Structures Genetic Variation

sexual selection Analogous structures Speciation

Mutation

**Concept understanding:**

1. What did Charles Darwin purpose as the driving force for evolution? How does it work?
2. How do environmental changes affect natural selection?
3. How does genetic diversity or variation affect a population’s ability to adapt to a changing environment?
4. What is speciation? How can it occur?
5. How are artificial selection and sexual selection different from natural selection?
6. Describe the following major evidences we use to support evolution? Make sure you understand each of them and how they support the process of evolution.

a. Embryology:

 b. Vestigial Structures:

 c. Homologous Structures:

 d. Analogous Structures:

1. How do mutations play a role in evolution?

**Practice Problems:**

1. Which of the following is an example of genetic variation in humans?
2. Many people have different eye colors
3. One person has a scar but her friend does not
4. Todd eats meat but his brother Ryan is a vegetarian
5. Many people are different ages
6. Which of the following are ways that genetic variability between individuals of a population is caused (circle all that apply)?
7. Random mutations
8. Mitosis
9. Asexual reproduction
10. Sexual reproduction
11. A single species of squirrel evolved over time into two species, each on opposite sides of the Grand Canyon. This change was most likely due to:
12. Higher mutation rates on one side
13. Low genetic diversity in the initial population
14. The geographic isolation of the two groups
15. Differences in food preferences
16. If you came to an island that had tremendous diversity with its bird’s species, how might you explain why some birds have evolved larger beaks than others?
17. Large beak size occurred as a result of mutation
18. The ancestors of this bird species encountered a tree with larger than average seeds. Birds with slightly larger beaks were able to eat the seeds and passed this trait down to their offspring, so large beaks increased in the population.
19. Some members of the ancestral population had larger beaks than others. If larger beak size was an advantage in protecting their offspring from predators, they would become more likely to survive and reproduce.
20. All of these are reasonable explanations as to why that particular species of bird has a large beak.
21. In a changing environment, which species will have the best chance for survival?
22. The one with the smallest body size
23. The one with the largest population
24. The one with the most intelligent individuals
25. The one with the most genetic variation
26. Which of the following examples below best describes artificial selection?
27. Moths that have adapted features that make it look like a twig.
28. The appearance of the leafy sea dragon helps it blend in and look like seaweed.
29. Some male birds found in the tropics have adapted unique mating dances to attract a mate.
30. Human have bred dairy cows to produce tremendous amounts of milk to meet the needs of our population.
31. What is the relationship between the wing of a bird and the fin of a whale?
32. They are homologous because they represent modified forms of a trait present in a common ancestor.
33. They are analogous because while each carries out the same function, the trait has appeared randomly in each animal.
34. They represent vestigial structures that were once necessary but are no longer used.

1. According to Darwin, which of the following is NOT a part of the process of evolution?
2. Each species produces more offspring than can survive
3. Offspring compete with one another for limited resources
4. Organisms in populations are genetically unique
5. Offspring with the most favorable traits are **less** likely to survive and pass on their genes.
6. Scientific evidence shows that modern dogs, wolves and foxes all have a common ancestor. Further evidence shows that dogs are more closely related to wolves than to foxes. Which of the following observations provides the best evidence that dogs are more closely related to wolves than foxes?
7. The diet of dogs and wolves are more similar than the diets of dogs and foxes
8. The lifespans of dogs and wolves are more similar than the lifespans of dogs and foxes
9. The genetic sequences of dogs and wolves are more similar than the genetic sequences of dogs and foxes
10. The body sizes of dogs and wolves are more similar than the body sizes of dogs and foxes.
11. A population of termites initially consists of darkly colored and brightly colored members. The dark coloration is caused by a dominant allele while the bright coloration pattern is the result of a recessive allele. Insectivores can easily locate the brightly colored termites. What would you predict to happen to the frequency of the alleles in this population after a few generations?
12. The frequency of the dominant allele would decrease
13. The frequency of the recessive allele would increase
14. The frequency of the dominant allele would increase
15. The frequency of the recessive allele would decrease