Evolution Review Questions

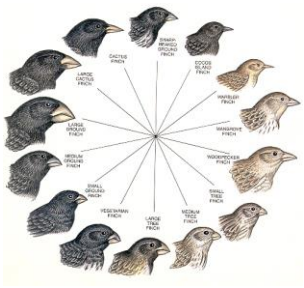
Name: _____ Date: _____

1. For a given population that contains genetic variation and is under the influence of natural selection, what is the *correct sequence* of the following events?

   a. 2 -> 4 -> 1 -> 3
   b. 2 -> 4 -> 3 -> 1
   c. 4 -> 1 -> 2 -> 3
   d. 4 -> 2 -> 3 -> 1

   1 Well-adapted individuals leave more offspring
   2. A change occurs in the environment.
   3. Genetic frequencies within the population change
   4. Poorly adapted individuals do not survive

2. Darwin's finches provided evidence that beak size:
   a. adjusted within a given year depending on nutrition status
   b. differences were the result of inherited changes in response to environmental selective pressures
   c. were completely random and no pattern was determined
   d. made no difference as to the food being eaten



3. An organism's *relative fitness* is measured by its
   a. Mutation rate
   b. Health and stability in the face of environmental change.
   c. Contribution to the gene pool of the next generation
   d. Genetic variability

4. Structures as different as human arms, bat wings, and dolphin flippers contain many of the same bones, these bones having developed from very similar embryonic tissues. How do biologists interpret these similarities?
   a. By identifying the bones as being homologous
   b. By the principle of convergent evolution
   c. By proposing that humans, bats, and dolphins share a common ancestor

5. Which of the following is probably the best explanation for the fact that Antarctic penguins cannot fly, although there is evidence that millions of years ago their ancestors could do so?
   a. Penguins live on land and feed in the water; therefore they have no need to fly.
   b. The Antarctic home of penguins is flat and barren; therefore there is no place to fly.
   c. Ancestral penguins without large wings were better able to swim and feed in the water; therefore they passed their genes for shorter wings structure onto their offspring.
   d. Ancestral penguins did not use their wings for long periods of time; therefore today's penguins have only tiny, nonfunctional wings.

6. Genetic drift is all of the following EXCEPT
   a. small population size
   b. random
   c. reduction in genetic variation
   d. movement of individuals from one isolated population to another

7. The bones of a human arm are homologous to structures in all of the following EXCEPT a
   a. whale flipper
   b. bat wing
   c. butterfly wing
   d. bird wing
   e. frog forelimb

8. Which of the following is an example of convergent evolution?
   a. similar amino acid sequences of hemoglobin in humans and chimpanzees
   b. similar bones in the forelimbs of horses and bats
   c. similar body shape of dolphins and fish
   d. different beak shapes of Galapagos finches

9. According to natural selection theory,
   a. Adaptations beneficial in one habitat should generally be beneficial in all other habitats
   b. Different species develop the same traits in similar habitats
   c. Adaptations beneficial at one time should generally be beneficial during all other times
   d. Well-adapted individuals leave more offspring, and thus contribute more to the next generation's gene pool, than do poorly adapted individuals.

10. Fossils of some intermediate forms have not been found because
   a. fossils are very rare; fossils of only a small fraction of all species have been found
   b. all fossils are the same age
   c. species produced by punctuated equilibrium do not leave fossils
   d. the ages of many fossils are not calculated correctly

11. For some traits (such as birth weight in mammals), natural selection favors individuals that are average and the extremes are selected against. This is known as
   a. diversifying selection
   b. directional selection
   c. disruptive selection
   d. stabilizing selection

12. A species is defined as
   a. a group of organisms that live in the same habitat
   b. a population of organisms that are able to interbreed
   c. a population of organisms that have the same number of chromosomes
   d. a population of organisms with a common ancestor

13. The studies of changes between black and light color in populations of the peppered moth show that
   a. natural selection can quickly change allele frequencies and common phenotypes in a population
   b. species can always adapt to environmental changes
   c. predators prefer light colored moths
   d. dark colored moths are physiologically superior to light colored moths

14. A common ancestor for both species D and G could be at position number
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5
   f. 6