1. The image below illustrates what evolutionary concept?

a) embryological similarities c) variation among species

b) vestigial structures d) homologous structures



2. Which of the following is NOT a component of evolution by natural selection?

a) competition for food and space c) variation among species

b) survival and reproduction d) inheritance of acquired characteristics

3. A group of mice becomes separated by the formation of a river. Over time, the northern mice become smaller and whiter, while southern mice became larger and browner. This is an example of:

a) directional selection c) homologous selection

b) stabilizing selection d) disruptive selection

4. Which of the following best describes how LAMARCK would explain giraffes with long necks?

 A. Long-necked giraffes eat more grass than short necked giraffes so their necks grow longer.

 B. Natural variation in the population produces some longer and some shorter-necked giraffes and longer necked giraffes can reach food more easily.

 C. Some giraffes have acquired longer necks by stretching to reach food and passed that trait on.

 D. Giraffes just started out with long necks and haven’t changed.

5. Which scientist?

\_\_\_\_\_ i. Proposed that organisms acquired or lost traits

 during their lifetime by selective use or disuse of organs

\_\_\_\_\_ ii. Predicted that the human population will grow faster than the space and food the space and food needed to sustain it

\_\_\_\_\_ iii. Proposed a hypothesis to explain how living things change over time

6. Which of the following best describes how DARWIN would explain giraffes with long necks?

 A. Long-necked giraffes eat more grass than short necked giraffes so their necks grow longer.

 B. Natural variation in the population produces some longer and some shorter-necked giraffes and longer necked giraffes can reach food more easily and survive to pass on their genes.

 C. Some giraffes have acquired longer necks by stretching to reach food and passed that trait on.

 D. Giraffes just started out with long necks and haven’t changed.

7. Darwin believed in the idea that evolution happened slowly over a long period of time called \_\_\_\_\_\_\_\_\_\_

 A. punctuated equilibrium

 B. gradualism

 C. symbiosis

 D. catastrophism

8. Any change in the relative frequency of alleles in a population is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 A. punctuated equilibrium

 B. mutation

 C. evolution

 D. genetic equilibrium



9. Which of the following is most likely to have caused the change in the population shown in the graphs at the left?

 A. a new predator prefers dark-tan crabs

 B. a new predator prefers light-tan crabs

 C. a new beach color makes medium-tan crabs the least visible

 D. a new beach color makes medium-tan crabs the most visible

10. The orange and black pattern of a Monarch butterfly serves as a warning to sharp-eyed birds that the Monarch is poisonous to eat and tastes bad. Individuals with the brightest color pattern were

More likely to warn off birds and survive to reproduce than those with a dull or medium color pattern. Over time and many generations, the Monarch population became more brightly-colored. What type of selection is this? Disruptive, stabilizing, or directional?

11. The fact that horse evolution shows long stable periods of little evolution interrupted by brief periods of rapid change is an example of:

 a) Catastrophism

 b) Punctuated equilibrium

 c) Gradualism

 d) Convergent evolution

12. The use of antibiotics over the last sixty-five years has resulted in a drastic increase in populations of bacteria that are resistant to many antibiotics. The most probably cause of this change in bacterial populations is that

a) the bacteria needed to develop resistance in order to survive

b) antibiotics select for bacteria that have a degree of resistance, and against those that don’t

c) genetic engineering has released “super bugs” that cannot be killed by antibiotics

d) sanitary conditions have declined over the last sixty-five years

13. Which of the following researchers supported spontaneous generation?

 a) Redi b) Spallanzani c) Needham d) Pasteur

14. While making repairs at a zoo, it became necessary to place a species of bird from Africa in the same enclosure as a bird species from South America. To everyone’s surprise, some of the birds mated and produced hybrid offspring. The hybrids were eventually separated from the other birds and placed in their own enclosure. Again, to everyone’s surprise, the hybrids mated and produced their own offspring. According to today’s biological concept of a species, how should all of these birds be classified?

a) They should all be classified as the same species.

b) The two original groups should still be classified as a different species, and their offspring should be classified as a third species.

c) They should all be classified as hybrids.

d) The two original groups should still be classified as different species, and their offspring should be classified as hybrids.

15. A “mad” scientist believed that he could create a “slave species” by forming a hybrid between humans and chimpanzees. He collected eggs from female chimps and sperm from human males and then allowed the two kinds of gametes to come together in a test tube. Fortunately, the human sperm were incapable of fertilizing the chimpanzee eggs due to the lack of a proper receptor on the surface of the egg. Which isolating mechanism was working to keep these two species separate?

 a) ecological isolation

 b) geographic isolation

 c) reproductive isolation

 d) temporal isolation

16. Female spiders are notorious hunters. For some spider species, the male spider must perform a certain type of “dance” before mating with the female of that species. Male spiders of other species that do not know this “dance” are devoured before they have a chance to mate. This is an example of the importance of…

 a) disruptive selection c) migration

 b) courtship rituals d) embryology

17. What types of events are typically seen in the fossil record?

 a) speciation

 b) successive change in structure

 c) extinction

 d) all of these are typical of the fossil record

18. Which of the following does NOT apply when discussing the molecular evidence for evolution?

a) related organisms share a greater portion of their DNA

b) the hemoglobin gene is less similar between humans and dogs than between humans and chimpanzees

c) only DNA can be examined for establishing evolutionary differences

d) phylogenetic (evolutionary) trees can be established using molecular evidence.