MULTIPLE CHOICE  Select the best answer and write its letter in the space provided.

_**C**__ 1. Natural selection is described as the:
   A. differential survival and reproduction of individuals in a population.  C. both A & B
   B. process by which populations adapt to varying environments.  D. neither A or B

_**D**__ 2. Evolution is
   A. a rare event.
   B. currently occurring only in scientific laboratories.
   C. constantly occurring at the same rate in all organisms.
   D. a process that occurs as a result of differences in reproductive fitness.
   E. a process that occurred only in the past.

_**B**__ 3. After a rapid change in climate, one species of bird quickly adapts to the change, but others
   in the area do not. What could you conclude about the quickly adapting species?
   A. They had a greater need to evolve than the other species.
   B. They already had some alleles in their genome that were adaptive in the new
      environment.
   C. They reproduced more slowly than the non-adapting species.
   D. They pass more of their DNA to their offspring than the slowly adapting species.
   E. They have a higher rate of mutation than the other species.

_**A**__ 4. The phrase "survival of the fittest" is somewhat misleading because it implies:
   A. the best possible organism will evolve.    D. there's no goal in evolution.
   B. humans are the proper end result of evolution.   E. none of these
   C. organisms will always grow bigger and more complex.

_**C**__ 5. Which one of the following shows the steps of speciation in the correct order?
   A. evolutionary changes, geographic isolation, reproductive isolation
   B. genetic incompatibility, geographic isolation, evolutionary changes
   C. geographic isolation, evolutionary changes, reproductive isolation
   D. reproductive isolation, genetic incompatibility, geographic isolation
   E. temporal isolation, evolutionary changes, geographic isolation

_**E**__ 6. Reproductive isolation that can lead to speciation between two populations when they:
   A. don't want to mate with each other.       D. both B and C
   B. are unable to make fertile offspring with each other.  E. A, B, and C
   C. are geographically separated from each other.

_**E**__ 7. Structures from two kinds of organisms are homologous, if they:
   A. have identical function in both organisms.
   B. have different positions on the bodies of the two organisms.
   C. appear in any close relatives of the organisms.
   D. contain bones.
   E. have similar anatomy in the two organisms.

TRUE-FALSE  Circle **T** for true to support the statement; or circle **F** for false to reject it.

**F** 8. The ostrich and the emu look very similar and live in similar habitats; one is from Africa and
   the other is from Australia. This is an example of sympatric speciation.

**F** 9. It is not possible to show natural selection in a laboratory because evolution takes too
   long.

**T** 10. Based on DNA homology, chimpanzees are more related to humans than to gorillas.

**T** 11. A change in the adaptation of a limb to a new function is an example of divergent
   evolution
12. Macroevolution is described as a change in genetic makeup within a population.

13. The only way that two populations can assure their integrity as distinct biological species is by reproductive isolation from one another.

14. Understanding evolution is useless for finding new genes for pest resistance in a crop plant.

MATCHING- Select the best match. An answer may be used more than once.
Match the evolutionary process with its effect on a species.

15. directional selection

16. convergent evolution

Match the event to the evolutionary process that causes a species to arise

17. when *Wolbachia* infects an insect population.

18. when a disease kills out the center of a population.

19. within different geographical areas

SHORT ANSWER (3pts each)

20-22. “Man descended from monkeys” is a misconception many have about evolution. Explain why.

Neither humans nor any other living organism descended from a present day species. Evolution occurs by descent from a common ancestor. Our physical form and DNA homology with other primates is evidence for this.

23-25. Divergent evolution implies descent with modification and has a genetic basis, but convergent evolution does not. Explain why and give an example.

Convergent evolution results from species living in a similar habitat. Selection pressures are similar and often result in species appearing the same, but are genetically unrelated.

Example: Thorns and small succulent leaves in desert plants, coloration patterns in certain animals.
MATCHING- Select the best match. An answer may be used more than once.

Match the evolutionary process with its effect on a species.

_D_ 1. divergent evolution
   A. shifting a population
   B. species in the same environment showing similar characteristics

_C_ 2. stabilizing selection
   C. narrowing a population
   D. the same structure modified for different functions
   E. none of these

Match the event to the evolutionary process that causes a species to arise

_C_ 3. when a disease kills out the center of a population.
   A. directional selection

_D_ 4. within an area when mating behavior changes
   B. allopatric speciation
   C. diversifying selection

_B_ 5. within different geographical areas
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   E. none of these

MULTIPLE CHOICE   Select the best answer and write its letter in the space provided.

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   C. are geographically separated from each other.
   D. both B and C
   E. A, B, and C

_A_ 7. How did an understanding of genetics lead to "the modern synthesis" of evolution?
   A. It showed how traits could be passed from one organism to the next.
   B. It showed how many offspring a single individual was capable of producing.
   C. It showed the extent of variation for many traits.
   D. It showed the kind of environmental change that could cause evolution.
   E. It showed that DNA was the genetic material.

_D_ 8. The smallest biological unit that can evolve is:
   A. an allele
   B. a species
   C. an individual organism
   D. a population
   E. none of these

_A_ 9. The presence of transitional forms in the fossil record would be more expected:
   A. in the gradual model than in the punctuation model.
   B. in the punctuation model than in the gradual model.
   C. equally expected in both models.
   D. expected in neither model.

_A_ 10. According to the theory of common descent, each species on Earth today should
   A. have a single ancestor in common.
   B. have DNA that is mostly unique from other species.
   C. have no ancestors in common with members of other species.
   D. have evolved separately from different ancestors.
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_C_ 11. Natural selection is described as the:
   A. differential survival and reproduction of individuals in a population.
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TRUE-FALSE Circle T for true to support the statement; or circle F for false to reject it.
F 13. A breeding group of the same species that inhabit a common area is called a community.
T 14. Directional and stabilization selection can affect a species at the same time.
F 15. Species are related to one another, if they occur in similar habitats.
T 16. Based on DNA homology, chimpanzees are more related to humans than to gorillas.
T 17. A change in the adaptation of a limb to a new function is an example of divergent evolution.
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