Multiple Choice

Identify the choice that best completes the statement or answers the question.

1. Use the graph below to answer the next three questions.

![Graph](image)

In the range of tolerance graph above, which letter (or letters) represent a zone of physiologic stress?

- a. B and D
- b. B and A
- c. A and E
- d. D and E

2. In the range of tolerance graph above, what area on this graph would have the maximum size population?

- a. A
- b. B
- c. C
- d. D

3. In the range of tolerance graph above, which area is experiencing a decreased population due to *too little* of the critical factor?

- a. A
- b. B
- c. C
- d. D

4. One example of a piece of evidence for evolution is the presence of vestigial structures. Which of these is an example of a vestigial structure?

- a. Humans, penguins, and crocodiles all have a humerus bone in their arm.
- b. The DNA of humans and primates is very similar.
- c. In humans, the appendix is shrunken and no longer necessary for survival.
- d. Peacocks will grow large and bright feathers to attract mates.

5. Flying squirrels and sugar gliders have similar body designs – they both have flaps of skin under their arms and legs to help them glide slowly between trees. However, they live on different continents and are not that closely related. What is this an example of?

- a. Divergent speciation
- b. Convergent speciation
- c. Competition
- d. None of the above
6. Wolves and dogs are very closely related animals. Wolves have certain behaviors and physical adaptations as a result of _________________. Dogs have different behaviors and physical features due to _________________.
   a. Natural selection, artificial selection  
   b. Artificial selection, natural selection  
   c. Divergent speciation, convergent speciation  
   d. Convergent speciation, divergent speciation

7. Only about a fifth of the species on Earth have been identified. Most of the species that have not yet been identified are probably…
   a. Insects  
   b. Mammals  
   c. Birds  
   d. Reptiles or Amphibians

8. Given the classification information above, what is the correctly formatted scientific name of the cougar?
   a. Animalia Chordata  
   b. felinae concolor  
   c. Puma concolor  
   d. Felidae concolor

9. Which pattern of population growth takes the shape of an “S”, and slows as it reaches the carrying capacity?
   a. Logistic growth  
   b. Linear growth  
   c. Exponential growth  
   d. None of the above

10. Which pattern of population growth exceeds the carrying capacity, eventually causing a population crash?
    a. Logistic growth  
    b. Linear growth  
    c. Exponential growth  
    d. None of the above
11. What type of growth is shown by the graph above?
   a. Linear     c. Logistic
   b. Exponential d. None of these.

12. Using the graph above, what is the carrying capacity of this ecosystem?
   a. 0.5 million  c. 1.6 million
   b. 0.9 million  d. 2.0 million

13. Use the graph above, what year does this population first begin to experience an **overshoot**?
   a. 1825        c. 1860
   b. 1845        d. 1875

14. Use the graph above, what year does this population first begin to experience an **dieback**?
   a. 1825        c. 1860
   b. 1845        d. 1875

15. China experienced a great famine in 1958 that was partially due to the removal of Eurasian Tree Sparrows, which acted as ________ for the locust population.
   a. Environmental Resistance  c. a predator
   b. a density-dependent limiting factor. d. All of the above.
Matching

Match the level of ecological organization described by each of the statements below.

16. All of the spur-throated grasshoppers living in the field directly behind the school.
17. The birds, insects, plants, fungi, and other organisms that reside in a nearby wetland.
18. A white-tailed deer that wanders into your back yard.
19. A tour guide taking a group through Costa Rica describes it as a lush, moist, tropical rainforest.
20. Only the areas that life inhabit, from the upper crust of the Earth through the lower atmosphere.

Identify each of the following as a physical, behavioral, or physiologic adaptation.

21. Gorillas are larger and more muscular than chimpanzees, allowing them to dominate any food sources along the ground.
22. Certain fish living in Antarctica have special proteins in their cells that act as antifreeze.
23. Monarch butterflies will migrate into the forests of the Yucatan Peninsula of Mexico during the winter months of North America.
24. Many songbirds will raise their chicks together, so that each parent can help find food.
Match each of the relationships of the organisms in bold described below with the relationship.

a. Predator-prey  
b. Intraspecific competition  
c. Interspecific competition  
d. Symbiosis- Mutualism  
e. Symbiosis- Commensalism  
f. Symbiosis- Parasitism

25. Some **hermit crabs** have **sea anemones** growing on their shell. While the anemone gets moved from place to place, it protects the crab from being eaten by cuttlefish.

26. **Oxpecker birds** feed on ticks growing on the backs of **rhinoceros**.

27. **Remora** are fish that attach themselves to the body of a **shark**. They feed on leftover scraps that fall from the mouth of the shark.

28. **Coral polyps** will use their tentacles to catch and eat **plankton**.

29. **Cuckoos** are birds that will knock the eggs out of a **warbler**’s nest and lay its own. The warbler then unknowingly raises the cuckoo chicks.

30. Male **ibex** will battle each other for dominance and the ability to mate with the females in the herd.

31. **Convict tangs** (*Acanthurus triostegus*) and **powder blue tangs** (*Acanthurus leucosternon*) each live in coral reefs and feed from the same algae.