

# Captains' Tryouts 2018

## Ecology



## EACH MULTIPLE CHOICE QUESTION WORTH 1 POINTS

1. Which is the slowest biogeochemical cycle?
  - a. Water
  - b. Phosphorus
  - c. Sulfur
  - d. Nitrogen
2. Within a developing country, you could expect to find...
  - a. Higher population under 15
  - b. More urban population
  - c. Higher life expectancy
  - d. Lower poverty
3. Out of various treatment options for nondegradable pollutants, the least effective would be to...
  - a. Convert into harmless substances
  - b. Reuse pollutants
  - c. Attempt to remove from polluted air, water, or soil
  - d. Refrain from introduction into the environment
4. All of the following are point sources of pollution except...
  - a. Smokestacks
  - b. A leaking drainpipe
  - c. Farmland runoff
  - d. Car tailpipe
5. If the world's population grew by 2% in 2001 and continued at that rate, how long would it take for the total population to double?
  - a. 20 years
  - b. 25 years
  - c. 30 years
  - d. 35 years
6. The native plant Prairie Dock has leaves are so thick, nothing can grow in its shadow. This is an example of what interaction?
  - a. Commensalism
  - b. Amensalism
  - c. Parasitism
  - d. Competition
7. The hydrologic cycle is driven primarily by...
  - a. Solar energy and gravity
  - b. Solar energy and the moon
  - c. Mechanical and chemical energy
  - d. Chemical energy and gravity
8. Many similar types of rodents can live in the desert because they have \_\_\_\_\_ eating habit that \_\_\_\_\_ resource competition.
  - a. Generalized... Minimize
  - b. Generalized... Maximize
  - c. Specialized... Minimize

- d. Specialized... Maximize
9. Humans affect grasslands by...
- a. Drilling wells
  - b. Grazing domestic herds
  - c. Planting crops
  - d. All of the above
10. What are the two most important factors in determining climate?
- a. Temperature and precipitation
  - b. Pressure and precipitation
  - c. Geography and temperature
  - d. Pressure and weather
11. In a grassland, you see a lion chase and devour a gazelle. A vulture pecks at the meat scraps until beetles overtake the remains. Finally, bacteria complete the degradation of organic material. Which is the correct sequence?
- a. Carnivore, decomposer, detritus feeder, herbivore
  - b. Carnivore, detritus feeder, scavenger, decomposer
  - c. Carnivore, scavenger, detritus feeder, decomposer
  - d. Carnivore, predator, decomposer, detritus feeder
12. Species that normally live and thrive in a certain ecosystem are called...
- a. Nonnative species
  - b. Native species
  - c. Keystone species
  - d. Specialist species
13. Climate is the general pattern of weather over a period of...
- a. Days
  - b. Weeks
  - c. Years
  - d. Millenia
14. Which is the correct sequence of organization from smallest to largest?
- a. Organism, Population, Community, Ecosystem, Ecosphere
  - b. Organism, Community, Population, Ecosystem, Ecosphere
  - c. Community, Organism, Population, Ecosphere, Ecosystem
  - d. Organism, Population, Community, Ecosphere, Ecosystem
15. Which of the following would undergo primary succession?
- a. Forest land clearcut by a company
  - b. An abandoned city
  - c. A rock exposed by a retreating glacier
  - d. The aftermath of an accidental wildfire
16. The change that takes place in a demographic transition occurs when
- a. One-third of the population is under 15 years of age.
  - b. The birth rate drops below the death rate
  - c. The economic development of a country changes the population growth pattern
  - d. Either immigration or emigration changes the population growth pattern
17. Which of the following countries would have the greatest numerical rise in population size from a growth rate of 1.2%?

- a. Country A, population 100,000
  - b. Country B, population 1 million
  - c. Country C, population 10 million
  - d. Country D, population 1 billion
18. Which of the following connections among population cycle, survival strategies, and survivorship curves would you most expect to see?
- a. Boom and bust, k strategist, early loss
  - b. Boom and bust, r strategist, early loss
  - c. Stable, k strategist, early loss
  - d. Stable, r strategist, late loss
19. You observe uniform dispersion in a species you are studying. You predict that as you continue your work, you will find...
- a. Interspecific competition and evenly spread abundant resources
  - b. Interspecific predation and evenly spread scarce resources
  - c. Intraspecific competition and evenly spread abundant resources
  - d. Intraspecific competition and evenly spread scarce resources
20. The most useful measure of fertility for projecting future population change is...
- a. Total fertility rate
  - b. Birth rate
  - c. Abortion rate
  - d. Replacement-level fertility

FREE RESPONSE

1. Which of these two plants are better equipped for the desert? Give two reasons why. (3 points)

A



B



2. Describe two evolutionary advantages this desert rodent has (2 points)



3. Create a food web from the options below. (5 points).
  - a. Zebra
  - b. Beetles

