Ecology Test

Team # _____

School _____

Names: _____

_____

Total Points: _____

Ecology Test

Short Answer (23 points)

1. (2 pts)Name the two main types of tundra? _____
2. (1 pt)Define Batesian Mimicry _____
3. (1 pt)Define extant: _____
4. (1 pt)Define Biotic: _____
5. (1 pt)Temperatures in the tundra can reach as low as what temperature (in Celsius): _____
6. (1 pt)When soil is permanently frozen, it is called: _____
7. (1 pt)How much precipitation does the tundra receive each year?_____
8. (1 pt)The word tundra comes from the Finnish word tunturia. What does tunturia mean in English?

   _____
9. (3 pts)Name three examples of the kinds of groundcover that grow in the tundra.

   _____

   _____
10. (1 pt)Define temperate: _____

    _____
11. (1 pt)Define deciduous: _____
12. (2 pts) Why might melting permafrost contribute to global climate change? _____

    _____

    _____
13. (1 pt)Describe the soil conditions in coniferous or boreal forests: _____

    _____
14. (1 pt)Why do coniferous cones have an upside down shape?_____

    _____
15. (3 pts)Name three ways animals have adapted to tundra conditions:

1) _____

2) _____

3) _____

16. (2 pts)Erosion is an ongoing concern in the tundra. What is causing this erosion?_____

_____

Multiple Choice (21 points)

1. For which term is this a definition? Organic matter produced by plants and other photosynthetic producers; total dry weight of all living organisms that can be supported at each trophic level in a food chain or web; dry weight of all organic matter in plants and animals in an ecosystem
   a. Biomass
   b. Decomposer
   c. Detritus
   d. Biotic potential

2. For which term is this a definition? Process in which certain organisms (mostly specialized bacteria) extract inorganic compounds from their environment and convert them into organic nutrient compounds without the presence of sunlight
   a. Indicator species
   b. Assimilation
   c. Chemosynthesis
   d. Rhizobia

3. For which term is this a definition? The reduction of nitrates back into nitrogen gas (N2), completing the nitrogen cycle. This process is performed by bacterial species such as Pseudomonas and Clostridium in anaerobic conditions.
   a. Distribution
   b. Greenhouse effect
   c. Denitrification
   d. Commensalism

4. For which term is this a definition? A species that gives an early warning that an ecosystem is in a state of flux, often times fish and amphibians or apex predators
   a. Indicator species
   b. Limiting factor
   c. Sustainability
   d. Secondary succession

5. For which term is this a definition? All organisms that are the same number of energy transfers away from the original source of energy that enters the ecosystem
   a. Pioneer community
   b. Population
   c. Uniform distribution
   d. Trophic level

6. For which term is this a definition? Species that reproduce early in their life span and produce large numbers of usually small and short-lived offspring in a short period
    a. R-selected species
    b. Limiting factor
    c. Intraspecific competition
    d. Gross primary productivity

7. For which term is this a definition? An interaction between organisms of different species in which one type of organism benefits and the other is neither helped nor harmed to any great degree.
    a. Amensalism
    b. Parasitism
    c. Consumer
    d. Commensalism

8. For which term is this a definition? Organism that cannot synthesize the organic nutrients it needs and gets its organic nutrients by feeding off of the tissues of producers or of other consumers.
    a. heterotroph
    b. K-selected species
    c. Parasitism
    d. Decomposer

9. What is this: an acidic soil type common in Arctic and boreal areas.
    a. Humus
    b. Muskeg
    c. Aluvial Soil
    d. Laterite soil

10. Species introduced by humans to new geographic locations _____
    a. can outcompete and displace native species for biotic and abiotic resources.
    b. increase the diversity and therefore the stability of the ecosystem.
    c. are usually successful in colonizing the area.
    d. always spread because they encounter none of their natural predators.
    e. are always considered pests by ecologists.

11. Two plant species live in the same biome but on different continents. Although the two species are not at all closely related, they may appear quite similar as a result of _____
    a. gene flow.
    b. introgression.
    c. allopatric speciation.
    d. convergent evolution.
    e. parallel evolution.

12. Which of the following is characteristic of most terrestrial biomes?
    a. a distribution predicted almost entirely by rock and soil patterns
    b. vegetation demonstrating vertical layering
    c. cold winter months
    d. annual average rainfall in excess of 250 cm
    e. clear boundaries between adjacent biomes

13. A population is correctly defined as having which of the following characteristics?
I. inhabiting the same general area
II. belonging to the same species
III. possessing a constant and uniform density and dispersion
a. I only
b. III only
c. I and II only
d. II and III only
e. I, II, and III

14. The low productivity of arctic tundra ecosystems results
a. entirely because tundra has low evapotranspiration.
b. entirely because tundra soils are low in nutrients.
c. entirely because tundra soils retain water poorly.
d. because tundra soils have low nutrients and retain water poorly.
e. because tundra has low evapotranspiration and low-nutrient soils

15. How much of the Earth is covered by tundra?
a. 10%
b. 20%
c. 25%
d. 35%

16. How do caribou survive in the cold tundra climate?
a. Dense fat, with thick fur that covers all external surfaces
b. Keeping their extremities relatively cold
c. Special bones in their nose help them save water
d. All of the above

17. Tundra can be found on some mountain tops.
a. True
b. False

18. Conifer trees produce cones. What is the female cone responsible for?
a. The female cone produces the pollen.
b. The female cone produces the seed.
c. The female cone produces both.
d. The female cone produces neither.

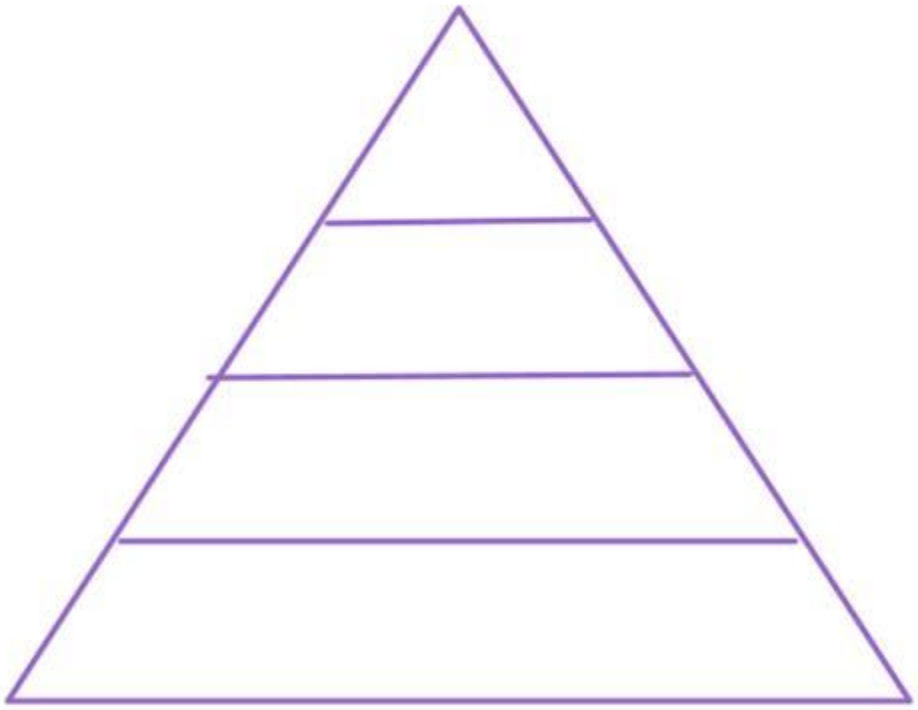
19. Global warming is causing concern for the tundra biome. Compared to the rest of the planet, the global warming in the tundra is occurring:
a. Three times the rate of more temperate regions
b. Half as quickly as more temperate regions
c. Twice the rate of more temperate regions
d. Four times the rate of more temperate regions

20. What are the main detritus eaters in the tundra?
a. Dung flies and fiddler crabs
b. Millipedes and woodlice
c. Blue butterflies and earthworms
d. Bacteria and nematodes

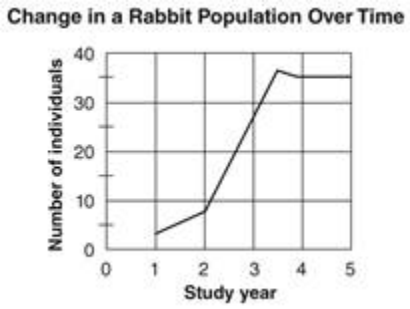
21. Primary consumers in the tundra include:
a. Ravens, mosquitos and cod
b. Reindeer, tern, and polar bears
c. Lemmings, musk ox and reindeer
d. Arctic foxes, bumble bees and musk ox

Images and Graphs (15 points)

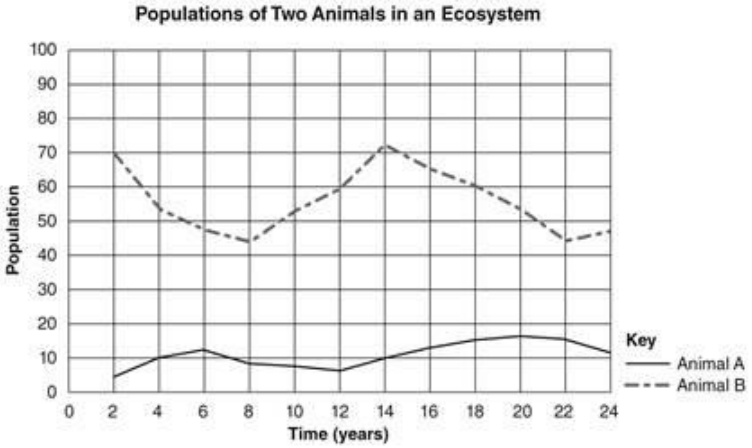
22. (8 pts)Label this trophic pyramid and indicate the kinds of organisms (use real examples like bears, fish, grass) that would be found on each level:



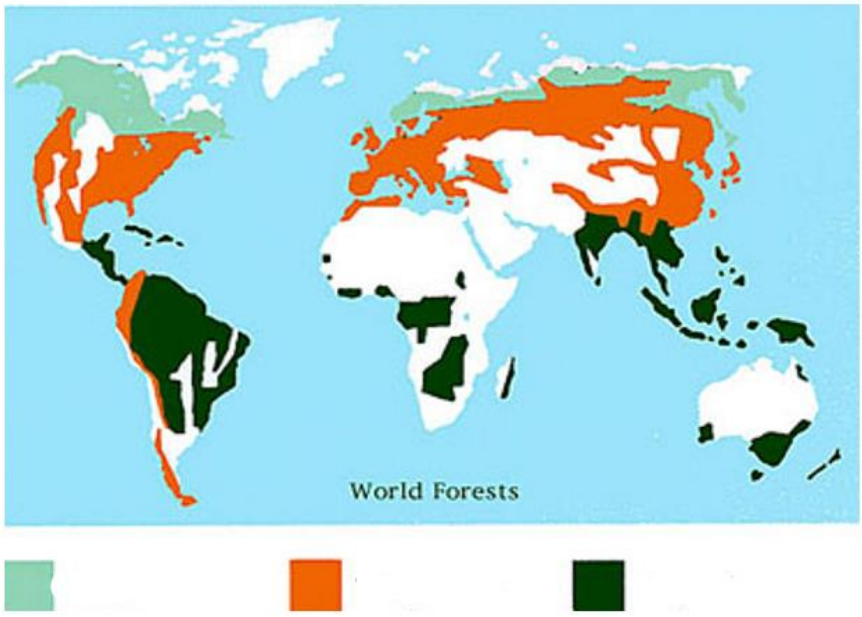
23. (2 pts) On the graph below, what would explain why the population levels off instead of decreasing drastically?



24. (2 pts) Identify the predator and prey. How can you tell which is which?



25. (3 pts) The following image shows the three main forest types on the planet. Please list them.



Light green: _____

Orange: _____

Dark Green: _____