

2009 Ecology TEST

School: _____

Names: _____

Grasslands:

1. Grasslands appear on every continent except:
 - a. Australia
 - b. Europe
 - c. Antarctica
 - d. There are grasslands on every continent

2. Which of the following is true of grasslands?
 - a. They form wherever there is too much rain for a desert
 - b. They form wherever there is not enough rain for a forest
 - c. Both A and B
 - d. Neither A nor B

3. Which of the following is NOT another name for a grassland?
 - a. Butte
 - b. Savannah
 - c. Veld
 - d. Steppe
 - e. Prairie

4. What is the average annual rainfall for a grassland?
 - a. 10-25 inches (25-55 cm)
 - b. 20-35 inches (50-90 cm)
 - c. 40-60 inches (100-150 cm)
 - d. 55-70 inches (140-180 cm)



Questions 5-7 refer to the following:

The Grassland Mouse (Akodon azarae) lives in the pampas of South America. The current average density of this species is estimated at 50 per acre, with a per capita rate of increase $r = 0.4$ (per year). Assume exponential population growth.

5. Compute the estimated population density (per acre) in 4 yrs:
 - a. 98
 - b. 130
 - c. 192
 - d. 90

6. What is the doubling time of the species?
 - a. 5 years
 - b. 2 years
 - c. 3 years
 - d. 9 years

7. If the carrying capacity of the species is 250 per acre, approximately how many years will it take to reach this level?
 - a. 5 years
 - b. 3 years
 - c. 7 years
 - d. 9 years

8. By late summer, the dense grasslands in California are often so dry that they catch fire. Which of the following is NOT a result of wildfires?
 - a. helps clear out old vegetation
 - b. adds nutrients to the soil
 - c. enables the seeds of many species to germinate
 - d. removes carbon from the nutrient cycle

9. Which of the following are true about grasslands? Choose all that apply
 - a. They can support a high density of grazing animals
 - b. There are more high trophic level predators than mid-level
 - c. Grasses are wind-pollinated plants
 - d. They lack shelter from predators
 - e. Autotrophs cannot survive because of all the grass
 - f. Dominant vertebrates are herbivorous grazers called ungulates

10. What is NOT one of the main ways humans interact with the grassland biome?
 - a. Habitation
 - b. Farming and agriculture
 - c. Raising grazing animals
 - d. None of the above

Deserts:

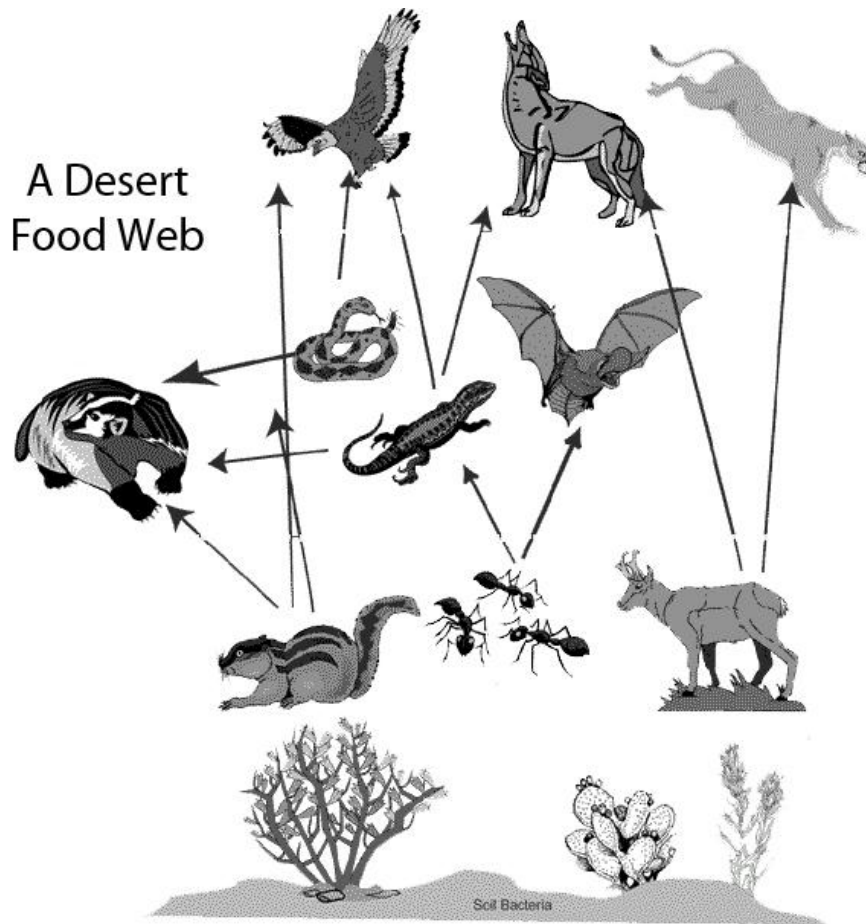
11. Deserts cover approximately _____ of the earth's surface.
 - a. 10%
 - b. 20%
 - c. 25%
 - d. 35%

12. Deserts have _____ or less annual rainfall
 - a. 6 inches (15 cm)
 - b. 10 inches (25 cm)
 - c. 20 inches (50 cm)
 - d. 28 inches (70 cm)

13. Deserts occur on every continent except:
 - a. Europe
 - b. Asia
 - c. Antarctica
 - d. There are deserts on every continent

14. The Mojave Desert is generally warm throughout the year and very hot in the summer. The winters usually bring little rainfall. This would be considered what type of desert?
 - a. Semi arid
 - b. Hot and Dry
 - c. Coastal
 - d. Cold

15. Would you expect animals in the Mojave to be diurnal or nocturnal? Why?



16. Which of the following does NOT describe what the arrows represent?
- The arrow points at the consumer
 - The arrows indicate the flow of biomass
 - The arrows point towards increasing nutrients
 - The arrows show how the energy from the producer is given to the consumer
17. The ants in this food web are:
- Primary consumers
 - Autotrophs
 - Predators
 - Decomposers
18. The Lizard has arrows pointing towards it and away from it. This indicates:
- It is an herbivore
 - It is a scavenger and a decomposer
 - It gets its energy directly from the sun
 - It is both predator and prey
19. The Atacama Desert of Chile generally has cool winters followed by moderately long, warm summers. This describes what kind of desert?
- Coastal
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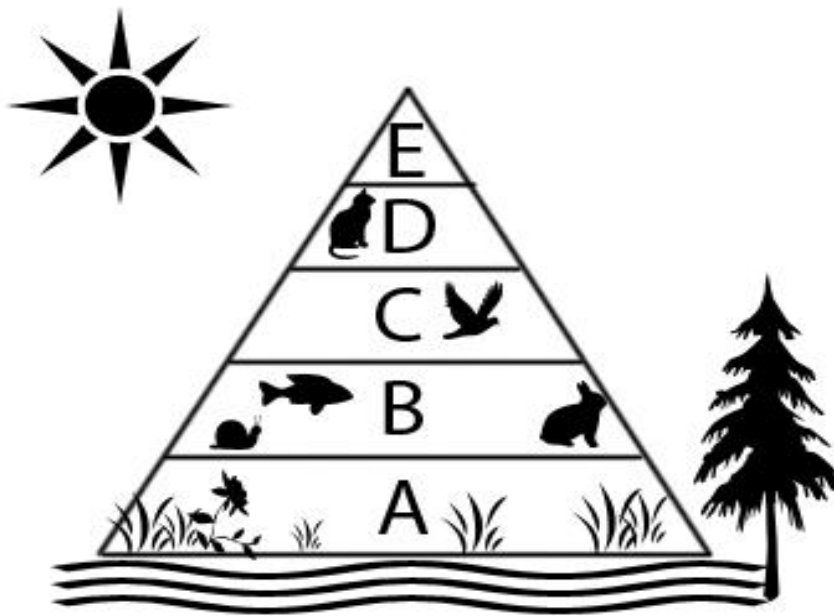
20. Which of the following is true about spiny plants?
- The spines produce enough shade to reduce transpiration
 - Photosynthesis occurs only in the spines
 - The spines are the major site for storing moisture
 - All spiny plants are leafless
21. There are very few large mammals in deserts. Which of the following does NOT explain why?
- Most large animals are not capable of storing sufficient water
 - Most large animals are not capable of withstanding the heat
 - Large mammals only like temperate grasslands
 - Deserts often provide little shelter from the sun for large animals
22. Despite being a desert, when it does rain, deserts are prone to flooding. Why?
- The water does not have rivers and streams to run into
 - The extremely dry soil does not absorb sudden heavy rainfall quickly.
 - Because of the type of clouds that form over deserts
 - There is no canopy to redirect the rain
23. Which would you NOT expect to see in a Hot and Dry desert?
- Prickly Pear
 - Agaves
 - Kangaroo rats
 - Whitetail Deer
24. In coastal deserts, amphibians that pass through larval stages have accelerated life cycles. Why do you think this is?
25. Burrowing desert animals tend to favor what type of soil?
- Rocky
 - Kaolins
 - Alluvial
 - Clay

General:

26. Which of the following is NOT an abiotic factor?
- a. Temperature
 - b. Oxygen
 - c. Sun
 - d. Moss

Match the following symbiotic relationships with the proper term:

27. Neutralism _____ a. Flowering plants and bees
28. Commensalism _____ b. Plasmodium protists (cause Malaria) and humans
29. Mutualism _____ c. Tarantulas and Cacti
30. Competition _____ d. Clownfish and sea anemones
31. Parasitism _____ e. Ducks and geese (both eat the same food)
32. What is an invasive species?
- a. Any species that is brought in by extraterrestrial visitors.
 - b. Any species, including its seeds, eggs, spores, and biological material capable of propagation that is not native to a given ecosystem.
 - c. Any species that makes its way into one biome from another kind and survives.
 - d. Any egg or spore that is transitioned from one community to another and fills the niche of another animal.
 - e. All of the above
33. In a natural ecosystem the biomass of herbivores will be _____ the biomass of carnivores.
- a. independent of
 - b. the same as
 - c. less than
 - d. greater than
34. Living organisms that are part of an environment are:
- a. Biotic
 - b. Abiotic
 - c. Trophic
 - d. Consumers



35. In the trophic pyramid shown above, which letter represents tertiary consumers?

- A B C D E The sun

36. In the trophic pyramid shown above, which letter represents autotrophs?

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37. In the trophic pyramid shown above, which letter represents an abiotic factor?

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38. What can be said about the biomass of each trophic level as it moves up through the pyramid?

- a. It increases
- b. It decreases
- c. It may increase or decrease
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39. Which statement about Phosphorus cycling is false?

- a. Phosphorus, in the form of phosphate, is taken up directly by plants.
- b. Phosphorus is concentrated in marine sediments.
- c. DNA and ATP contain phosphorus.
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40. "Natural ecosystems provide an array of basic processes that affect humans." Which statement does NOT support this quotation?

- a. bacteria of decay help recycle materials
- b. trees add to the amount of atmospheric oxygen
- c. treated sewage is less damaging to the environment than untreated sewage
- d. lichens and mosses living on rocks help to break the rocks down, forming soil

41. Denitrification involves the conversion of _____.
- ammonia to nitrite
 - nitrate to nitrogen
 - nitrogen to nitrate
 - ammonia to nitrogen
42. Unlike the nitrogen and carbon cycle, the phosphorous cycle is the only cycle where the phosphorous molecules never enter:
- Rocks
 - Water
 - Plants
 - Atmosphere
43. Which of the following interactions is not an example of predation?
- ectoparasite and host
 - herbivore and plant
 - honeybee and flower
 - pathogen and host
 - carnivore and prey
44. Which of the following is NOT a trait of organisms that would make them more susceptible to extinction?
- longer life span
 - tends to invest a large amount of resources in the next generation
 - tends to demonstrate a Malthusian growth strategy
 - larger body dimensions
 - specialized diet
45. Hypothetical question: At the polar ice cap, water melting from the cap sinks due to the density of the water, flowing to the bottom of the ocean floor bringing oxygen with it. This water typically maintains a temperature of 4 degrees Celsius. Fish A lives in this oxygen-saturated environment, and cannot survive if the dissolved oxygen level gets at or below 8 ppm. However, due to global warming, the temperature changes .05 degrees Celsius per year. Furthermore, with each 1 degree temperature change, the dissolved oxygen declines by 0.5 ppm. If the current level of dissolved oxygen is 12ppm, how many years would it take for this habitat to become uninhabitable for Fish A?

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School: ___ **ANSWER KEY_DO NOT COPY WITH TEST!!!**

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Grasslands:

1. Grasslands appear on every continent except:
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 - c. Antarctica (2 pts)
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 - c. Both A and B (2 pts)
 - d. Neither A nor B

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 - c. 192 (2 pts)
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 - 9 years
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 - There are more high trophic level predators than mid-level (2 pts for NOT choosing)
 - Grasses are wind-pollinated plants (2 pts)
 - They lack shelter from predators (2 pts)
 - Autotrophs cannot survive because of all the grass (2 pts for NOT choosing)
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10. What is NOT one of the main ways humans interact with the grassland biome?
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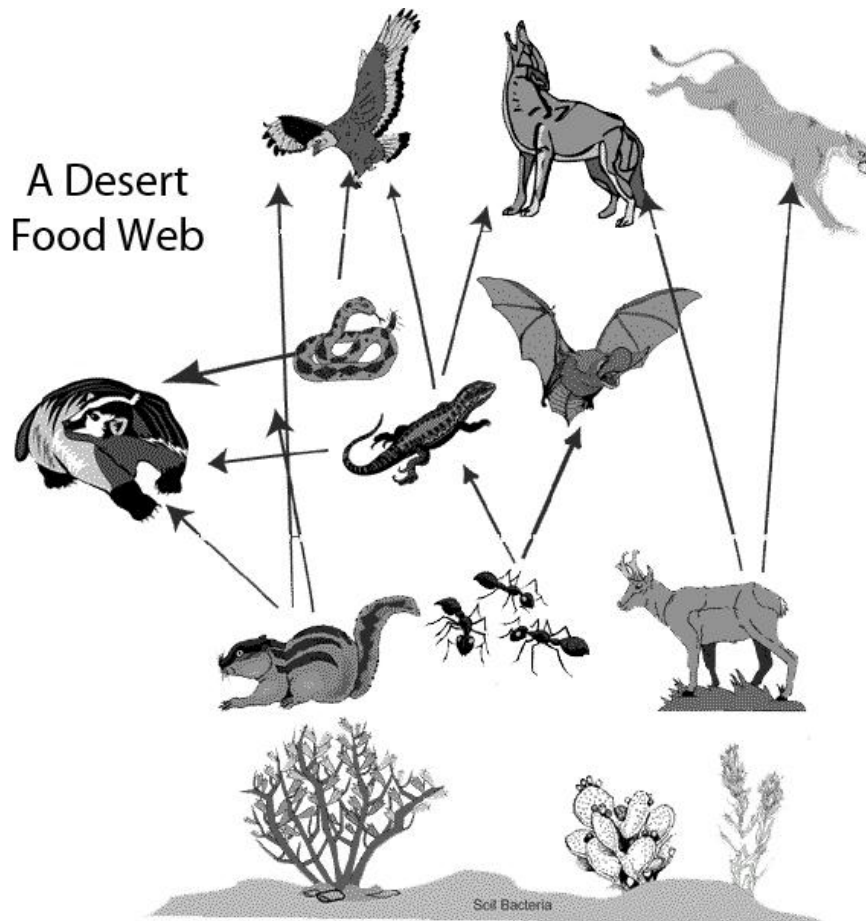
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Nocturnal. The animals stay inactive in protected hideaways during the hot day and come out to forage at dusk, dawn or at night, when the desert is cooler.



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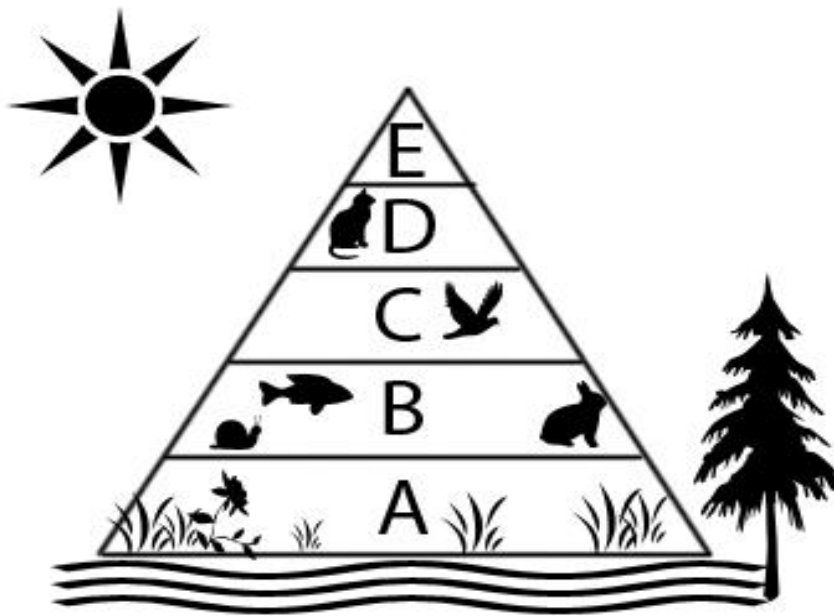
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