ALBERTA BIOLOGY 20 · UNIT 2 · 25 QUESTIONS

Ecosystems and Population Change — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Which of the following is an abiotic component of a grassland ecosystem?**

- A Sunlight reaching the soil
- B Grasses growing in the soil
- C Bacteria that decompose dead matter
- D Insects that feed on leaves

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2 **All of the moose living in one area of a provincial park at the same time make up a**

A Community

B Population

C Ecosystem

D Habitat

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3 **Biologists counted 360 white-tailed deer in a study area of 45 km². The population density of the deer, in individuals per km², is ____.**

ANSWER _____

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4 **The ecological niche of a species is best described as**

A the place where the species lives

B the number of individuals of the species in an area

C the role of the species in its ecosystem, including the resources it uses and its interactions with other species

D the position of the species in a food chain

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5 **The graph shows the number of species in an area recovering after a wildfire. The number of species present 20 years after the wildfire is _____**

ANSWER

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6 **In one year, a caribou population had 240 births, 60 immigrants, 150 deaths, and 90 emigrants. The change in population size, Δ N, for the year was**

A 60

B 240

C 300

D 480

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7 **A population of 2500 rabbits increased by 300 individuals over one year. The per capita growth rate of the population for that year was ____.**

ANSWER

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8 **Which of the following is a density-independent limiting factor for a deer population?**

A Competition for food among the deer

B Predation by wolves

C The spread of a contagious disease

D A severe drought that reduces the water supply

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9 **A bee collects nectar from a flower and, in the process, transfers pollen that allows the flower to reproduce. The relationship between the bee and the flower is an example of**

A Parasitism

B Commensalism

C Mutualism

D Predation

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10 **The graph shows the number of cells in a bacterial culture over time. The number of cells present after 4 hours is ____**

ANSWER _____

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11 **A population showing logistic growth toward a carrying capacity K grows most rapidly when**

A the population size is very small

B the population size is about half of K

C the population size has just reached K

D the population size is well above K

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12 **Which of the following is an example of intraspecific competition?**

- **A** Two male elk fighting for the opportunity to mate
- **B** A wolf pack hunting a moose
- **C** Spruce trees and pine trees growing toward the same light
- **D** Two different species of birds eating the same insects

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13 **A closed population of Canada geese has 4800 individuals. During one year there are 960 births and 720 deaths. The population size at the end of the year is ____.**

ANSWER _____

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14 **A wildfire burns a mature forest in northern Alberta, leaving the soil intact. The first plant species most likely to colonize the burned area are**

A lichens growing on bare rock

B seedlings of spruce and pine trees

C mature shrubs and trees

D grasses and fireweed

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15 **The graph shows hare and lynx populations over time. The solid curve is the hare population and the dashed curve is the lynx population. The lynx population peaks about ____ years after the hare population peaks.**

ANSWER _____

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16 **The carrying capacity of a lake for a fish population is 1200 fish. According to the logistic growth model, the population will grow fastest when it contains approximately**

- A 150 fish
- B 600 fish
- C 1200 fish
- D 2400 fish

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17 **In a dry grassland, plants of one species are found in groups around the few places where water collects. This pattern of population distribution is described as**

- A Random
- B Clumped
- C Uniform
- D Dispersed

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18 **Purple loosestrife, a plant introduced from Europe, spreads rapidly through Alberta wetlands. A major reason introduced species such as this often grow out of control is that they**

A always reproduce asexually

B are closely related to native species

C produce more seeds than any native species

D have few or no natural predators or diseases in the new environment

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19 **Cattle egrets follow grazing cattle and feed on insects that the cattle stir up from the grass. The cattle are neither helped nor harmed. This relationship is an example of**

A Commensalism

B Mutualism

C Parasitism

D Competition

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20 **A wolf population has 850 individuals. In one year there are 170 births, 34 immigrants, 85 deaths, and 51 emigrants. The per capita growth rate of the population for that year was ____.**

ANSWER _____

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21 **Which characteristic most helps a population survive when its environment changes suddenly?**

A All individuals have identical genes

B The population is very small

C The population has a high level of genetic diversity

D Individuals reproduce only once in their lifetime

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22 **The graph shows a deer population over time. The carrying capacity of the habitat is 1000 deer. The population first rises above the carrying capacity in year ____**

ANSWER _____

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23 **Three species of warblers feed in the same spruce trees, but each species hunts for insects in a different part of the tree. This behaviour reduces competition between the species and is an example of**

- **A** Resource partitioning
- **B** Competitive exclusion
- **C** Primary succession
- **D** Commensalism

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24 **Some events in primary succession on bare rock are listed below. 1 Shrubs and small trees become established 2 Lichens colonize the rock and begin to break it down 3 Grasses and small flowering plants grow as the soil deepens 4 A mature forest community develops The order in which the events occur, from first to last, is ____.**

ANSWER _____

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25

A tapeworm lives in the intestine of a dog, absorbing nutrients from the food the dog eats. The dog loses weight and becomes weak. Which row correctly identifies this interaction and its effect on the two species?

A Mutualism Both the tapeworm and the dog benefit

B Commensalism The tapeworm benefits and the dog is unaffected

C Parasitism The tapeworm benefits and the dog is harmed

D Predation The tapeworm benefits and the dog is harmed

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ANSWER KEY

1. A
2. B
3. 8
4. C
5. 20
6. A
7. 0.12
8. D
9. C
10. 8000
11. B
12. A
13. 5040
14. D
15. 2
16. B
17. B
18. D
19. A
20. 0.08
21. C
22. 2
23. A
24. 2314
25. C

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