Animal Diversity 9th edition Hickman Test Bank

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CORRECT ANSWERS ARE LOCATED IN THE 2ND HALF OF THIS DOC.

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

1) The term "ecology" was first introduced by whom?
   A) George Gaylord Simpson
   B) Charles Elton
   C) Ernst Haeckel
   D) Lawrence J. Henderson
   E) E.O. Wilson

2) An animal population is a group of animals that form which of the following?
   A) A disparate community within an ecosystem
   B) A reproductive community with members of the same species
   C) Individuals in a family that do not reproduce
   D) Various species living in a community

3) A community is made up of
   A) different populations of organisms living in the same area.
   B) living organisms and the nonliving environment.
   C) ecosystems.
   D) just the nonliving environment.

4) A study of both a living community and all of its physical factors would focus on what level of organization?
   A) Trophic levels
   B) Various biomes
   C) The biosphere
   D) Ecosystem

5) A frog is found along the edge of a pond. The location where the frog lives would be the frog's _____.
   A) niche
   B) habitat
   C) biotic component
   D) abiotic component

6) A species of bat is found in (1) groves and grasslands, (2) has a 4 degree temperature limit and (3) is at the end of its food chain. This defines its
   A) range and habitat.
   B) habitat and niche.
   C) range and ecology.
   D) ecology.

7) While an animal can survive (determined by lab tests) between the temperatures of 10°C and 30°C, we find in nature that the animal only exists between 16°C and 28°C. This is a difference between the _____and _____.
   A) fundamental habitat; realized habitat
   B) fundamental niche; realized niche
   C) realized habitat; fundamental habitat
   D) realized niche; fundamental niche

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8) When adding sterilized screw-worm flies to populations in an attempt to eradicate them from the United States, scientists found that not all of the adult screw-worm flies, often from different areas, were mating with each other. Each of the internally mating populations constituted a
   A) lineage.
   B) limiting resource.
   C) clone.
   D) deme.
   E) cohort.

9) The sponge constitutes an animal that is
   A) unitary due to cloning.
   B) modular due to cloning.
   C) a cohort due to cloning.
   D) unitary due to fragmentation.
   E) unitary due to age structure.

10) Whether most young of an animal species die soon after they are born or grow up such that most of the population dies in old age is called
   A) carrying capacity.
   B) intrinsic rate of growth.
   C) cohort.
   D) survivorship.
   E) the limiting resource.

11) With over one billion people, but less land to farm than is in the United States, the People's Republic of China instituted a one-child-per-family policy. This immediately changed which numerical value in the logistic growth equation?
   A) r
   B) N
   C) K
   D) None of the choices are correct

12) If severe floods reduced the amount of agricultural land in China, which term in the logistic growth formula will change?
   A) r
   B) N
   C) K

13) For a population experiencing logistic growth, what is the most likely result when N very closely approaches the value of K?
   A) The population grows as fast as it can, or r(N).
   B) The population levels off near carrying capacity.
   C) The population exceeds carrying capacity and begins to decline.
   D) The population may grow or decline quickly, depending upon the value of r.

14) The maximum number of individuals of a species that an area can support is the
   A) growth rate.
   B) carrying capacity.
   C) net productivity.
   D) gross productivity.

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15) Natural populations are controlled by density-dependent and density-independent forces. What is an example of a density *independent* factor?
A) Adverse weather
B) Food supply
C) Supply of nest sites
D) Supply of mates

16) Commensalism differs from mutualism by the fact that in commensalism,
A) one organism is not affected.
B) one organism is always harmed.
C) both organisms benefit.
D) neither organism benefits.

17) The carrying capacity of the environment is determined by
A) the limiting resource in the environment.
B) the reproductive rate of an animal group.
C) the occurrence of disease.
D) a complex "balance of nature" that remains to be explained in terms that scientists can calculate.
E) the resources that are in surplus in the environment.

18) Two species of caterpillar feed on the same species of corn. On close inspection, the two insects are found to be feeding on different parts of the corn, the root and the stem. What principle does this support?
A) Keystone species
B) Niche overlap
C) Competitive exclusion
D) Batesian mimicry

19) MacArthur observed that five species of similar warblers coexisted on spruce trees, in feeding *guilds*, because they
A) ate different kinds of insects.
B) were kept below their carrying capacities by predators.
C) foraged in different places on the tree.
D) cooperated in their foraging habits.

20) What is a keystone species?
A) A predator that preys upon many different species in a community
B) A species whose removal causes major shifts in other species in a community
C) A mimic that has the same appearance as another, poisonous species
D) A prey species that must be present for its predator to survive
E) The most abundant species in a particular community

21) The energy storage in an animal's tissues is called
A) primary productivity.
B) gross productivity.
C) standing crop.
D) biomass.

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22) We could state a biological "law" that all food chains begin with photosynthetic producers if it wasn't for the exception of
A) lichens that make their own food energy.
B) anaerobic bacteria such as the tetanus agent.
C) chemoautotrophic bacteria found around deep ocean thermal vents.
D) humans making synthetic food.

23) In tidal pools, a food pyramid is inverted with a small base of phytoplankton supporting zooplankton consumers. How can this be explained?
A) The pyramid is an energy pyramid and the trophic level occupied by zooplankton contains more energy than the level occupied by phytoplankton.
B) The pyramid is a numbers pyramid showing that only few phytoplankton support many zooplankton.
C) These phytoplankton are actually deriving their food from dying animals, thus the pyramid is inverted.
D) The pyramid is a pyramid of biomass and the standing crop of phytoplankton has less biomass than the standing crop of zooplankton.

24) Most energy enters the ecosystem as
A) cell respiration.
B) plant growth.
C) chemical bond energy.
D) oxygen.
E) light energy.

25) The producers in deep-sea thermal vent communities are
A) bivalve molluscs.
B) giant pogonophoran worms.
C) deep-sea kelp.
D) chemoautotrophic bacteria.

26) Ecologists have found that
A) life as we know it does not match the energy laws of physics.
B) ecology cannot be explained using principles from chemistry and physics.
C) it is possible to capture all the photosynthetic energy absorbed as molecules of glucose.
D) energy flows one way through ecosystems and requires external input.

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FILL IN THE BLANK. Write the word or phrase that best completes each statement or answers the question.

27) An assemblage of living organisms sharing the same environment is referred to as a _____.

28) Almost all life depends on the energy from the _____.

29) The deep-sea rift communities in the Pacific depend on the action of chemoautotrophic _____to derive energy from the oxidation of hydrogen sulfide.

30) The energy accumulated by plants, less that used in respiration, is the _____ _____ _____.

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31) A series of steps in which plants are eaten by consumers, which are themselves eaten by other consumers, is called the _____ _____.

32) There can usually be no more than 4 or 5 trophic levels in a food chain because there is such a great loss of _____between trophic levels.

33) A species that when removed from a community changes the structure of the community is called a _____species.

34) An interaction in which one species derives benefit from its host but neither benefits nor harms the host is _____.

35) In the logistic equation to describe the growth of populations, r is the intrinsic rate of increase of the population, and _____is the carrying capacity of the environment.

36) Some conditions that can limit population size are severe cold, drought, fire, etc.; such conditions are regarded as density _____.

37) Only _____are able to purposely and directly increase their carrying capacity.

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

38) What prevents *all* species from evolving toward a survivorship curve where most individuals live to old age?

39) When pioneers settled the Midwest and Plains states, they killed or drove off the American bison, cougar, wolf, etc. Why does the elimination of such natural predators cause ecological problems?

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40) What is the role of decomposers in the cycling of carbon? What would eventually occur if decomposers lost the ability to break down plant and fungal matter?

41) Can the biomass of all animals on earth ever exceed the biomass of all of the plants? Why? or why not?

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42) Explain the concept of "competitive exclusion." Give several examples that clearly illustrate this concept.

43) Distinguish between a habitat and a niche. Can these terms ever refer to the same thing?

44) What is the difference between a species' fundamental niche and its realized niche? Why is this important to the study of ecology?

45) Explain the following concepts: age structure, survivorship curves, and intrinsic rate of increase.

46) Identify the following terms: r, K, N. Why does the term (K-N)/K approach zero (no slope) as N approaches the value of K?

47) Compare logistic growth with exponential growth. Would a pest insect species more likely exhibit a logistic growth curve or an exponential growth curve? Explain your reasoning.

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48) Discuss the different ecological effects of density independent factors and density-dependent factors on animal populations.

49) Discuss the paradox of biodiversity concerning species isolation and potential for both speciation and extinction.

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50) How does mutualism differ from commensalism? How would you experimentally determine if two species are living in a commensal or mutualistic relationship?

51) Does competition promote the process of speciation? Why or why not?

52) Discuss how the following terms are interrelated: niche overlap, competitive exclusion, character displacement, and guild. How do all these terms relate to the concept of competition?

53) Discuss how the extinction of a keystone species can affect an ecosystem.

54) Are the benefits derived from Mullerian mimics always equal for each member of the mimicry complex?

55) Discuss how ecosystems are based on energy transfer at different trophic levels.

56) Describe the functioning and possible patterns associated with metapopulation dynamics.

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Answer Key

Test name: Chapter 02

1) C
2) B
3) A
4) D
5) B
6) B
7) B
8) D
9) B
10) D
11) B
12) C
13) B
14) B
15) A
16) A
17) A
18) C
19) C
20) B
21) D
22) C
23) D
24) E
25) D
26) D
27) community
28) sun
29) bacteria
30) net primary productivity
31) food chain
32) energy
33) keystone
34) commensalism
35) K
36) independent
37) humans

38) Essay
Answers will vary.

39) Essay
Answers will vary.

40) Essay
Answers will vary.

41) Essay
Answers will vary.

42) Essay
Answers will vary.

43) Essay
Answers will vary.

44) Essay
Answers will vary.

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45) Essay
Answers will vary.

46) Essay
Answers will vary.

47) Essay
Answers will vary.

48) Essay
Answers will vary.

49) Essay
Answers will vary.

50) Essay
Answers will vary.

51) Essay

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Answers will vary.

52) Essay
Answers will vary.

53) Essay
Answers will vary.

54) Essay
Answers will vary.

55) Essay
Answers will vary.

56) Essay
Answers will vary.

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