

1.	A set of interacting species that live in the same area is called a(n):
a)	ecological community
b)	community level effect
c)	keystone species
d)	ecosystem
e)	individual species
	Ans: a Difficulty: Easy Link to: 6.2

2.	A species upon which the entire ecosystem depends on is called a(n):
a)	ecological community
b)	community level effect
c)	keystone species
d)	ecosystem
e)	individual species
	Ans: c Difficulty: Easy Link to: 6.2

3.	The simplest environmental unit that can support life is called a(n):
a)	ecological community
b)	community level effect
c)	keystone species
d)	ecosystem
e)	individual species
	Ans: d Difficulty: Easy Link to: 6.1

4.	According to the Case Study in the <u>Environmental Science</u> textbook ("The Acorn Connection"), the incidence of lyme disease among humans increases in years when the gypsy moth population is low because:
a)	an abundant acorn crop draws deer into the woods
b)	during these years, small plants and seedlings grow particularly fast
c)	gypsy moth larvae are eaten by mice
d)	there are "bumper years" of lyme disease

e)	ticks like to feed on human blood
	Ans: a Difficulty: Medium Link to: Case Study

5.	The <u>Environmental Science</u> textbook outlines the relatively simple food chain that exists in hot springs such as in Yellowstone National Park, including the following organisms: (A) herbivorous flies (B) carnivorous flies (C) decomposers (D) photosynthetic bacteria What would be the correct order of these organisms from lowest trophic level to highest trophic level:
a)	C, A, B, D
b)	B, A, D, C
c)	D, A, B, C
d)	B, A, C, D
e)	C, D, A, B
	Ans: c Difficulty: Medium Link to: A Closer Look 6.1

6.	Which of the following is an example of three different species on three different trophic levels, listed from lowest level to highest:
a)	shrubs, trees, giraffes
b)	humans, cows, grass
c)	sharks, herbivorous fish, carnivorous fish
d)	moss, reindeer, wolves
e)	dirt, corn, humans
	Ans: d Difficulty: Easy Link to: 6.1

7.	The most basic processes in an ecosystem are:
a)	photosynthesis and respiration
b)	transport and storage of food
c)	trophic chains and storage of food
d)	flow of energy and cycling of chemical elements
e)	waste decomposition and cycling of energy

	<p>Ans: d Difficulty: Easy Link to: 6.1</p>
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8.	All of the following are artificial ecosystems except:
a)	fish hatchery ponds
b)	final settling ponds at a sewage treatment plant
c)	pastureland for grazing cows
d)	city parks
e)	estuaries
	<p>Ans: e Difficulty: Easy Link to: 6.1</p>

9.	Energy, chemical elements, and other compounds are transferred from creature to creature along:
a)	symbiotic links
b)	food chains
c)	biogeochemical cycles
d)	trophic levels
e)	trophic paths
	<p>Ans: b Difficulty: Easy Link to: 6.1</p>

10.	<p>In hot springs live photosynthetic bacteria and algae. Some flies, called <i>Ephydrid</i> flies lay eggs onto the algae mats. Their larvae feed on the algae and the bacteria. Another fly, the <i>Colichopodid</i> fly feeds on the eggs and larvae of the herbivorous fly. Dragonflies, wasps, spiders, tiger beetles also feed on the <i>Ephydrid</i> fly. The <i>Ephydrid</i> flies also have a parasite, a red mite that feeds of the fly eggs and travels attached to the body of the fly. Another animal, a small wasp lays eggs within the fly larvae. All wastes and dead material are fed on by decomposers, which in hot springs are primarily bacteria. The algae and photosynthetic bacteria living in hot springs feed on the _____.</p>
a)	first trophic level
b)	second trophic level
c)	third trophic level
d)	fourth trophic level
e)	fifth trophic level

	<p>Ans: a</p> <p>Difficulty: Easy</p> <p>Link to: A Closer Look 6.1</p>
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11.	<p>In hot springs live photosynthetic bacteria and algae. Some flies, called <i>Ephydrid</i> flies lie eggs onto the algae mats. Their larvae feed on the algae and the bacteria. Another fly, the <i>Colichopodid</i> fly feeds on the eggs and larvae of the herbivorous fly. Dragonflies, wasps, spiders, tiger beetles also feed on the <i>Ephydrid</i> fly. The <i>Ephydrid</i> flies also have a parasite, a red mite that feeds of the fly eggs and travels attached to the body of the fly. Another animal, a small wasp lays eggs within the fly larvae. All wastes and dead material are fed on by decomposers, which in hot springs are primarily bacteria. Dragonflies, wasps, spiders, tiger beetles that feed on the <i>Ephydrid</i> fly feed on the _____.</p>
a)	first trophic level
b)	second trophic level
c)	third trophic level
d)	fourth trophic level
e)	fifth trophic level

	<p>Ans: c</p> <p>Difficulty: Easy</p> <p>Link to: A Closer Look 6.1</p>
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12.	<p>In hot springs live photosynthetic bacteria and algae. Some flies, called <i>Ephydrid</i> flies lie eggs onto the algae mats. Their larvae feed on the algae and the bacteria. Another fly, the <i>Colichopodid</i> fly feeds on the eggs and larvae of the herbivorous fly. Dragonflies, wasps, spiders, tiger beetles also feed on the <i>Ephydrid</i> fly. The <i>Ephydrid</i> flies also have a parasite, a red mite that feeds of the fly eggs and travels attached to the body of the fly. Another animal, a small wasp lays eggs within the fly larvae. All wastes and dead material are fed on by decomposers, which in hot springs are primarily bacteria. The <i>Ephydrid</i> fly is an example of a</p>
a)	carnivore
b)	herbivore
c)	parasite
d)	decompose
e)	chemosynthesizer

	<p>Ans: b</p> <p>Difficulty: Easy</p> <p>Link to: A Closer Look 6.1</p>
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13.	<p>In hot springs live photosynthetic bacteria and algae. Some flies, called <i>Ephydrid</i> flies lay eggs onto the algae mats. Their larvae feed on the algae and the bacteria. Another fly, the <i>Colichopodid</i> fly feeds on the eggs and larvae of the herbivorous fly. Dragonflies, wasps, spiders, tiger beetles also feed on the <i>Ephydrid</i> fly. The <i>Ephydrid</i> flies also have a parasite, a red mite that feeds of the fly eggs and travels attached to the body of the fly. Another animal, a small wasp lays eggs within the fly larvae. All wastes and dead material are fed on by decomposers, which in hot springs are primarily bacteria. The small wasp that lays eggs within the <i>Ephydrid</i> fly larvae feed on the _____ and is a _____.</p>
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a)	first trophic level, herbivore
b)	second trophic level, carnivore
c)	third trophic level, parasite
d)	fourth trophic level, decompose
e)	fifth trophic level, predator

	<p>Ans: c</p> <p>Difficulty: Easy</p> <p>Link to: A Closer Look 6.1</p>
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14.	Which of the following are able to decompose organic matter?
	I. bacteria
	II. fungi
	III. algae

a)	I
b)	II
c)	III
d)	I and II
e)	I , II and III

	<p>Ans: d</p> <p>Difficulty: Easy</p> <p>Link to: 6.1</p>
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15.	An ecological community is:
a)	a set of interacting species that occur in the same place

b)	a system of interdependent living and nonliving components in a given area over a given period of time
c)	a system based on the living environment
d)	the smallest group that has all characteristics necessary to sustain life
e)	the total physical and chemical environment of a continent
	Ans: a Difficulty: Medium Link to: 6.3

16.	"Community-level interactions" refer to:	
a)	the fact that changes in one species in an ecological community affect others, even species they don't interact with directly	
b)	the transfer of energy and elements from one community to another	
c)	elimination of an important keystone species from a community	
d)	social, non-competitive interactions within a community	
e)	competitive interactions within an ecosystem	
	Ans: a Difficulty: Medium Link to: 6.2	

17.	All of the following are able to produce food by direct interaction with sunlight except :	
a)	trees	
b)	kelp	
c)	green algae	
d)	fungi	
e)	corals	
	Ans: d Difficulty: Easy Link to: 6.1	

18.	Which population is <u>most</u> likely to exhibit an evolutionary response to a change in its environment?	
a)	a population in which all organisms are genetically identical and which has a high rate of reproduction	
b)	a population which has high genetic variability	

c)	a population in which the effect of intraspecific competition is reduced by behavioral adaptations
d)	a population undergoing genetic drift
e)	a population highly susceptible to predators
	Ans: b Difficulty: Medium Link to: 6.2

19.	The presence of sea otters within a kelp forest community results in
a)	an increase in species diversity
b)	a decrease in species diversity
c)	no change in species diversity
	Ans: a Difficulty: Easy Link to: 6.2

20.	The development from early to middle stages of succession results in
a)	an increase in species diversity
b)	a decrease in species diversity
c)	no change in species diversity
	Ans: a Difficulty: Easy Link to: 6.1

21.	Intensive farming results in
a)	an increase in species diversity
b)	a decrease in species diversity
c)	no change in species diversity
	Ans: b Difficulty: Easy Link to: 6.4

22.	Occasional (at least once every 50 years), light fires in jack pine forests in Michigan result in
a)	an increase in species diversity
b)	a decrease in species diversity
c)	no change in species diversity

	Ans: a Difficulty: Easy Link to: 6.1
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23.	Heterogeneity of the physical environment results in
a)	an increase in species diversity
b)	a decrease in species diversity
c)	no change in species diversity
	Ans: a Difficulty: Easy Link to: 6.1

24.	Moderate grazing in a pasture in comparison to no grazing results in
a)	an increase in species diversity
b)	a decrease in species diversity
c)	no change in species diversity
	Ans: a Difficulty: Easy Link to: 6.4

25.	In what way did healthy mangrove forest ecosystems saved lives during the Asian tsunami tragedy in December 2004?
a)	mangroves kept the shoreline intact
b)	mangroves allowed the incoming water to infiltrate into the subsurface
c)	mangroves inversed the wave action
d)	mangroves acted as a buffer, absorbing wave action
e)	mangroves provided trees for people to climb on
	Ans: d Difficulty: Easy Link to: 6.1

26.	Which of the following statements is true about omnivores?
a)	omnivores only feed on dead animals
b)	omnivores feed on several on trophic levels
c)	omnivores feed on dead organic material
d)	omnivores are aquatic animals that feed on algae
e)	omnivores bacteria using chemosynthesis for food production

	<p>Ans: b Difficulty: Easy Link to: 6.1</p>
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27.	A zoo is an example of:
a)	an ecological community
b)	an ecosystem
c)	the domestication of individuals from different ecosystems
d)	the holistic view of the community
e)	the tragedy of the commons
	<p>Ans: c Difficulty: Easy Link to: 6.3</p>

28.	Sea otters live along the Pacific coast of the U.S. and Canada. The otters feed upon sea urchins, and urchins feed upon kelp. Reduction in the number of sea otters leads to an explosion in sea urchin populations, declines in kelp, and declines in all other species that feed upon kelp. Given this information, sea otters are an example of a(n):
a)	food chain
b)	dominant species
c)	omnivore
d)	keystone species
e)	an important animal
	<p>Ans: d Difficulty: Easy Link to: 6.2</p>

29.	As Salmon migrates from the ocean to rivers and lakes, it interacts biologically and chemically with marine, aquatic, and nearby terrestrial species, This is an example to illustrate that:
a)	that ecosystems with multiple functioning trophic levels are healthier
b)	that salmon are a dominant species
c)	that aquatic food chains are essentially no different than terrestrial food chains
d)	that salmon are a keystone species
e)	ecosystem boundaries are gradual, not abrupt

	<p>Ans: e</p> <p>Difficulty: Medium</p> <p>Link to: 6.2</p>
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30.	According to the <u>Environmental Science</u> text, the difference between an ecosystem and an ecological community is:
a)	plants
b)	energy
c)	humans
d)	the non-living components of the environment
e)	the two terms are equivalent
	<p>Ans: d</p> <p>Difficulty: Easy</p> <p>Link to: 6.1, 6.2</p>

31.	All of the following are fundamental elements of an ecosystem and must be present for sustained life except :
a)	a flow of energy
b)	at least one species that produces food from inorganic compounds
c)	at least one species that feeds upon the others in the ecosystem
d)	at least one species that decomposes the wastes of the others in the ecosystem
e)	a cycling of chemical nutrients
	<p>Ans: c</p> <p>Difficulty: Medium</p> <p>Link to: 6.1</p>

32.	Green plants, algae and certain bacteria produce sugar through the process of photosynthesis. To which trophic level do they belong to?
a)	first trophic level
b)	second trophic level
c)	third trophic level
d)	fourth trophic level
e)	first and second trophic level
	<p>Ans: a</p> <p>Difficulty: Easy</p> <p>Link to: 6.1</p>

33.	According to the <u>Environmental Science</u> text, an ecosystem:
a)	introduces life to the environment
b)	is the smallest system that includes and sustains life
c)	is a set of interacting species that occur at the same place
d)	is equivalent to an ecological community
e)	is equivalent to an ecological community but excludes natural resources
	Ans: b Difficulty: Easy Link to: 6.1

34.	The simplest ecosystem needs _____ to function properly.
a)	one species that produces its own food, also decomposes it, plus water and air
b)	air and water
c)	one species that produces its own food, and a second that decomposes the waste of the first one, plus water and air
d)	nutrients and water
e)	there is no simple ecosystem
	Ans: c Difficulty: Easy Link to: 6.1

35.	In an ecosystem where wolves feed upon moose, the ratio between the production of moose and the production of wolves is an example of:
a)	trophic-level efficiency
b)	mineral cycling
c)	succession
d)	population regulation
e)	balance of nature
	Ans: a Difficulty: Medium Link to: 6.1

36.	In the "holistic view" of ecological communities:
a)	all individuals are replaceable
b)	all individuals are keystone species
c)	all species can easily be substituted by others
d)	species association vary from site to site

e)	species association change in time
	Ans: b Difficulty: Medium Link to: 6.2

37.	An ecosystem:
a)	is a producer of energy
b)	lies intermediate between a source of energy and a sink for energy
c)	neither gains nor loses energy
d)	is static in terms of energy transfer
e)	is always in equilibrium
	Ans: b Difficulty: Easy Link to: A Closer Look 6.1

38.	According to the <u>Environmental Science</u> text, the host springs in Yellowstone National Park is an
a)	ecosystem
b)	ecological community
c)	neither
	Ans: a Difficulty: Easy Link to: 6.1

39.	A sewage treatment plant is an
a)	ecosystem
b)	ecological community
c)	neither
	Ans: c Difficulty: Easy Link to: 6.1

40.	Boston, Massachusetts is
a)	ecosystem
b)	ecological community
c)	neither

	<p>Ans: b</p> <p>Difficulty: Easy</p> <p>Link to: 6.1</p>
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41.	A 5000 hectare farm in North Dakota is an	
a)	ecosystem	
b)	ecological community	
c)	neither	
	<p>Ans: b</p> <p>Difficulty: Easy</p> <p>Link to: 6.1</p>	

42.	<p>The following are species that live in the ocean. For each of the examples below, list its trophic level from 1 (lowest level) to 5 (highest level).</p> <p>carnivorous fish _____</p> <p>zooplankton _____</p> <p>human in a sushi restaurant (they'll eat anything!) _____</p> <p>photosynthetic algae _____</p> <p>fish that feed upon plankton _____</p>	
Ans:	4, 2, 5, 1, 3	
	<p>Difficulty: Easy</p> <p>Link to: 6.1</p>	

43.	As Salmon migrates from the ocean to rivers and lakes, it interacts biologically and chemically with marine, aquatic, and nearby terrestrial species. What concept is illustrated by this example?	
Ans:	that the boundaries between ecosystems are fuzzy and not abrupt, and that often multiple related ecosystems should be examined together rather than separately	
	<p>Difficulty: Medium</p> <p>Link to: 6.2</p>	

44.	Which of the following terms correctly describe the roles in the global ecosystem of A) modern humans, and B) humans before agriculture (hunters and gatherers who lived at least 10,000 years ago)? Circle the terms that are appropriate (more than one may be correct):							
	<div></div> <div></div> <table><tr><td>A) modern humans</td><td>B) pre-agricultural humans</td></tr><tr><td><div></div> Dominant species</td><td><div></div> Dominant species</td></tr><tr><td><div></div> Keystone species</td><td><div></div> Keystone species</td></tr></table> <div></div> <div></div>		A) modern humans	B) pre-agricultural humans	<div></div> Dominant species	<div></div> Dominant species	<div></div> Keystone species	<div></div> Keystone species
A) modern humans	B) pre-agricultural humans							
<div></div> Dominant species	<div></div> Dominant species							
<div></div> Keystone species	<div></div> Keystone species							
Ans:	Modern Humans: both Dominant and Keystone pre-agricultural humans: neither Dominant nor Keystone							
	Difficulty: Easy Link to: 6.1							

45.	List all the essential needs of a healthy functioning ecosystem.	
Ans:	A species producing its own food and providing waste as source for other organisms to feed on + a nonliving transport and storage medium (air, water, rock, soil or a combination of all)	
	Difficulty: Easy Link to: 6.1	

46.	Briefly discuss two differences between species or communities found on islands and those found on the adjacent mainland.	
Ans:		
	Islands	Mainland
	1. poorer competitors	1. better competitors
	2. less diversity	2. more diversity
	3. higher extinction probability	3. less susceptible to diseases
	4. more susceptible to diseases	
	Difficulty: Medium Link to: 6.1	

47.	Explain the term "community-level interaction".	
Ans:	One species affects the environment which then affects a group of species in the community. Changes in the second group affect the third group and so on.	
	Difficulty: Medium Link to: 6.2	

48.	What is a keystone species? Name an example of a keystone species.	
Ans:	A species that has a large effect on its community or ecosystem; e.g., the sea otter.	
	Difficulty: Easy Link to: 6.2	

49.	List three localized climatic changes caused by urbanization and discuss their possible effects on the flora and fauna of the area.	
Ans:	warmer change in humidity less sunlight, cloudier	
	Difficulty: Medium Link to: 6.3	

50.	Give one example that supports the statement: "The Earth as a planet has been profoundly altered by life."	
Ans:	The first oxygen-producing bacteria in the Earth's history have changed the planet significantly.	
	Difficulty: Medium Link to: 6.1	

51.	Why is it impossible that life on a planet could consist of only one single species as we know it?	
Ans:	The basic unit of life as we know it is the <u>ecosystem</u> , which always consists of more than just one species.	
	Difficulty: Medium Link to: 6.1	

52.	Give two major examples that provide strong support for the statement that: "The Earth, as a planet, has been profoundly altered by non-human life." (Pollution as a result of human activities doesn't count.)	
Ans:	iron ore deposits O ₂ in air N ₂ in atmosphere low CO ₂ in atmosphere	
	Difficulty: Hard Link to: 6.1	

53.	List the three basic characteristics of an ecosystem and define them briefly.	
Ans:	structure: living and nonliving parts of the ecosystem processes: energy flow and chemical cycles succession: changes of the ecosystem over time	
	Difficulty: Easy Link to: 6.1	