This print-out should have 30 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

Pop Ecology 05
001 10.0 points

Of the following scenarios, which might be expected in the logistic model of population growth?

I) As N approaches K, r increases.
II) As N approaches K, b increases.
III) As N approaches K, d increases.

1. I and III only

2. I and II only

3. III only **correct**

4. I only

5. II only

Explanation:

Raven53 18
002 10.0 points

Population studies do *not* include

1. dispersion.

2. biodiversity. **correct**

3. demography.

4. density.

5. size.

Explanation:
Recall

Starr 45 22
003 10.0 points

A scientist captures and marks 20 deer in an area, marks them with collars, and releases them. Two months later the scientist captures 20 deer in the same area and notes that 10 of the deer have collars.

Based on this capture-recapture experiment, howmany deer are in the area?

1. 20

2. 200

3. 400

4. 40 **correct**

Explanation:

StarrC 39 07
004 10.0 points

In the wild, orangutans generally live for about thirty-five years. During this time, they usually produce three or four offspring. Juveniles remain with their mothers for as long as seven years.

What type of survivorship curve best fits orangutans?

1. None of these

2. type III

3. type I **correct**

4. type II

Explanation:
Type I curves reflect high survivorship until fairly late in life, then a large increase in deaths.

Pop Ecology 31
005 10.0 points

Energetic trade-offs between or among life history traits are involved in Natural selection, and include

I) age at first reproduction.
II) number of reproductive episodes per lifetime.
III) number of offspring per reproductive episode.

1. III only

2. I, II, and III **correct**

3. II only

4. I only

5. I and III only

Explanation:

Pop Ecology 32
006 10.0 points

What do Life history strategies result from?
I) natural selection
II) environmental pressures
III) conscious choice

1. I, II, and III

2. I only

3. III only

4. II only

5. I and II only **correct**

Explanation:

Raven53 15
007 10.0 points

During a coastal storm, 3 deermice (*Peromyscus*) huddled on a tree trunk were carried several miles out to sea and washed ashore on a small island (500 acres) where there were no deermice. The vegetation of the island supported these mice which primarily eat seeds. Also in the island there were small birds, hawks and a variety of lizards eating seeds. Two of the mice were female, and already pregnant when they arrived; later they both mated with the male. Over time a population of deermice was established on the island.

Assuming that a deermouse reproduces two to three times a year, with 3-6 offspring per litter, the population of deermice on the island within 2 years
I) has reached its biotic potential;
II) may be competing with the birds for resources;
III) is K-selected.

1. I and II only

2. II and III only

3. I only

4. All are true.

5. None is true.

6. I and III only

7. III only

8. II only **correct**

Explanation:
Recall

Raven53 42
008 10.0 points

Organisms with a Type III life history are probably

1. at their carrying capacity.

2. subject to low predation rates.

3. K-selected.

4. r-selected. **correct**

5. idiopathic.

Explanation:
Recall

Starr 45 06
009 10.0 points

The size a population will be some time in the future can be calculated from current population size and

1. the life history curve.

2. the net reproduction per individual per unit of time. **correct**

3. the per capita birth rate.

4. the per capita death rate.

Explanation:

GA SB4 04
010 10.0 points

Ten breeding pairs of rabbits are introduced onto an island having no natural predators and a good supply of water and food. What will most likely happen to the rabbit population?

1. It will increase exponentially until it exceeds carrying capacity. **correct**

2. It will remain constant due to equal birth and death rates.

3. It will decrease and then increase indefinitely.

4. It will die out due to an increase in the mutation rate.

Explanation:
Most offspring will survive and reproduce even more offspring, creating exponential population growth.

Holt Bio 18 05
011 10.0 points

The rate of population growth has increased since 1650 because of which of the following?

1. an increase in the death rate

2. a decrease in the birth rate

3. an increase in the birth rate

4. a decrease in the death rate **correct**

Explanation:

Pop Ecology 03
012 10.0 points

Relatively *r*-selected species generally have all of the following characteristic *except*

1. little homeostatic capability.

2. numerous offspring.

3. a disturbed habitat.

4. parental care of offspring. **correct**

5. small offspring

Explanation:

Pop Ecology 27
013 10.0 points

What do ecologists define as the maximum population size that a particular environment can support with no net increase or decrease over a relatively long period of time?

1. a K-selected population

2. an r-selected population

3. logistic population growth

4. an opportunistic population

5. carrying capacity **correct**

Explanation:

Pop Ecology 28
014 10.0 points

Which of the following statements about the logistic model of population growth is *false*?

1. It predicts an eventual state in which birth rate equals death rate.

2. It incorporates the concept of carrying capacity.

3. It describes population density shifts over time.

4. It predicts the growth of most populations with great accuracy. **correct**

5. It fits an S-shaped curve.

Explanation:

Pop Ecology 34
015 10.0 points

What does the logistic equation predict as N approaches K for a certain population?

1. The growth rate will not change.

2. The population will show an Allee effect.

3. The growth rate will approach zero. **correct**

4. The carrying capacity will increase.

5. The population will increase exponentially.

Explanation:

Pop Ecology 38
016 10.0 points

An unlimited population growth is often prevented because death rates increase as the population density increases, in an example of

1. negative feedback. **correct**

2. positive feedback.

3. r-selection.

4. the Allee effect.

5. K-selection.

Explanation:

Raven53 22
017 10.0 points

What symbol is used for the biotic potential representing growth without limits at its maximal rate?

1. N

2. $\frac{dN}{dt}$

3. $\frac{N}{K}$

4. r **correct**

5. K

Explanation:
Recall

Raven53 26
018 10.0 points

Density-dependent factors
I) act to regulate population growth;
II) affect the size of the population;
III) ultimately cause adaptation as competition for limiting factors increases.

1. All of these **correct**

2. II only

3. III only

4. II and III only

5. I only

6. I and III only

7. None of these

8. I and II only

Explanation:
Recall

Raven53 29
019 10.0 points

The r strategists are characterized by
I) little or no parental care/short generation time;
II) large brood size/numerous offspring;
III) early age of first reproduction.

1. II and III only

2. III only

3. I and II only

4. II only

5. I and III only

6. All of these **correct**

7. None of these

8. I only

Explanation:
Recall

Raven53 33
020 10.0 points

In the Logistic Growth Model of population growth, as the number N of individuals in a population approaches the carrying capacity K, the rate $\frac{dN}{dt}$ of growth will be affected by

1. a decreased death rate from predation.

2. increased competition within the species.

3. limiting factors in the environment. **correct**

4. an increased birth rate.

5. increased competition with other species.

Explanation:
Recall

Starr 45 25
021 10.0 points

If a population consists of 500 individuals and r for the population is 0.5 per month, how many individuals will there be in the population one month later?

1. 250

2. 750 **correct**

3. 500

4. 1,000

Explanation:

Starr 45 26
022 10.0 points

The equation

$$G = r_{\max} N \left(K - \frac{N}{K} \right)$$

describes

1. exponential growth.

2. logistic growth. **correct**

3. the demographic transition model.

4. biotic potential.

Explanation:

Pop Ecology 12
023 10.0 points

A person studying the vital statistics that affect population size is called

1. a biogeographer.

2. a demographer. **correct**

3. a biologist.

4. a cartographer.

5. None of these

Explanation:

Pop Ecology 29
024 10.0 points

Density-dependent regulation of populations can be contributed by which of the following?

1. predation

2. All of these **correct**

3. the accumulation of toxic wastes

4. intraspecific competition for nutrients

5. None of these

Explanation:

Starr 45 12
025 10.0 points

Since the 1950s, the global fertility rate has

1. increased tenfold.

2. almost doubled.

3. remained approximately the same.

4. declined significantly. **correct**

Explanation:

StarrC 39 12
026 10.0 points

Suppose a hurricane decimates the area in which a population of sea squirts lives, killing many of them at random.

This is an example of which type of control of population size?

1. density-independent **correct**

2. None of these

3. density-dependent

Explanation:

Density-independent factors that influence population size include disasters, such as hurricanes, volcanic eruptions, etc.

Pop Ecology 35
027 10.0 points

There are several human populations that are of equal size and net reproductive rate, but different in age structure.

Of the populations the one that is most likely to grow the most during the next 30 years is the one with the greatest fraction of people in which of the following age ranges?

1. 30 to 40 years

2. 10 to 20 years **correct**

3. 70 to 80 years

4. 40 to 50 years

5. 20 to 30 years

Explanation:

Starr 45 17
028 10.0 points

What would happen to the population size of the world if every couple alive today decided to have only two children?

1. Population size would begin to decrease immediately.

2. Population size would stabilize immediately.

3. Population size would continue to grow for another 60 years. **correct**

4. Population size would continue to grow for another 200 years.

Explanation:

Starr 45 27
029 10.0 points

An age structure diagram that is shaped like a pyramid (very broad at the base and narrow at the top) is typical of a population that is undergoing

1. slow growth.

2. zero growth.

3. negative growth.

4. rapid growth. **correct**

Explanation:

Starr 45 28
030 10.0 points

The current average annual rate of increase for the human population is about

1. 1.7 percent. **correct**

2. 36 percent.

3. 5 percent.

4. 9 percent.

Explanation: