CHAPTER I

QUESTION

Which statement about the properties of life is *false*?
A) Organisms have the ability to take in energy and use it.
B) Organisms have the ability to respond to stimuli from the environment.
C) Organisms have the ability to reproduce.
D) Organisms have an unchanging, constant internal environment.

QUESTION

Life is organized in a hierarchical fashion. Which sequence correctly lists that hierarchy from least inclusive to most inclusive?

A) ecosystem, population, organ system, cell, community, molecule, organ, organism, organelle, tissue

B) cell, molecule, organ system, organ, organelle, population, tissue, organism, ecosystem, community

C) molecule, cell, organism, organ system, tissue, population, organ, organelle, community, ecosystem

D) molecule, organelle, cell, tissue, organ, organ system, organism, population, community, ecosystem

QUESTION

Which statement best describes the relationship between a tissue and an organ system?

A) The tissue level of organization is more inclusive than the organ system level.
B) Tissues are not composed of cells; organ systems are composed of cells.
C) A tissue cannot exist unless it is a component of an organ system, whereas an organ system can exist independently of tissues.
D) An organ system includes tissues.

QUESTION

The tree in your backyard is home to two cardinals, a colony of ants, a wasp's nest, two squirrels, and millions of bacteria. Together, all of these organisms represent a(n)

A) species.
B) community.
C) population.
D) ecosystem.

QUESTION

If you eat a hamburger, you are mainly eating ground-up beef muscle. What levels of organization are represented in this ground-up muscle?

A) organism, population, and community
B) organ, organ system, and organism
C) organelle, cell, and tissue
D) tissue, organ, and organ system

QUESTION

Which statement about ecosystems is *false*?

A) Bacteria and fungi recycle energy within an ecosystem.

B) Plants and other photosynthetic organisms are producers in ecosystems.

C) Chemical nutrients cycle within an ecosystem.

D) In the process of energy conversions within an ecosystem, some energy is converted to heat.

QUESTION

In an ecosystem, energy
A) cycles along with chemical nutrients.
B) typically flows from consumers to producers to decomposers.
C) typically flows from producers to a series of consumers.
D) comes ultimately from bacteria.

QUESTION

Which statement about genetics is *true*?

A) Genes are proteins that produce DNA.

B) DNA is made up of six different kinds of nucleotides.

C) Differences among organisms reflect different nucleotide sequences in their DNA.

D) Each DNA molecule is a single strand of nucleotides.

QUESTION

Which statement about bacteria is *true*?

A) Archaea belong to the same domain.

B) Bacteria do not use the same genetic code as organisms in other domains.

C) All bacteria are multicellular organisms.

D) Bacteria are in a domain of their own.

QUESTION

- Members of the kingdom Animalia
  A) can obtain their food either by absorption or by photosynthesis.
  B) can obtain their food by eating other organisms.
  C) make their own food through photosynthesis.

QUESTION

The kingdom Fungi includes species
A) such as mushrooms and plants.
B) that obtain food by ingesting other organisms.
C) that use photosynthesis to obtain food.
D) that obtain food by decomposing dead organisms and absorbing the nutrients.

QUESTION

Which of the following is a group within the domain Eukarya?

A) Fungi

B) Archaea

C) Bacteria

QUESTION

Organisms belonging to the kingdom Plantae
A) are photosynthetic.
B) obtain food by decomposing the remains of dead organisms and absorbing the nutrients.
C) are unicellular.

QUESTION

The teeth of grain-eating animals (such as horses) are usually broad and ridged. This makes the teeth suitable for grinding and chewing. Meat-eating animals (such as lions) have pointed teeth that are good for puncturing and ripping flesh. This illustrates

A) a result of natural selection only.
B) the connection between form and function only.
C) a food web.
D) a result of natural selection as well as the connection between form and function

QUESTION

Which of the following statements is *not* consistent with Darwin's theory of natural selection?

A) Individuals in a population exhibit variations, some of which are passed from parents to offspring.

B) Individual organisms experience genetic change during their life spans to better fit their environment.

C) Factors in the environment result in some organisms having better reproductive success than others.

D) Natural selection can lead to the appearance of new species.

QUESTION

An antibiotic kills 99.9% of a bacterial population. You would expect the next generation of bacteria to

A) be just as susceptible to that antibiotic as was the previous generation.
B) be more resistant to that antibiotic.
C) die out due to the drastic decrease in population size.
D) be more contagious than the prior generation

QUESTION

Which statement about evolution is *true*?

A) Individuals evolve within the span of their own lifetimes.

B) Organisms evolve structures in response to needs.

C) Evolution is deliberate and purposeful.

D) Evolution can result in adaptations.

QUESTION

A hypothesis is
A) the same as a theory.
B) a proposed explanation for a set of observations.
C) an explanatory idea that is broad in scope and supported by a large body of evidence.
D) a widely accepted idea about a phenomenon.

QUESTION

You notice that over the past month, many students on campus have started wearing a new style of school sweatshirt. You think to yourself that perhaps the bookstore has recently started selling this new sweatshirt style. This is an example of a(n)

A) experimental question.
B) type of observation.
C) hypothesis.
D) experiment

QUESTION

A theory is a(n)
A) idea that has been proven.
B) concept in the early stages that still needs to be tested.
C) description of a belief that invokes the supernatural.
D) explanation of an idea that is broad in scope and supported by a large body of evidence.

QUESTION

To be scientifically valid, a hypothesis must be

A) part of a theory.

B) controlled.

C) reasonable.

D) testable and falsifiable.

QUESTION

The role of a control in an experiment is to
A) provide a basis of comparison to the experimental group.
B) prove that a hypothesis is correct.
C) ensure repeatability.

QUESTION

A scientist performs a controlled experiment. This means that
A) the experiment is repeated many times to ensure that the results are accurate.
B) the experiment proceeds at a slow pace to guarantee that the scientist can carefully observe all
reactions and process all experimental data.
C) two versions of the experiment are conducted, one differing from the other by only a single
variable.
D) one experiment is performed, but the scientist controls the variables.

QUESTION

Basic science discoveries often lead to the development of technology, and the development of technology often leads to new scientific discoveries. Which of the following is *not* an accurate pairing of a technology and a discovery?

A) measurement of atmospheric CO2 and understanding of climate change

B) sequencing of genomes and understanding evolutionary relationships among organisms

C) genetic engineering and creation of new drugs

D) invention of the microscope and creation of evolutionary trees

QUESTION

Which statement is *not* an example of evolution that has resulted from human activity?

A) Many strains of bacteria are now resistant to some commonly used antibiotics.

B) Like certain other crops, domesticated strawberries are larger than wild strawberries.

C) Because of hunting, organisms such as bears and wolves are fewer in number.

D) Some insect species are now resistant to pesticides.

QUESTION

Watching salt crystals form as ocean water evaporates, a student says, "Look—more and more crystals are appearing. The ocean water is alive!" Which statement is an accurate evaluation of the student's remark?

A) The student is correct: Crystals are ordered structures and they are reproducing, so the ocean water is alive.
B) The student is correct because crystals are formed by processing energy from the sun to create new structures, so ocean water is alive.
C) The student is incorrect because the solution is processing energy from the sun rather than gaining energy from other organisms, so the ocean water is not alive.
D) The student is incorrect because all of the crystals reproduce the same kind of crystals with no variation to provide adaptation, so the ocean water is not alive.

QUESTION

During a discussion about ecosystems, a student says, "Plants eat sunlight, and animals eat other organisms." Which response to the student's comment is most accurate?

A) Plants don't eat sunlight; they eat sugars that they get from the soil.
B) Plants don't eat sunlight; they use sunlight to make sugars.
C) Plants eat sunlight, but they also eat other organism such as decomposers.
D) Plants eat sunlight, but animals also eat bacteria, which are not considered organisms

QUESTION

Which statement about ecosystems is *false*?
A) Energy cycles from organisms through the atmosphere and back to the organisms.
B) Carbon cycles from the atmosphere through organisms and back to the atmosphere.
C) Energy of sunlight is converted to energy stored in sugar molecules.
D) Most energy that enters the ecosystem leaves the system as heat.

QUESTION

Which sequence is *not* a correct pathway of energy through an ecosystem?

A) insects → birds → bacteria

B) plants → insects → birds

C) plants → birds → bacteria

D) bacteria → plants → birds

QUESTION

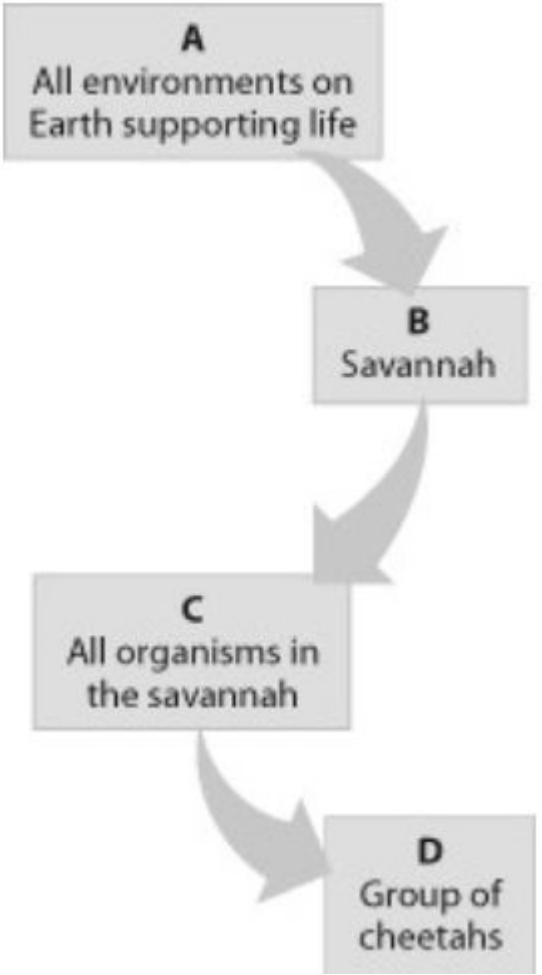
Which statement provides the best evidence that there is a common genetic code that demonstrates the unity of life?

A) Bees, birds, and bats all have wings and fly.
B) Many insects can pollinate only a particular species of plant due to many generations of evolutionary adaptation.
C) Through genetic engineering, a gene from a firefly can be inserted into a bacterium to make it glow.

QUESTION

Which level in the hierarchy shown is a community?

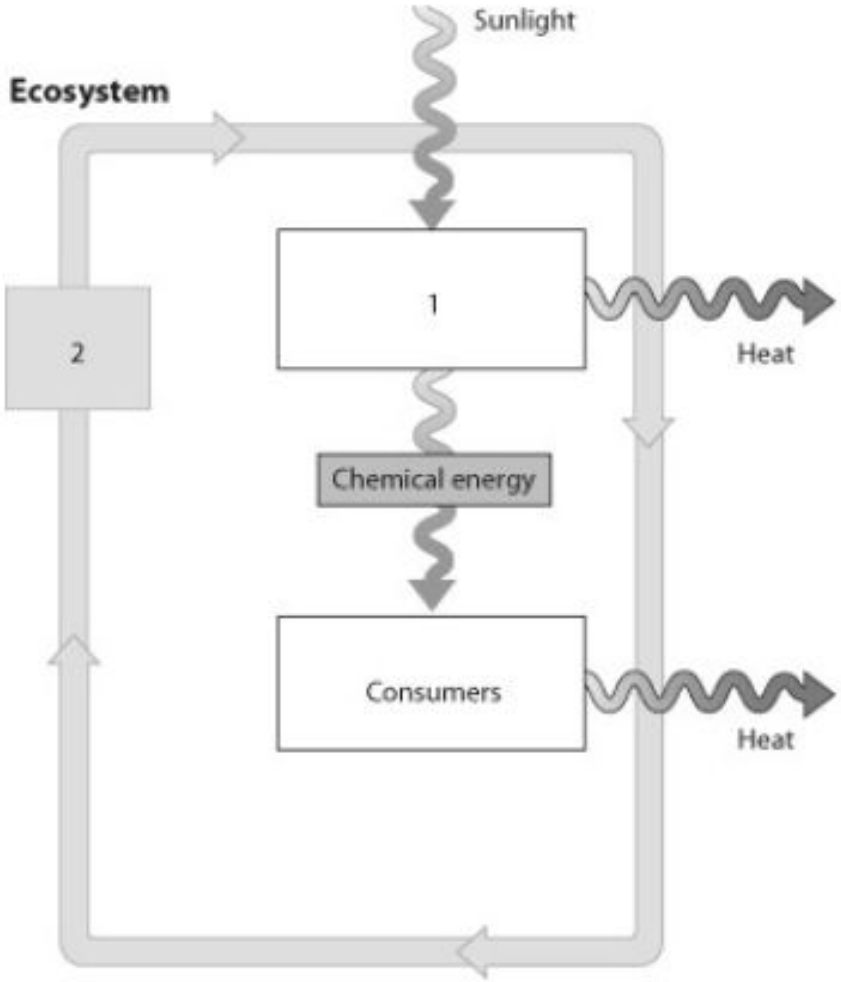
A) level A
B) level B
C) level C
D) level D



QUESTION

Which of the following organisms belongs to the group represented in box 1?

A) giraffe
B) tree
C) decomposing bacteria
D) leopard



QUESTION

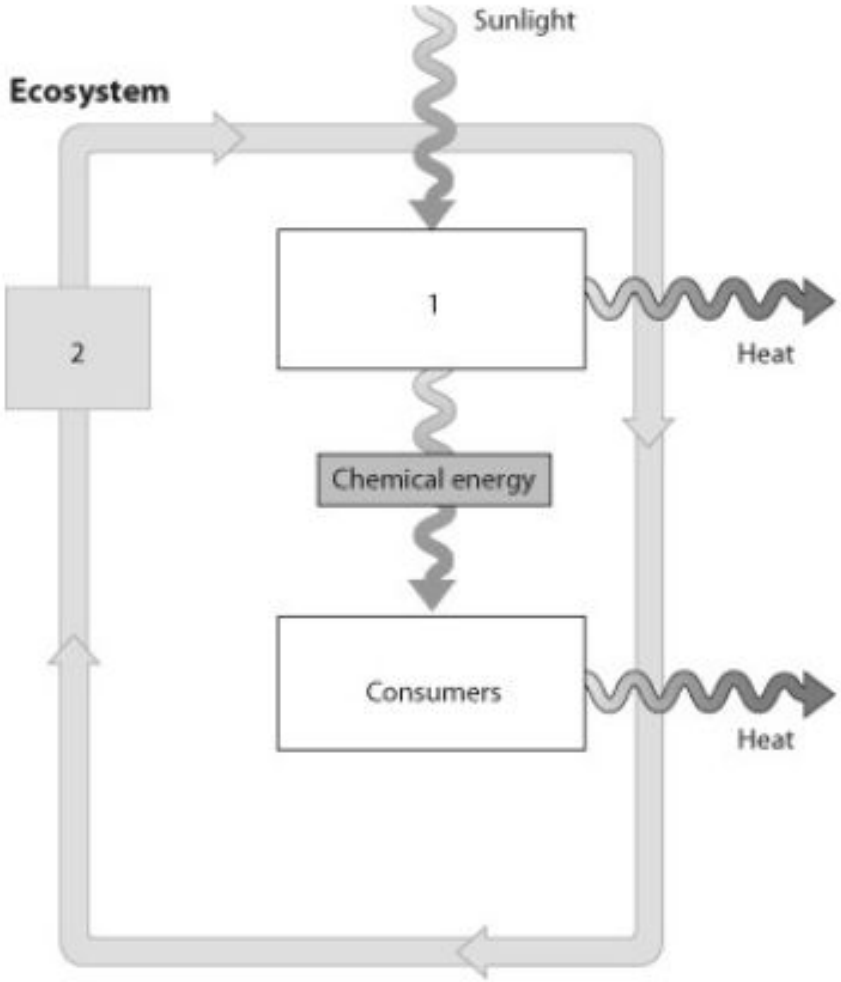
The box numbered 2 represents which process?

A) cycling of energy

B) decomposers acting on all parts of the system

C) cycling of matter

D) gases in the atmosphere that can block sunlight



QUESTION

After reading the paragraph below, answer the questions that follow.
Researchers set up a study to determine whether large doses of a nutritional supplement would shorten the length of time it takes to recover from a cold. Three thousand volunteers were split into two groups. For two weeks, members of group A took 3,000 mg of the supplement daily. Group B received 3,000 mg of a placebo (sugar pill). At the end of the two-week period, the researchers inserted live cold viruses directly into the noses of all the volunteers. The volunteers in both group A and group B continued to take their daily pills. All the volunteers got colds, and there was no significant difference in the length of time the colds lasted.

1) Which was the experimental group?
A) group A only
B) group B only
C) all 3,000 volunteers

QUESTION

To have confidence that the results of the experiment were valid, you'd also want to know

A) whether any volunteers had colds at the start of the experiment.

B) whether the volunteers exercised daily.

C) whether the volunteers all worked for the same company.

QUESTION

QUESTION

QUESTION