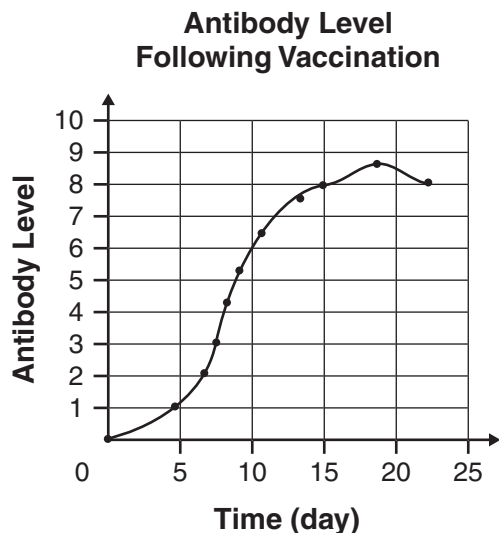


Released Test Questions

Science

10

- 1 The graph below shows the production of antibodies following a flu shot.



Which of the following statements *best* describes the maximum antibody level of a person's body after a flu vaccination?

- A It occurs immediately.
- B It is never achieved.
- C It is achieved on day 15.
- D It is achieved on day 18.

CSZ30053

- 2 The jackrabbit population sometimes decreases dramatically. One possible explanation for this decrease is that the coyote population has increased. This explanation is a scientific

- A conclusion.
- B experiment.
- C hypothesis.
- D law.

CSZ30176

- 3 A prediction was made that the best conditions for earthworm growth occur when there are fewer than five earthworms per cubic meter of soil. This prediction is called a

- A law.
- B theory.
- C hypothesis.
- D conclusion.

CSZ30419

- 4 A mineral supplement designed to prevent the common cold was given to two groups of people during a scientific study.

	Dosage
Group 1	50 $\frac{\text{mg}}{\text{day}}$
Group 2	100 $\frac{\text{mg}}{\text{day}}$

After eight weeks, neither group reported a case of the common cold. Which of the following would have made the outcome of this study more valid?

- A Test only one group with 150 mg of the supplement.
- B Give the supplement to both groups for only 6 weeks.
- C Create a third group that receives 75 mg of the supplement.
- D Create a third group that does not receive the supplement.

CSZ30523

- 5 Students hypothesized that their normal pulse rates would double after doing 50 sit-ups. After completing three trials, four students averaged their individual pulse rates and recorded their results below.

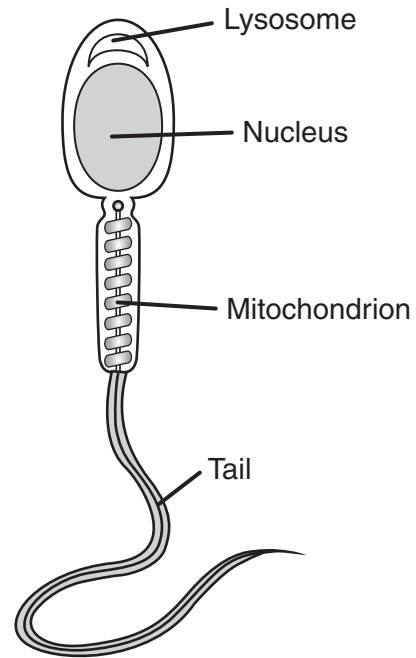
Student	Average Pulse Rate After 3 Trials
1	120 beats/min.
2	98 beats/min.
3	135 beats/min.
4	110 beats/min.

Based on the data above, a conclusion cannot be made because

- A the exercise was not strenuous enough to affect the pulse rates.
- B control data of normal pulse rates for each individual are missing.
- C the variability in pulse rates among the students is too great.
- D not enough trials were conducted to be able to draw a conclusion.

CSZ30037

- 6 The diagram below shows a male gamete.



Which structure stores *most* of the genetic information?

- A mitochondrion
- B lysosome
- C nucleus
- D tail

CSZ30809

- 7 Which of the following organelles releases energy from sugars?

- A ribosomes
- B vacuoles
- C chloroplasts
- D mitochondria

CSZ30247

Released Test Questions

Science

10

8 Which of the following organelles use carbon dioxide to produce sugars?

- A vacuoles
- B ribosomes
- C chloroplasts
- D mitochondria

CSZ30250

9 Which of the following produces identical nuclei in cells?

- A pollination
- B mitosis
- C osmosis
- D fertilization

CSZ30254

10 Which of the following is the fundamental element found in all living organisms?

- A iron
- B carbon
- C calcium
- D magnesium

CSZ30438

11 Which of the following structures is *not* found in bacteria?

- A ribosome
- B cytoplasm
- C cell membrane
- D nuclear membrane

CSZ30749

12 Which of the following lacks a nucleus?

- A a plant cell
- B an animal cell
- C an amoeba
- D a virus

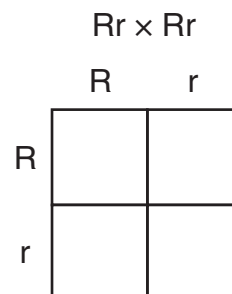
CSZ30628

13 The inheritance of a trait in humans is *best* described as being determined by

- A a single allele.
- B one or more pairs of alleles.
- C one pair of chromosomes.
- D the sex chromosomes of the offspring.

CSZ30911

14 The diagram below represents a cross between two pea plants.



In pea plants, the allele for round seeds (R) is dominant to the allele for oval seeds (r). In a cross between the two plants above, what percentage of the offspring will have round seeds?

- A 100%
- B 75%
- C 50%
- D 25%

CSZ20965

Released Test Questions

Science

10

- 19 In humans, the allele for unattached earlobes (L) is dominant to the allele for attached earlobes (l).

Punnett Square

	L	l
L	1	2
l	3	4

Based on the diagram above, an offspring with attached earlobes is indicated in

- A box 1.
- B box 4.
- C boxes 2 and 3.
- D boxes 1, 2, and 3.

CSZ30797

- 20 Which of the following *best* describes the inheritance of a sex-linked trait?

- A a recessive allele carried by females that affects only males
- B a dominant allele carried by females that affects only males
- C an allele carried on the Y chromosome that can affect both males and females
- D an allele carried on an X chromosome that can affect males or females

CSZ30915

- 21 Which of the following *best* describes how DNA and RNA are similar?

- A They both contain the nitrogen bases thymine and adenine.
- B They both are formed in a double-helix structure.
- C They both are composed of five different nucleotides.
- D They both contain the nitrogen bases cytosine and guanine.

CSZ50426

- 22 The diagram below shows a marine food chain.

Phytoplankton → Zooplankton → Herring → Salmon

The zooplankton in this food chain are

- A primary producers.
- B primary consumers.
- C secondary consumers.
- D tertiary consumers.

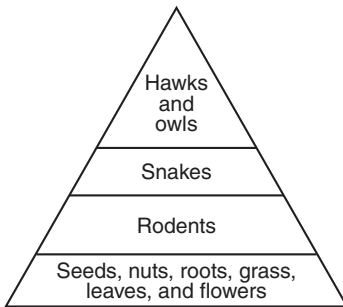
CSZ20937

23 The table below contains information about animal diets.

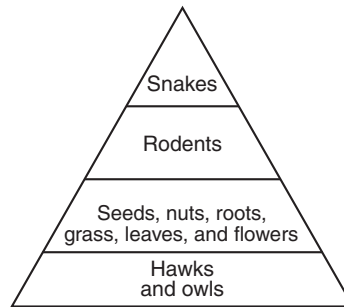
Animals	Diet
Snakes	Squirrels, chipmunks, gophers, and mice
Hawks and owls	Rodents and reptiles
Rodents	Seeds, nuts, roots, grass, leaves, and flowers

Which energy pyramid *best* represents the data in the table?

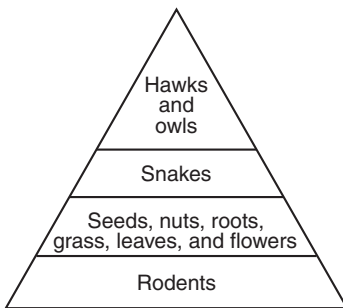
A



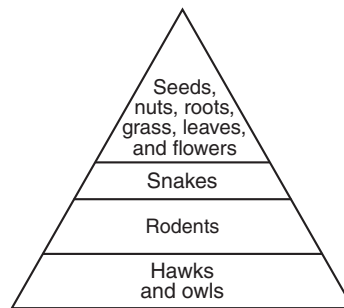
C



B



D



CSZ20924

Released Test Questions

Science

10

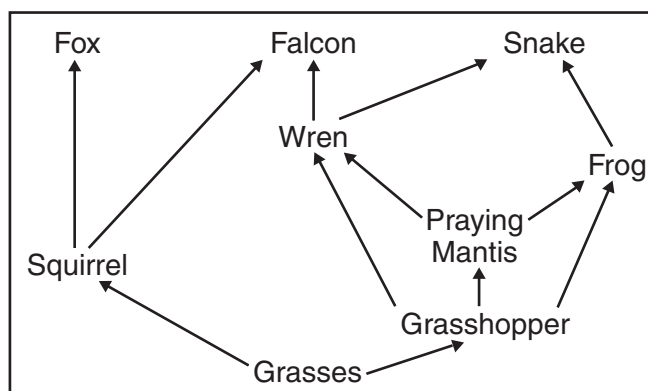
- 24 Which of the following sets of organisms would be found in a wetland ecosystem?

A tortoise, lizard, fly
 B salamander, mosquito, frog
 C moose, seal, lemming
 D lion, giraffe, beetle

CSZ30197

- 25 A forest-ecosystem food web is shown below.

Forest Food Web

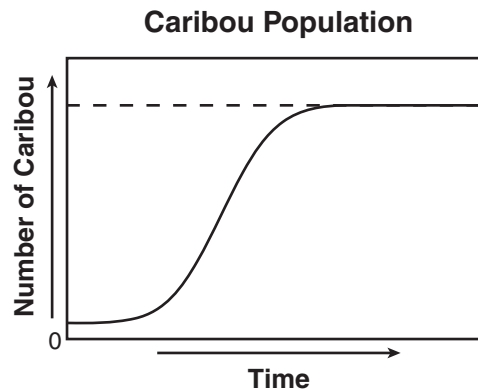


If additional wrens are introduced into this ecosystem, there will *most likely* be an immediate decrease in the

A frog population.
 B snake population.
 C falcon population.
 D grasshopper population.

CSZ30816

- 26 The graph below shows changes in a caribou population over time.



Based on the graph, which of the following is a possible explanation for the stabilization of the caribou population?

A an equal number of deaths and births
 B an unequal number of deaths and births
 C an equal number of immigrants and births
 D an unequal number of immigrants and deaths

CSZ30062

- 27 During photosynthesis in plants, what is the source of the carbon in the sugar molecule ($C_6H_{12}O_6$)?

A carbon dioxide in the air
 B carbon monoxide in the air
 C carbon particles in the soil
 D carbon particles in water

CSZ20951

28 Which of the following processes allows the cells of an organism to use carbon from the environment?

- A mitosis
- B fertilization
- C transpiration
- D photosynthesis

CSZ30635

29 Fungi are an important part of a terrestrial ecosystem because they

- A store energy.
- B bond oxygen to sulfur.
- C function as producers.
- D recycle organic matter.

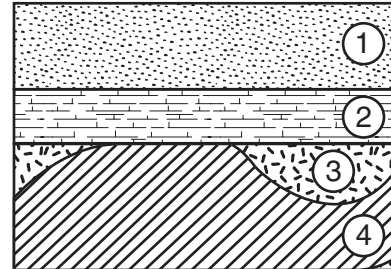
CSZ30844

30 How is natural selection in the evolution of long necks in giraffes *best* explained?

- A Shorter-necked giraffes were killed by long-necked giraffes.
- B Giraffe necks grew longer because of the bone structure of the animals.
- C Giraffes with longer necks survived because they were better suited to the environment.
- D Long-necked giraffes mated only with other long-necked giraffes.

CSZ30526

31 The diagram below shows a geologic cross section.



Which rock layer *most* likely contains fossils of the most recently evolved organisms?

- A 1
- B 2
- C 3
- D 4

CSZ20982

32 Which of the following explains why natural selection acts on the phenotype of an organism instead of its genotype?

- A Phenotypes directly influence the interaction of an organism with its environment.
- B Genotypes do not change except by the process of transcription.
- C Genotypes change in direct response to habitat changes.
- D Phenotypes can be inherited by offspring.

CSZ30403

Released Test Questions

Science

10

- 33** A particular allele in mice is lethal in homozygotes. Heterozygotes, however, develop normally. Why does this allele remain in the population?
- A Homozygous mice pass the allele to their offspring.
 - B The recessive allele is masked in heterozygotes.
 - C Natural selection selects for the homozygous individual with normal alleles.
 - D Natural selection selects against the heterozygous individual.
- CSZ30530
- 34** Which of the following is a source of genetic variation within a species?
- A cloning
 - B mutation
 - C selective breeding
 - D natural selection
- CSZ30402
- 35** The diet of white-tailed deer consists primarily of shrubs. Sika are another species of deer that eat both grasses and shrubs. After an extended drought period, why might the sika population be favored over the white-tailed deer population?
- A Sika require less food than do the white-tailed deer.
 - B Sika require more water than do the white-tailed deer.
 - C Sika have more food sources than do the white-tailed deer.
 - D Sika have fewer food sources than do the white-tailed deer.
- CSZ30900

- 36** Rainfall in a tropical region is below average for 10 consecutive years. Insect species adapted for dry conditions are much more plentiful at the end of the 10 years. Which of the following statements *best* explains the increase in the population of these insects?
- A Biodiversity in the region has increased due to the dry conditions.
 - B Insects with a high tolerance for dry conditions have migrated out of the region.
 - C Natural selection has favored insect species with a high tolerance for dry conditions.
 - D Natural selection has selected against insect species that are adapted for dry conditions.
- CSZ30531
- 37** Skeletal structures are common between two animals of different species. These structures probably exist because both species
- A have a common food source.
 - B live in the same environment.
 - C have survived until the present time.
 - D are related to a common ancestor.
- CSZ30396
- 38** Which of the following levels of organization *best* represents the sequence from smallest unit to largest?
- A cell, organism, organ, tissue
 - B cell, tissue, organ, organ system
 - C cell, organism, tissue, organ system
 - D cell, tissue, organism, organ
- CSZ30640

39 Which of the following pairs provides structural support for a human?

- A skin and blood
- B bones and muscles
- C spine and heart
- D brain and nerves

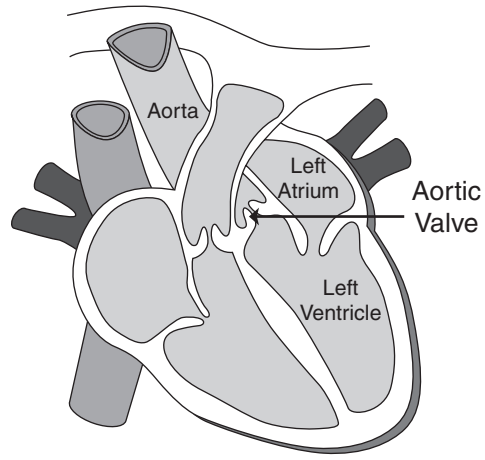
CSZ30626

40 Which three human-body systems coordinate to cause an arm to move?

- A nervous, muscular, skeletal
- B respiratory, muscular, digestive
- C skeletal, circulatory, immune
- D digestive, nervous, circulatory

CSZ30894

41 The diagram below shows a human heart.



When contracted, the left ventricle pumps oxygenated blood to the body. What is the purpose of the aortic valve that separates the left ventricle from the aorta?

- A to prevent blood from flowing back into the left ventricle
- B to prevent blood from flowing into the aorta
- C to push blood into the left ventricle
- D to push blood into the aorta

CSZ20974

Released Test Questions

Science

10

- 42** How do nutrients, absorbed by the small intestine, travel to the individual cells of the human body?
- A The nutrients are absorbed from the small intestine into the blood and move through the circulatory system to the body cells.
 - B The nutrients move from the small intestine directly to the liver and then move through the lymphatic system to the body cells.
 - C The small intestine forces the nutrients into the kidneys, where the nutrients are then dissolved in fluids used by the body cells.
 - D The body cells send nerve impulses indicating a lack of nutrients to the small intestine, and the small intestine sends the nutrients back to the cells.

CSZ30926

- 43** As a person exercises, carbon dioxide (CO_2) levels in the blood increase. This causes the nervous system to signal which of these systems to respond?
- A digestive and immune
 - B immune and respiratory
 - C respiratory and circulatory
 - D circulatory and endocrine

CSZ30388

- 44** Which of the following is an example of an antigen that might be recognized by the immune system of an individual?
- A a viral protein
 - B a fat molecule
 - C saline solution
 - D oxygen molecule

CSZ30406

- 45** The purpose for giving a person a vaccine is to
- A introduce chemicals that destroy viruses.
 - B stimulate an immune response.
 - C prevent inflammation.
 - D cure a disease.

CSZ30427