



The
Praxis
Series™
eBooks

The Official Practice Test

Biology:
Content Knowledge

Test Code: 0235

- Authentic Full-Length Practice Test and Answer Sheet
- Test Instructions
- Answer Key and Score Conversion Tables

www.ets.org/praxis

Biology: Content Knowledge Test

Features of this booklet

The test in this booklet is a genuine paper-based Biology: Content Knowledge test. It was given at actual test administrations before being retired for use as a practice test. Besides the authenticity of a real test, this booklet gives you additional support:

- A table showing the correct answer and content category for each question so that you can determine your score and check your strengths and weaknesses in each of the six content areas
- A score-conversion table so that you can convert your score to a scaled score and compare your scaled score with your state's passing score

Using This Practice Test with the Study Guide

For most people, this practice test will be most helpful in combination with the *Sciences: Content Knowledge Study Guide*. (The guide can be purchased at www.ets.org/store.html or in your local bookstore.) You can take this test first to gauge what areas you need to focus on with the study guide. Or you can take this test after you have worked through the study guide's review chapters and practice questions. A third alternative is to take this test before and after you use the study guide, to check for improvement gained from your review work.

The Biology: Content Knowledge test contains 150 multiple choice questions. The test form in this booklet has 1 question omitted from the scoring. You will see a note in the test booklet and answer key indicating that the question was omitted.

Taking the Practice Test

You will probably find it helpful to simulate actual testing conditions when taking the practice test, giving yourself 2 hours to work on the test. You can cut out the answer sheet provided if you wish.

When you have finished the practice test, you can score your answers by using the charts on [pages 40–43](#).

The instructions on the next page are taken directly from the back cover of the Biology: Content Knowledge test. Read these instructions carefully because they contain useful information about such things as guessing and scratchwork.

BIOLOGY: CONTENT KNOWLEDGE

The supervisor will tell you when to begin work on the test and when to stop. If you finish the test before time is called, go back and check your work on it.

SHOULD YOU GUESS? Your score is based on the number of questions you answer correctly. Skipped questions count as wrong answers, so try to answer every question even if you have to guess. Do not spend too much time puzzling over a question that seems difficult. Answer the easier questions first, then return to the harder ones.

Where necessary, you may use blank spaces in the test book for scratch paper. Do not use any other paper or the margins or back of the answer sheet to do scratchwork.

YOU ARE TO INDICATE ALL OF YOUR ANSWERS ON THE SEPARATE ANSWER SHEET. No credit will be given for anything written in this examination book. After you have decided which of the suggested answers is best, fill in the corresponding space on the answer sheet. **BE SURE THAT EACH MARK IS HEAVY AND DARK AND COMPLETELY FILLS THE ANSWER SPACE.** Light or partial marks may not be read by the scoring machine. Give only one answer to each question. If you change an answer, be sure that the previous mark is erased completely. Incomplete erasures may be read as intended answers.

This test may include one or more questions that do not count toward your score.

Time — 120 minutes

150 Questions

DO NOT BREAK THE SEAL UNTIL YOU ARE TOLD TO DO SO.



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Educational Testing Service
Princeton, New Jersey 08541

DO NOT USE INK



THE PRAXIS
S E R I E S
Answer Sheet C



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1. NAME		FI	
Enter your last name and first initial. Omit spaces, hyphens, apostrophes, etc.			
Last Name (first 6 letters)			
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Z	Z	Z	Z

2. **YOUR NAME:** Last Name (Family or Surname) _____ First Name (Given) _____ M.I. _____

MAILING ADDRESS: (Print) P.O. Box or Street Address _____ Apt. # (If any) _____

City _____ State or Province _____

Country _____ Zip or Postal Code _____

TELEPHONE NUMBER: (Home) _____ (Business) _____

SIGNATURE: _____

TEST DATE: _____

3. **DATE OF BIRTH**

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6. **TEST CENTER / REPORTING LOCATION**

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Center Name _____ State or Province _____

City _____ Country _____

7. **TEST CODE / FORM CODE**

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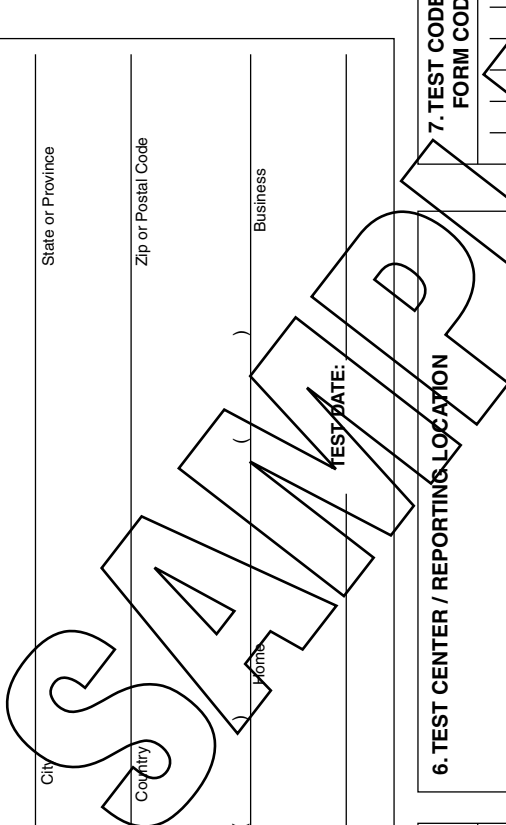
8. **TEST BOOK SERIAL NUMBER** _____

9. **TEST FORM** _____

10. **TEST NAME** _____



728494



CERTIFICATION STATEMENT: (Please write the following statement below. DO NOT PRINT.)

"I hereby agree to the conditions set forth in the *Registration Bulletin* and certify that I am the person whose name and address appear on this answer sheet."

SIGNATURE: _____ DATE: _____ / _____ / _____
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128	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D
129	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D
130	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D
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160	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D

FOR ETS USE ONLY	R1	R2	R3	R4	R5	R6	R7	R8	TR	CS
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Time—120 minutes

150 Questions

Directions: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case and then fill in the corresponding lettered space on the answer sheet with a heavy, dark mark so that you cannot see the letter.

- Which of the following accounts for the greatest annual use of freshwater globally?
 - Urban megacities
 - Agriculture
 - Industrial manufacturing
 - Wastewater treatment
- The fact that a single base change in DNA can cause a faulty enzyme to be produced supports which of the following?
 - The one gene—one polypeptide hypothesis
 - The operon model of gene regulation
 - Koch’s postulates
 - Natural selection
- What was Antoni van Leeuwenhoek’s major contribution to biology?
 - Developing a model for the atomic structure of the atom
 - Discovering cell walls in cork tissue and coining the term “cell”
 - Advancing the field of microscopy through the discovery of bacteria and protists
 - Creating the comparative method of organismal biology
- A horticulturist crosses two snapdragon plants that bear pink flowers. In addition to 83 pink-flowering plants, the offspring from this cross consist of 38 red-flowering plants and 40 white-flowering plants. Which of the following is the most likely mode of inheritance described above?
 - Multiple alleles
 - Simple autosomal dominance
 - Sex-linked recessive
 - Incomplete dominance
- Which of the following occurs in meiosis but NOT in mitosis?
 - The chromosomes replicate.
 - The chromosomes move to the metaphase plate.
 - Homologous chromosomes exchange genetic information.
 - Spindle fibers pull chromatids toward opposite ends of the cell.
- Which of the following organisms is most likely to produce hundreds of eggs of which only a few complete their development to become adults?
 - Snake
 - Whale
 - Bird
 - Frog

7. If the cerebellum of a vertebrate becomes irreversibly damaged, the organism would have significant impairment of which of the following functions?

- (A) Coordination of movements and balance
- (B) Regulation of heart and breathing rate
- (C) Storage of long-term memory
- (D) Release of posterior pituitary hormones

8. Which parts of a flower are essential for sexual reproduction?

- (A) Petal and carpel
- (B) Petal and stamen
- (C) Carpel and stamen
- (D) Sepal and petal

9. Which of the following is a true statement about the disposal of aluminum soda cans?

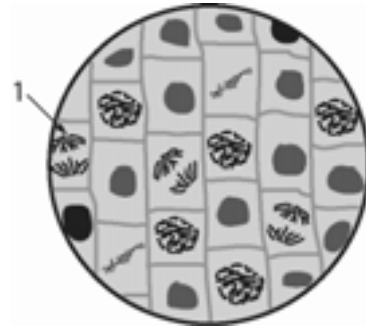
- (A) Aluminum cans are best recycled because aluminum is a scarce element in Earth's crust.
- (B) Aluminum cans are best recycled due to the high energy cost of processing aluminum ore.
- (C) Aluminum cans break down easily to contaminate groundwater surrounding a landfill.
- (D) Aluminum cans are coated with lead-based paints that can leach into groundwater surrounding a landfill.

10. Which of the following best helps explain why the largest land animals living today are predominately herbivores?

- (A) More energy is available at lower trophic levels.
- (B) Plants are at a higher trophic level than animals.
- (C) Plant matter is easier to digest than meat.
- (D) Biomagnification has killed off most of the large predators.

11. Bacterial samples were counted every hour from a flask being incubated at 37°C on a shaker. Which of the following was most likely being studied?

- (A) The number of conjugating bacteria
- (B) The nature of gram-negative bacteria and gram-positive bacteria
- (C) The pathogenicity of bacteria
- (D) The growth rate of bacteria



12. The cell labeled 1 in the figure above is in which of the following mitotic phases?

- (A) Anaphase
- (B) Metaphase
- (C) Prophase
- (D) Telophase

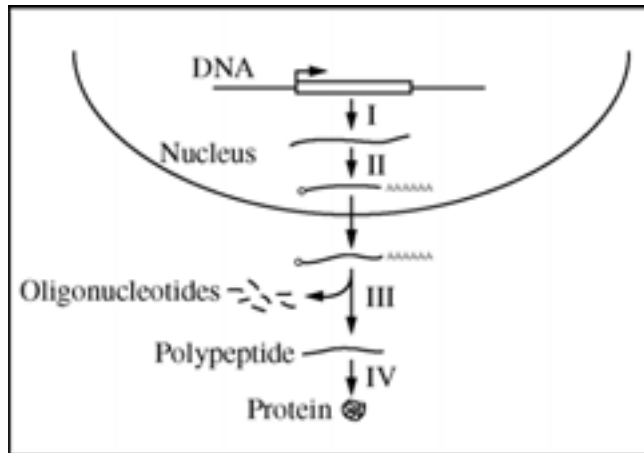
13. In a small population, the random change in allele frequencies that can lead to the loss of some alleles from the population is known as

- (A) allopatric speciation
- (B) adaptive radiation
- (C) balanced polymorphism
- (D) genetic drift

14. Which of the following is associated with pioneer species?

- (A) Understory community
- (B) Climax community
- (C) Late succession
- (D) Primary succession

Questions 15-17 refer to the diagram below, which outlines the gene expression steps involved in the production of a protein in eukaryotic cells.



15. Regulation is imposed on which of the following steps in the process?

- (A) I only
- (B) I and II only
- (C) I, II, and III only
- (D) I, II, III, and IV

17. Which step shows the effect of ribonuclease activity?

- (A) I
- (B) II
- (C) III
- (D) IV

16. Which step illustrates the processing of RNA?

- (A) I
- (B) II
- (C) III
- (D) IV

18. If the first two blastomeres of a developing frog embryo, each containing half of the gray crescent, were separated, which of the following would be the most likely result?

- (A) Development of identical twins
- (B) Development of a two-headed frog
- (C) Developmental arrest of the embryo
- (D) Development of two frogs, each missing different structures

19. A student is studying a certain species of bacterium. In this species, she has identified a certain operon that is inducible. She causes a mutation in the regulatory gene so that the repressor protein is not synthesized. The most likely result of this mutation is that the structural genes in the operon will

- (A) be transcribed only in the presence of the inducer
- (B) be transcribed only in the absence of the inducer
- (C) not be transcribed in either the presence or the absence of the inducer
- (D) be continuously transcribed in both the presence and the absence of the inducer

20. In photosynthesis, light energy is converted to chemical energy with an efficiency of approximately

- (A) 100%
- (B) 33%
- (C) 5%
- (D) 1%

21. Which of the following best characterizes a cross between a homozygous recessive individual and an individual with the dominant phenotype, but of unknown genotype?

- (A) Selective cross
- (B) Monohybrid cross
- (C) Dihybrid cross
- (D) Testcross

Student	Measured Mass (grams)	Actual Mass (grams)
<i>A</i>	8	10
<i>B</i>	55	50
<i>C</i>	108	100
<i>D</i>	190	200

22. Four students were each given a different object to determine the mass of. Based on their measurements and the actual mass of each object, shown in the table above, which student has the highest percent error?

- (A) *A*
- (B) *B*
- (C) *C*
- (D) *D*

Questions 23-24

Students in a high school biology class are preparing to conduct individual experiments to determine the conditions that are necessary for seed germination. Each student will design an experiment to test a single variable. The class data will then be collected and pooled in order to reach some general conclusions.

23. Which of the following is the most appropriate first step for each student to undertake?
- (A) Test a variable
 - (B) Write a theory
 - (C) Decide on a hypothesis to test
 - (D) Gather and set up materials
24. One of the students decided to test the following hypothesis:
- Seeds need light to germinate.
- Which of the following experimental designs would be the most appropriate to test this hypothesis?
- (A) Plant ten seeds in soil and place them in a dark cabinet.
 - (B) Place ten seeds on moist filter paper and place them on the windowsill. Place another ten seeds on moist filter paper and place them in a dark cabinet.
 - (C) Place one seed in a dish of water under a light. Place another seed of the same type in a dish of water in a dark cabinet.
 - (D) Put a full-grown geranium plant in the light and another full-grown plant of the same type in the dark.
-

25. Behavioral biologist Konrad Lorenz noticed that baby geese considered him to be their mother if he was the first image they saw immediately upon hatching. The baby geese were exhibiting which of the following behaviors?
- (A) Habituation
 - (B) Trial and error
 - (C) Territoriality
 - (D) Imprinting
26. A type of selection that exists between certain inherited conditions and environmental pressures, such as between sickle cell anemia and malaria, that stabilizes the frequency of both alleles is called
- (A) behavioral isolation
 - (B) ecological isolation
 - (C) hybridization
 - (D) balanced polymorphism
27. All of the following reactions produce ATP EXCEPT
- (A) photorespiration
 - (B) aerobic respiration
 - (C) substrate-level phosphorylation
 - (D) noncyclic photophosphorylation

28. The role of denitrifying bacteria in the nitrogen cycle is to
- (A) convert atmospheric nitrogen, N_2 , to ammonium, NH_4^+
 - (B) convert nitrate, NO_3^- , to atmospheric nitrogen, N_2
 - (C) assimilate nitrite, NO_2^- , to amino acids and organic compounds
 - (D) release ammonia, NH_3 , from amino acids and organic compounds

29. Frame-shift mutations result from which of the following events?
- (A) Substitution of a single nucleotide for a different nucleotide
 - (B) Deletion of three consecutive nucleotides from the DNA coding sequence
 - (C) Addition of one nucleotide in the coding region of the gene
 - (D) Substitution of one nucleotide, resulting in the presence of a stop codon

-
30. The amino acid sequence of the same protein was evaluated in five different organisms. The table below shows, for each organism, the number of differences that were found in the protein as compared to the human version of the protein:

Organism	Frog	Snake	Robin	Hamster	Chimpanzee
Number of Differences	54	36	17	8	1

Which of the following statements is best supported by the data?

- (A) Reptiles are more closely related to birds than to amphibians.
- (B) Humans and hamsters have a closer genetic relationship than humans and chimpanzees.
- (C) Humans and chimpanzees diverged genetically more recently than humans and snakes.
- (D) Fish should have fewer amino acid differences than amphibians.

31. A diploid organism has the genotype $AaBbCc$ for three loci, each of which is located on a different chromosome. A normal gamete produced by this organism could have which of the following genotypes?
- (A) AbC
 (B) AB
 (C) AaB
 (D) ACc
32. A bird in a cage jumps to its perch to be fed each day when it is presented with food. For a period of time, the cage is tapped before the bird food is given. Eventually the bird jumps to the perch when the cage is tapped, whether food is presented or not. The bird's behavior can be classified as which of the following forms of learning?
- (A) Habituation
 (B) Trial and error (operant conditioning)
 (C) Imprinting
 (D) Classical conditioning
33. Species that are not closely related may come to resemble each other as a result of their occupying similar habitats and adopting similar environmental roles. These species exemplify
- (A) coevolution
 (B) divergent evolution
 (C) convergent evolution
 (D) adaptive radiation
34. An individual with the genotype $AabbccDd$ mates with an individual with the genotype $AabbCCDd$. Which of the following is the expected frequency of offspring with the genotype $AaBbCcDd$?
- (A) 0
 (B) $\frac{1}{8}$
 (C) $\frac{1}{4}$
 (D) $\frac{1}{2}$
35. Which of the following must take place in order for ecological succession to occur in a given area?
- (A) The organisms living there at a given time must alter the environment.
 (B) The climate must change during the process.
 (C) The pioneer organisms must be better adapted to the environment than the climax community is.
 (D) The process of evolution must continually produce new species to fill available niches.

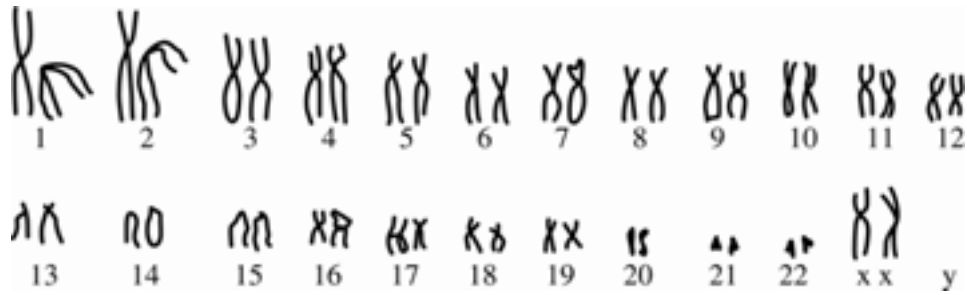
Questions 36-38

Certain enzymes can affect the structural elements of bacterial cell walls and cause the bacterial cell to burst. A biologist prepared a solution of such an enzyme and divided the solution equally into five aliquots, which were placed into test tubes labeled *A*, *B*, *C*, *D*, and *E*. The pH of each aliquot was then adjusted as shown in the table below. Three milliliters of a bacterial stock solution was added to each of the tubes. After 5 minutes, each tube was placed in a spectrophotometer and the percent of light transmitted was recorded.

Enzyme Aliquot	Adjusted pH of Aliquot	Percent of Light Transmitted
<i>A</i>	3.0	34%
<i>B</i>	5.0	42%
<i>C</i>	7.0	68%
<i>D</i>	9.0	39%
<i>E</i>	11.0	33%

36. This experiment was most likely designed to determine which of the following?
- (A) The most effective enzyme concentration for enzyme activity
 - (B) The most effective pH for enzyme activity
 - (C) Whether the enzyme adversely affects bacterial cells
 - (D) Whether pH changes stimulate bacterial cell division
37. Which of the following is the dependent variable in the experiment described?
- (A) The catalytic activity of the enzyme
 - (B) The temperature at which the experiment was conducted
 - (C) The concentration of enzyme used
 - (D) The concentration of the stock bacterial solution
38. Based on the data in the table, which pH results in the greatest disruption of bacterial cell structure?
- (A) 3.0
 - (B) 5.0
 - (C) 7.0
 - (D) 11.0

39. Which of the following is NOT a laboratory safety rule?
- (A) Safety goggles are only necessary when working with hot liquids and strong chemicals.
 - (B) Eating, smoking, or applying cosmetics should not be done in the laboratory.
 - (C) Disposable gloves should be worn when handling blood and body fluids.
 - (D) Bacteria-transfer areas should be decontaminated with a 10% bleach solution at the beginning and end of every lab.
40. Which of the following has provided the strongest evidence for the evolution of organisms?
- (A) The fossil record
 - (B) The existence of trophic levels
 - (C) Number of chromosomes
 - (D) Inheritance of acquired characteristics



41. The human karyotype shown above represents which of the following?

- (A) A female with Down syndrome
- (B) An individual with Turner syndrome
- (C) A male with cystic fibrosis
- (D) A female with a normal karyotype

Sockeye salmon
 Canada goose
 Rocky Mountain elk
 Monarch butterfly
 Gray whale

42. Which of the following is true about all of the animals listed above?

- (A) They have backbones.
- (B) They have internal fertilization.
- (C) They excrete urea.
- (D) They migrate.

43. All of the following are characteristics of phospholipids EXCEPT:

- (A) Each molecule contains fatty acids and glycerol.
- (B) Each molecule has a hydrophobic end and a hydrophilic end.
- (C) The molecules form bilayers spontaneously.
- (D) The molecules dissolve readily in water.

44. Which of the following is a true statement concerning antibody production?

- (A) The genes for antibody production are selectively lost during maturation of the lymphocyte.
- (B) The B cells are selectively activated to produce antibodies.
- (C) Antibody production occurs only in the embryo.
- (D) The genes for antibody production are inherited maternally and are passed down in the cytoplasm of the egg.

45. Which of the following is the primary cause of species extinction today?

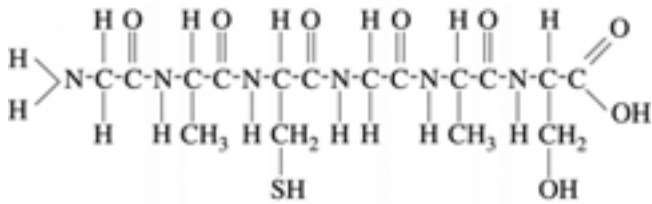
- (A) Overhunting
- (B) Pollution
- (C) Habitat loss
- (D) Global warming

46. All of the following genetic conditions result from nondisjunction during meiosis EXCEPT

- (A) Down syndrome
- (B) trisomy 18
- (C) Klinefelter syndrome
- (D) albinism

47. In a certain population, a particular recessive disorder is expressed in 1 of 100 individuals. If this population is in Hardy-Weinberg equilibrium for the trait in question, what is the frequency of the dominant allele in the population?

- (A) 0.01
- (B) 0.1
- (C) 0.5
- (D) 0.9



48. How many amino acid residues were incorporated in the synthesis of the polypeptide shown above?

- (A) Three
- (B) Four
- (C) Five
- (D) Six

49. A female squirrel sounds an alarm call to warn others of an approaching predator despite the increased risk to herself. This is an example of which of the following?

- (A) Learned behavior
- (B) Orientation behavior
- (C) Altruistic behavior
- (D) Displacement behavior

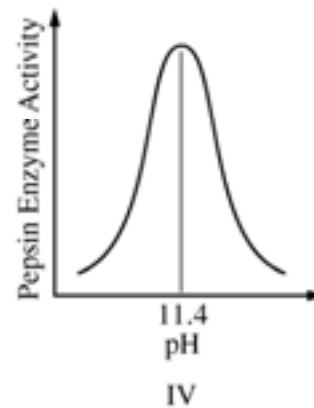
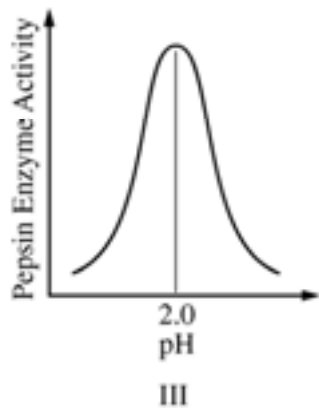
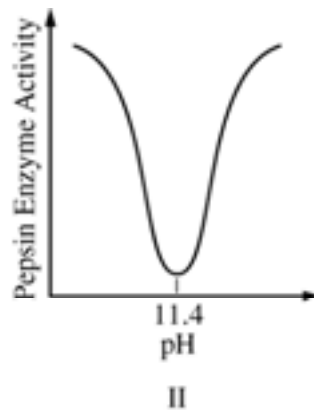
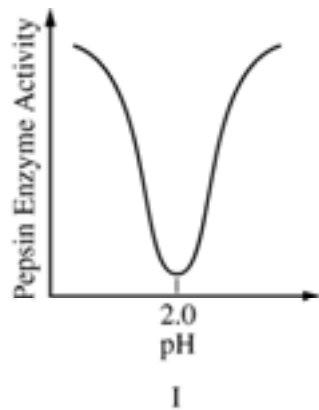
50. Which of the following best accounts for the complex regulation of gene expression in multicellular eukaryotic species?

- (A) The presence of a large number of genes
- (B) The presence of promoter regions
- (C) The genome is composed of many chromosomes
- (D) Cell- and tissue-specific gene expression

51. Which of the following syndromes results from repeats of a specific codon and is characterized by altered speech patterns, mental retardation, and other physical abnormalities?

- (A) Down syndrome
- (B) Fragile X syndrome
- (C) Klinefelter syndrome
- (D) Turner syndrome

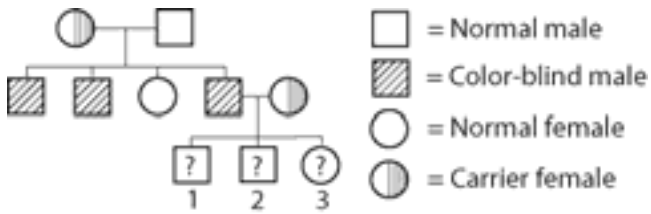
52. Which of the following structures of a flowering plant is NOT correctly matched with the appropriate chromosome number?
- (A) Megaspore . . . haploid
 - (B) Embryo . . . haploid
 - (C) Hypocotyl . . . diploid
 - (D) Endosperm . . . triploid
53. Magnesium is an essential nutrient in plants because it is
- (A) required for the transport of water
 - (B) required for the operation of stomata
 - (C) a component of plant hormones
 - (D) a component of chlorophyll
54. All of the following are reservoirs of carbon in the carbon cycle EXCEPT
- (A) fossil fuels
 - (B) ammonia
 - (C) limestone
 - (D) the atmosphere
55. Which of the following is the function of the codon?
- (A) It directs the removal of introns from pre-mRNA molecules.
 - (B) It specifies the amino acid sequence of proteins relative to the nucleotide sequence of DNA.
 - (C) It determines the arrangement of genes on each chromosome within a cell.
 - (D) It specifies which nucleotides pair with each other in each strand of the DNA double helix.
56. To maintain constant body temperature in a cold environment, a homeothermic animal uses all of the following physiological mechanisms EXCEPT
- (A) releasing hormones to increase the metabolic rate
 - (B) fluffing the feathers to trap a thicker layer of air
 - (C) shivering
 - (D) vasodilatation of superficial blood vessels
57. Which of the following is true of the binomial system?
- (A) It uses two words to identify each species.
 - (B) It identifies any two organisms that are similar and in the same family.
 - (C) It has plants and animals as the two major kingdoms.
 - (D) It uses a dichotomous taxonomic key to identify an organism.
58. Question 58 Omitted from this test



59. The stomach enzyme pepsin functions best in a narrow range of high hydrogen ion concentrations. Which of the graphs above represents the relationship between optimal pepsin enzyme activity and pH?

- (A) I
- (B) II
- (C) III
- (D) IV

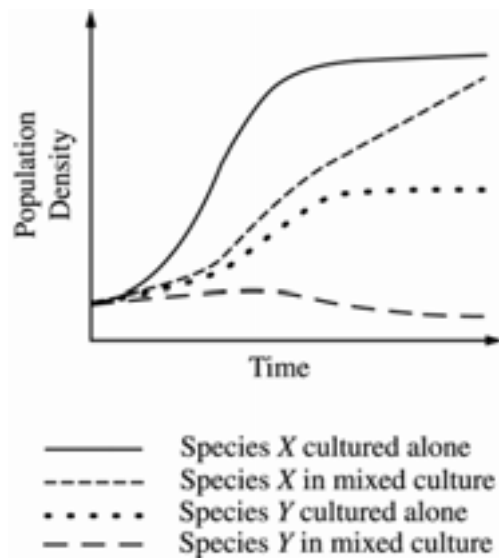
60. Which of the following is NOT a characteristic of DNA polymerases?
- (A) They are composed of amino acids.
 - (B) They are synthesized in the cytoplasm.
 - (C) They are used to unwind DNA prior to replication.
 - (D) They add nucleotides one at a time to a DNA chain.
61. Which of the following best describes the role of buffers in living systems?
- (A) Regulating blood glucose levels
 - (B) Controlling levels of growth hormone in the blood
 - (C) Combining with excess H^+ and OH^- ions in solution
 - (D) Activating anaerobic respiratory pathways
62. In Central America, a certain species of *Acacia cornigera* tree provides nutrition and shelter for ants of the genus *Pseudomyrmex*. The ants live in large hollow thorns and eat sugar secreted by the tree and also obtain protein and oils from the swellings at the tips of the leaflets. The ants attack any organisms that come near the acacia. If the ants are removed, the tree will die. The relationship between these two organisms is an example of
- (A) parasitism
 - (B) commensalism
 - (C) mutualism
 - (D) camouflage
63. Extreme halophiles and extreme thermophiles are members of which of the following taxonomic groups?
- (A) Archaea
 - (B) Fungi
 - (C) Eubacteria
 - (D) Protista
64. Which of the following statements about the acrosome of a human sperm is correct?
- (A) It provides ATP for moving the flagellum.
 - (B) It is involved in fusion of the male and female pronuclei.
 - (C) It contains enzymes to help the sperm penetrate the egg.
 - (D) It is located at the base of the flagellum of the sperm.



65. Which of the following statements is true about the inheritance of color blindness in the family represented in the pedigree chart above?
- (A) Individual 3 must inherit at least one allele for color blindness from her mother.
 - (B) There is a 50% chance that individual 3 will express the trait of color blindness.
 - (C) Individuals 1 and 2 must inherit the allele for color blindness.
 - (D) Both individuals 1 and 2 could inherit the allele for color blindness from their father.
66. Favoring of a variation of a trait toward one extreme, as in the case of anteaters with long tongues that prey on termites more effectively than anteaters with shorter tongues, leads to
- (A) sexual selection
 - (B) disruptive selection
 - (C) directional selection
 - (D) stabilizing selection

67. In plants, the seed leaves that may store carbohydrates for the embryonic plant are called
- (A) cotyledons
 - (B) bracts
 - (C) tendrils
 - (D) stolons
68. All of the following cellular characteristics are found in eukaryotic cells EXCEPT
- (A) 9 + 2 arrangement of microtubules in the flagella
 - (B) mitochondria
 - (C) pili on the surface of the cells
 - (D) a nuclear envelope

Questions 69-72



An experiment was performed to study the interaction between two species of protists, *X* and *Y*. Three laboratory cultures were established: species *X* cultured alone, species *Y* cultured alone, and a mixture of *X* and *Y* cultured together. A single bacterial species is used as the food supply. Temperature, light, and the amount of food were kept the same for all three cultures. The graph above shows the population densities recorded over several days.

69. According to the graph, which of the following can be inferred about species *X* cultured alone in this environment, as compared to species *Y* cultured alone in this environment?
- (A) Species *X* feeds less aggressively.
 - (B) Species *X* has a longer life span.
 - (C) Species *X* has a higher carrying capacity.
 - (D) Species *X* has a more varied diet.
70. The results above demonstrate which of the following?
- (A) Biological succession
 - (B) Interspecific competition
 - (C) Extinction by predation
 - (D) Mutualism
71. If the mixed culture is maintained for an extended period, which of the following will most likely happen?
- (A) Species *Y* will become a predator of species *X*.
 - (B) Species *Y* will be eliminated from the culture.
 - (C) A symbiotic relationship will develop between species *X* and *Y*.
 - (D) Exponential growth in the density of species *Y* will occur.
72. Which of the following represents the experimental control?
- (A) The pure culture of species *Y* only
 - (B) The culture containing species *X* and *Y* together
 - (C) Both pure cultures of *X* and *Y*
 - (D) There is no control.

73. Which of the following is most likely true about the first cells that appeared on Earth?
- (A) They used cilia for locomotion.
 - (B) They were eukaryotes.
 - (C) They were autotrophs.
 - (D) They were anaerobes.
74. Which of the following plant hormones is associated with rapid ripening of fruit?
- (A) Auxin
 - (B) Gibberellin
 - (C) Ethylene
 - (D) Cytokinin
75. Which of the following statements about the human immunodeficiency virus (HIV) is true?
- (A) HIV contains deoxyribonucleic acid.
 - (B) HIV infects only B cells.
 - (C) HIV is a retrovirus.
 - (D) The fetus of an HIV-positive woman is 100% likely to be infected.

Questions 76-77

A laboratory culture of bacteria is transferred to two petri dishes. Dish *X* contains nutrient medium only, and dish *Y* contains nutrient medium plus penicillin. Both dishes are kept under the same conditions. After 48 hours, dish *X* has grown hundreds of new colonies of this bacterial species, whereas dish *Y* has grown only a single colony.

76. Which of the following best explains the appearance of a single colony in dish *Y*?
- (A) The dish is contaminated.
 - (B) A single penicillin-resistant cell has given rise to a colony.
 - (C) Bacteria grow more slowly in a medium containing penicillin.
 - (D) Penicillin inhibits mitochondrion formation in bacteria.
77. If the colony in dish *Y* were spread onto another dish with the same medium containing the same concentration of penicillin, which of the following is most likely to happen?
- (A) No growth would occur.
 - (B) Very few colonies would appear.
 - (C) Colonies would appear slowly and unpredictably.
 - (D) Many colonies would appear.

78. In a classification hierarchy, which of the following categories is most inclusive?
- (A) Genus
 - (B) Phylum
 - (C) Class
 - (D) Order
79. Scientists believe that echinoderms and chordates have a recent common ancestor. Which of the following best supports this hypothesis?
- (A) Both groups develop the three embryonic germ layers during blastula formation.
 - (B) Both groups have similar cleavage patterns during embryonic development.
 - (C) Both groups have respiratory systems derived from endoderm.
 - (D) Both groups display pharyngeal slits during embryonic development.
80. Which of the following is the primary function of bone marrow in humans?
- (A) It is the site of O₂ and CO₂ exchange.
 - (B) It is the source of new blood cells.
 - (C) It is the site of tendon attachment.
 - (D) It is the source of hormones that control bone growth.

Directions: Each group of questions below consists of four lettered headings followed by a list of numbered phrases or sentences. For each numbered phrase or sentence, select the one heading that is most closely related to it and fill in completely the corresponding space on the answer sheet. One heading may be used once, more than once or not at all in each group.

Questions 81-83 refer to the following.

- (A) Transduction
- (B) Translocation
- (C) Transformation
- (D) Conjugation

- 81. A type of chromosomal aberration that may result from an error in gamete formation
- 82. A change in bacterial genotype and phenotype due to the uptake of foreign DNA from the surrounding environment
- 83. A recombination mechanism in which phages transfer bacterial genes from one host cell to another

Questions 84-86 refer to the following processes.

- (A) Krebs cycle
- (B) Oxidative phosphorylation
- (C) Glycolysis
- (D) Calvin cycle

- 84. The end result of this process is two molecules of pyruvate.
- 85. This process is common to both aerobic and anaerobic respiration.
- 86. The bulk of a cell's ATP is generated during this process.

Questions 87-89 refer to the following gases.

- (A) Carbon monoxide
- (B) Carbon dioxide
- (C) Methane
- (D) Sulfur dioxide

87. Is the primary pollutant responsible for acid precipitation
88. Has a stronger affinity for hemoglobin than oxygen has
89. Is removed from the atmosphere by the process of photosynthesis

Questions 90-92 refer to the following zones in the marine environment.

- (A) Pelagic
- (B) Neritic
- (C) Oceanic
- (D) Benthic

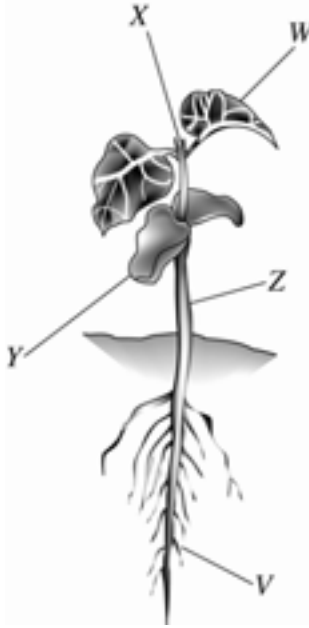
90. Bottom of the ocean
91. Habitat for coral reefs in warm tropical water
92. Shallow waters over the continental shelf

Questions 93-97 refer to the following plant tissues.

- (A) Epidermis
- (B) Ground
- (C) Vascular
- (D) Meristem

93. The pattern of plant growth depends directly on the location of this tissue.
94. It covers and protects all the young and tender parts of a plant.
95. It may secrete the cuticle on leaves and stems.
96. Its functions include support and internal transport.
97. Its functions include photosynthesis and storage.

Questions 98-100 refer to the following diagram of a seedling.



98. Provides food for the developing embryo prior to germination

- (A) *V*
- (B) *W*
- (C) *Y*
- (D) *Z*

99. Primarily responsible for carbohydrate synthesis after germination

- (A) *W*
- (B) *X*
- (C) *Y*
- (D) *Z*

100. A site with a high rate of mitotic activity

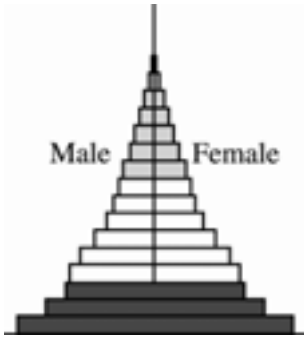
- (A) *W*
- (B) *X*
- (C) *Y*
- (D) *Z*

Directions: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case and then fill in the corresponding lettered space on the answer sheet with a heavy, dark mark so that you cannot see the letter.

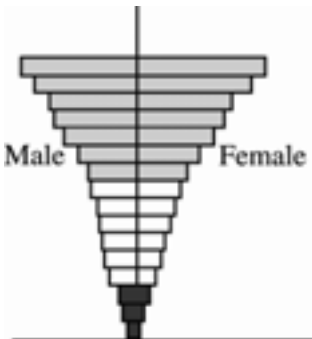
101. PCR (polymerase chain reaction) is a technique used to amplify small amounts of DNA for further study. Which of the following is a key component used in PCR?
- (A) Reverse transcriptase
 - (B) Restriction enzymes
 - (C) DNA ligase
 - (D) DNA primers
102. The “beads on a string” analogy used to describe the structure of chromosomes refers to DNA-histone protein complexes called
- (A) ribosomes
 - (B) nucleosomes
 - (C) nucleoli
 - (D) telomeres
103. Skin color in humans appears to show a continuous distribution. In an examination of pedigrees, no recognizable pattern of Mendelian inheritance is found with respect to skin color. This suggests that inheritance of skin color in humans is
- (A) codominant
 - (B) epistatic
 - (C) incompletely dominant
 - (D) polygenic
104. Which of the following is true during contraction of skeletal muscle?
- (A) The myosin and actin filaments do not overlap in sarcomere.
 - (B) The sarcomere lengthens as the actin and myosin filaments overlap.
 - (C) The sarcomere shortens, but the actin and myosin filaments do not change in length.
 - (D) Depolymerization of the actin and myosin filaments causes the sarcomere to shorten.
105. In vertebrates, what is the correct sequence of development of the following structures, from earliest to latest?
- (A) Blastocoel, neural crest, morula, gastrula
 - (B) Gastrula, morula, blastocoel, neural crest
 - (C) Morula, blastocoel, gastrula, neural crest
 - (D) Morula, gastrula, neural crest, blastocoel

106. Which of the following profiles of a country's age structure best represents a country whose population is growing most rapidly?

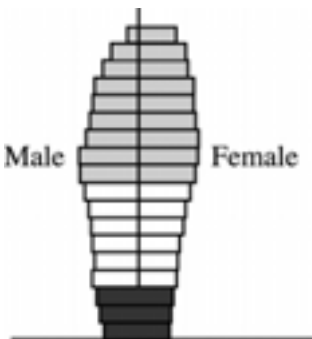
(A)



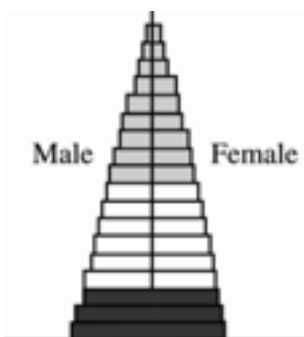
(B)



(C)

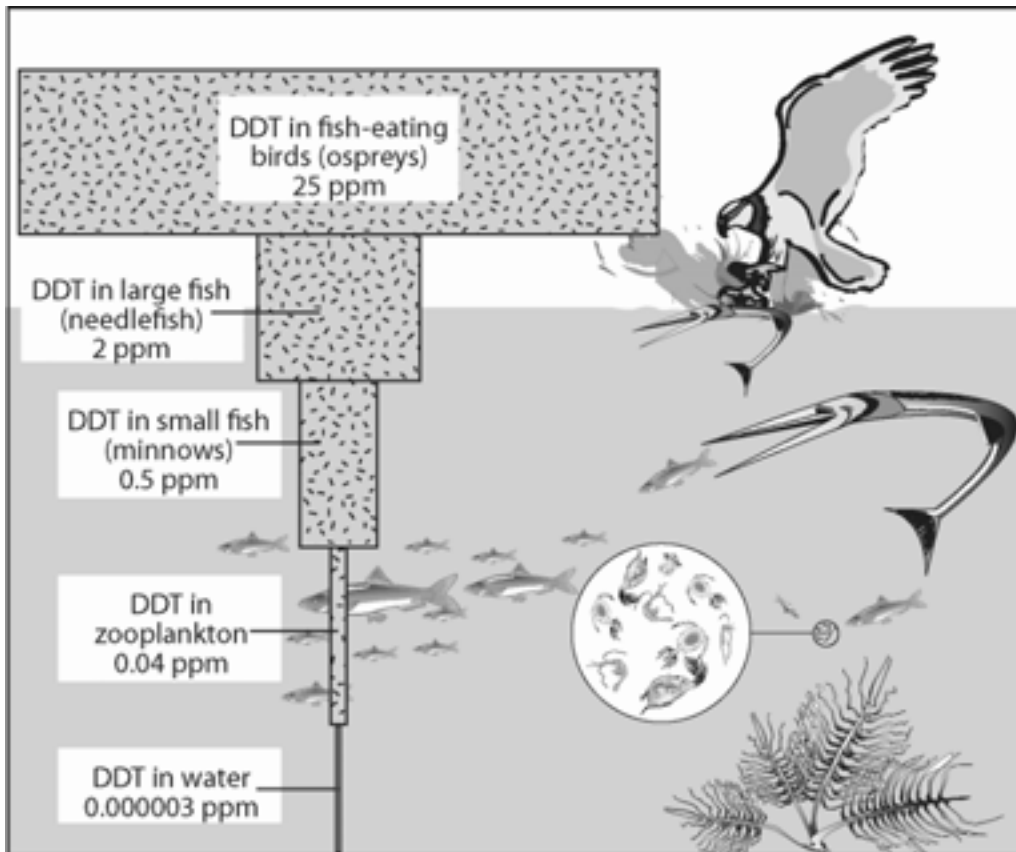


(D)



107. Which of the following statements correctly describes receptor-mediated endocytosis?

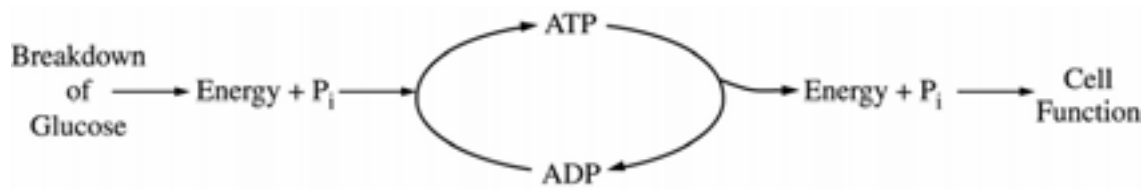
- (A) Specific substances are secreted from the cell.
- (B) Receptor proteins bind to the specific molecules being transported into the cell.
- (C) Molecules in the extracellular environment undergo nonselective uptake.
- (D) Proteins are moved directly through pores in the membrane.



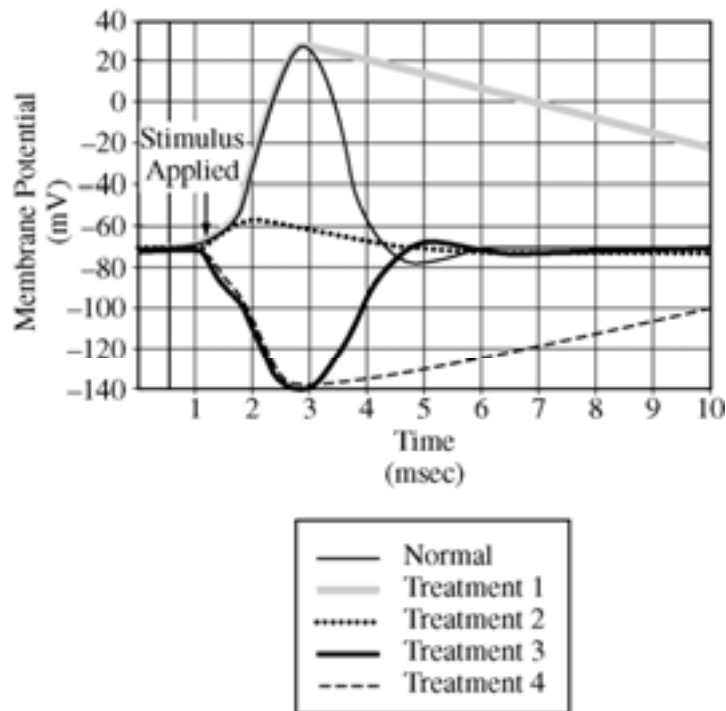
108. Which of the following processes is shown in the diagram above?

- (A) Biological magnification
- (B) Cultural eutrophication
- (C) Resource partitioning
- (D) Pyramid of biomass

109. Which of the following will most likely occur when two species in a habitat have overlapping niches?
- (A) Interspecific competition will increase.
 - (B) Sharing of resources between the two species will increase.
 - (C) Genetic variation between the two species will decrease due to intermating.
 - (D) The incidence of disease will decrease.
110. The respiratory surfaces of most terrestrial animals have special infoldings of the body surface. These adaptations are useful because
- (A) external respiratory organs would invite attack from predators
 - (B) gas exchange requires a thin, moist membrane of sufficient surface area to meet the requirements of the animal
 - (C) gas exchange requires the use of circulatory pigments
 - (D) gas exchange is less efficient on land than in aquatic environments
111. An animal with three distinct body divisions, a pair of antennae, compound eyes, and six legs is most likely
- (A) a tunicate
 - (B) a polychaete
 - (C) an insect
 - (D) a spider



112. Which of the following statements best describes the process shown in the diagram above?
- (A) Energy is transferred from glucose to the phosphate group.
 - (B) Phosphorous is needed to break down glucose.
 - (C) When ADP gains a phosphate ion, it loses energy.
 - (D) Energy can be stored in the form of ATP.

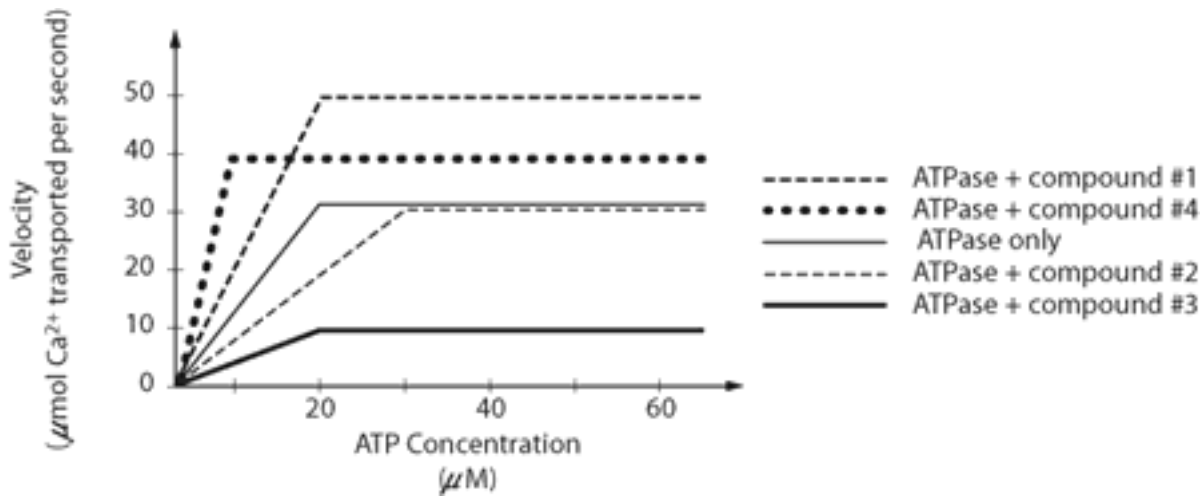


113. The diagram above represents the action potential across a neuron's plasma membrane under normal (no treatment) conditions and in the presence of various chemicals. In which of the following treatments is the neuron pretreated with a chemical that completely blocked the sodium channel in the plasma membrane when a threshold stimulus is applied?
- (A) Treatment 1
 - (B) Treatment 2
 - (C) Treatment 3
 - (D) Treatment 4

114. The contraceptive pill prevents pregnancy by
- (A) stimulating the release of progesterone from the ovarian cells
 - (B) enzymatically hydrolyzing the egg
 - (C) blocking sperm receptors on the egg
 - (D) inhibiting the release of FSH and LH from the pituitary

Questions 115-116

The graph below shows the results of experiments conducted to determine the effects of various compounds on the rate at which Ca^{2+} -ATPase actively transports calcium ions (Ca^{2+}) from the cell cytoplasm into the extracellular fluid or into intracellular storage vesicles. Activity of the ATPase is measured at various ATP concentrations alone and in the presence of the same concentration of each of four compounds (#1, #2, #3, and #4).



115. What is the approximate value of the maximum velocity for ATPase alone ($\mu\text{mol Ca}^{2+}$ transported per second) ?

- (A) 20
- (B) 30
- (C) 40
- (D) 50

116. In the experiments, ATP served as which of the following?

- (A) The coenzyme
- (B) The product
- (C) The substrate
- (D) The competitive inhibitor

117. The relative distances between four gene loci on a chromosome can be mapped from the following data on crossover frequencies.

<u>Genes</u>	<u>Crossover Frequency (%)</u>
<i>T</i> and <i>U</i>	55
<i>U</i> and <i>V</i>	15
<i>T</i> and <i>W</i>	5
<i>U</i> and <i>W</i>	60
<i>W</i> and <i>V</i>	45

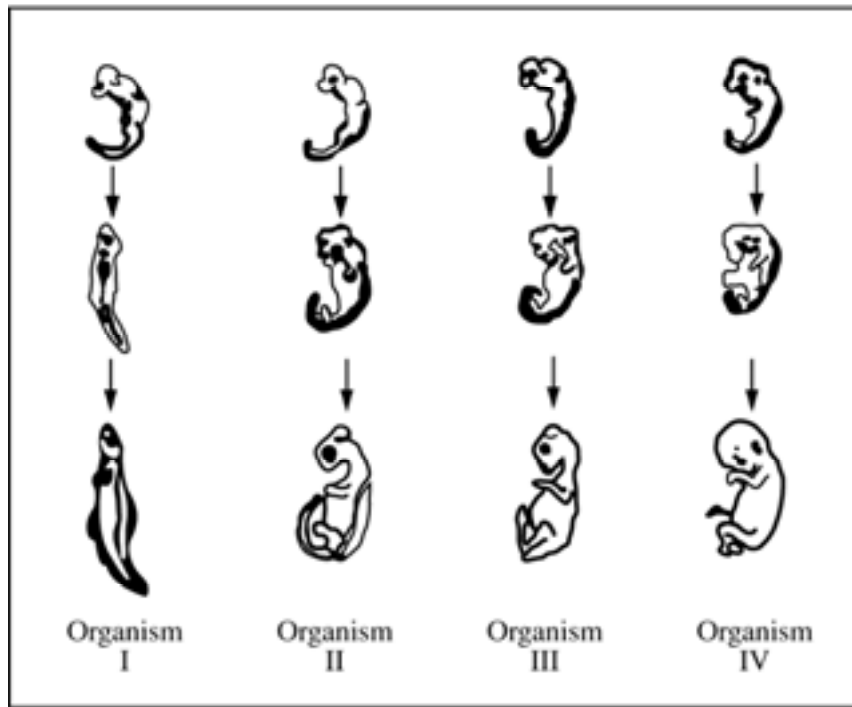
Which of the following is the correct order of the genes shown above?

- (A) *TUVW*
- (B) *UVTW*
- (C) *VWTU*
- (D) *WTUV*

118. The ecological role that an organism plays in the community is known as which of the following?

- (A) Biome
- (B) Niche
- (C) Ecotone
- (D) Territory

EMBRYOLOGICAL DEVELOPMENT



119. Which of the following is the best explanation for the similarities in embryonic development between organisms I, II, III, and IV?
- (A) All are members of the same species.
 - (B) All evolved from a common ancestor.
 - (C) All have adaptations for the same environment as adults.
 - (D) All undergo external development.

120. Which of the following is an example of asexual reproduction in plants?
- (A) Self-pollination in pea plants
 - (B) Production of many fern sporophytes from a fern gametophyte
 - (C) Production of fruit with many seeds as in tomatoes
 - (D) Strawberry plants produced by runners from other strawberry plants
121. Which of the following structures pumps the blood out of the mammalian heart?
- (A) Atrium
 - (B) Ventricle
 - (C) Aorta
 - (D) Pericardium
122. Which of the following is NOT an example of parthenogenesis?
- (A) Female whiptail lizards double their chromosomes after meiosis to create diploid zygotes.
 - (B) Haploid honeybee drones develop from unfertilized eggs.
 - (C) Haploid female rotifers produce haploid eggs, which develop into females.
 - (D) A new individual of *Linckia* sea star is formed from an isolated arm.
123. A difference between plants and fungi is that plants
- (A) have cell walls
 - (B) are multicellular eukaryotes
 - (C) are autotrophic
 - (D) are decomposers

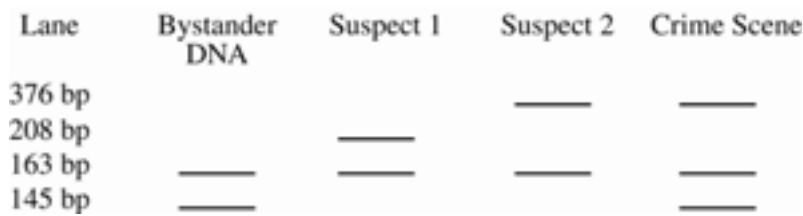
Questions 124-126

An experiment is conducted to demonstrate the movement of substances into and out of a cell. A piece of dialysis tubing is filled with starch solution and sealed on both ends. The sealed tubing is then placed in a beaker containing a dilute iodine solution. After 24 hours, the starch solution inside the bag has a dark blue-black color and the solution in the beaker has remained the original color of the dilute iodine solution. The tubing is also observed to have increased in size and become more turgid.

124. Of the following, which part of a living cell does the dialysis tubing represent?
- (A) Nucleus
 - (B) Cell wall
 - (C) Plasma membrane
 - (D) Cytoplasm
125. Which of the following processes is responsible for the flow of materials through the dialysis tubing?
- (A) Diffusion
 - (B) Endocytosis
 - (C) Active transport
 - (D) Exocytosis
126. Which of the following best explains why the starch solution inside the tube changed color?
- (A) Water moved into the tubing.
 - (B) Starch moved out of the tubing.
 - (C) Starch inside the tubing was hydrolyzed to glucose.
 - (D) Iodine moved into the tubing.

127. The release of carbon dioxide during the burning of fossil fuels has contributed to which of the following environmental problems?
- (A) Global warming
 - (B) Acid precipitation
 - (C) A decrease in chemical weathering
 - (D) The loss of nonrenewable resources
128. Which of the following children would be most likely to have an Rh incompatibility?
- (A) The first child of an Rh-positive mother and an Rh-positive father
 - (B) The first child of an Rh-negative mother and an Rh-negative father
 - (C) The second child of an Rh-negative mother and an Rh-positive father
 - (D) The second child of an Rh-positive mother and an Rh-negative father
129. A forest fire destroys 90 percent of a pine tree population. Microevolution that occurs in the pine tree population following this disaster is best attributed to which of the following?
- (A) Bottleneck effect
 - (B) Founder effect
 - (C) Gene flow
 - (D) Natural selection
130. Which of the following adaptations is considered to facilitate a high metabolic rate?
- (A) Keratinized scales
 - (B) Sexual reproduction
 - (C) Four-chambered heart
 - (D) Muscles attached to an endoskeleton
131. Which of the following would best help maintain the diversity and abundance of organisms in a terrestrial ecosystem?
- (A) Introducing a new exotic species
 - (B) Preventing habitat destruction
 - (C) Eliminating predatory species
 - (D) Removing weeds and other undesirable plants
132. Study of which of the following is most useful in determining the evolutionary relationship among animals from different phyla?
- (A) Size
 - (B) Habitat
 - (C) Protein makeup
 - (D) Geographic distribution

133. Mendel noticed that when he crossed two pea plants with tall stems, some of the offspring had short stems. Which of the following best explains his observation?
- (A) Linkage
 - (B) Independent assortment
 - (C) Segregation
 - (D) Incomplete dominance
134. Which of the following best describes a difference between viruses and prions?
- (A) Viruses contain nucleic acids, but prions do not.
 - (B) Prions reproduce sexually, but viruses do not.
 - (C) Viruses are infections, but prions are not.
 - (D) Prions contain membrane-bound organelles, but viruses do not.
135. Exergonic and endergonic reactions in cells are interrelated in that
- (A) energy released from exergonic reactions can be used to power endergonic reactions
 - (B) an exergonic reaction cannot occur without an equivalent endergonic reaction
 - (C) reactants are often the same for both types of reactions
 - (D) products are often the same for both types of reactions
136. Which of the following statements is true about the structure of DNA?
- (A) Adenine pairs only with uracil.
 - (B) Guanine always pairs with thymine.
 - (C) The two DNA strands are held together by hydrogen bonds between their bases.
 - (D) DNA is double stranded only when it is synthesizing RNA.
137. All of the following are true statements about cholesterol EXCEPT:
- (A) Cholesterol is not found in avocados.
 - (B) Cholesterol is a component of animal cell membranes.
 - (C) Cholesterol is a type of fatty acid.
 - (D) Cholesterol is converted by the body into steroid hormones such as estrogen or testosterone.



138. DNA samples from saliva collected at a crime scene were matched against DNA from two suspects and a bystander. The diagram above represents an agarose gel in which the products of amplification of the DNA samples have been separated by electrophoresis and stained using a marker. Why was the bystander's DNA included in the study?

- (A) To determine when the crime occurred
- (B) To allow the bystander to serve as a witness
- (C) To control for contamination from bystander DNA
- (D) To get an even number of samples for DNA fingerprinting

139. In an attempt to understand human diversity, scientists are studying slight variations in individual DNA sequences from people around the world. This type of research is known as

- (A) DNA fingerprinting
- (B) bioinformatics
- (C) gene mapping
- (D) genetic engineering

140. According to evolutionary theory, which of the following individuals would have the greatest Darwinian fitness?

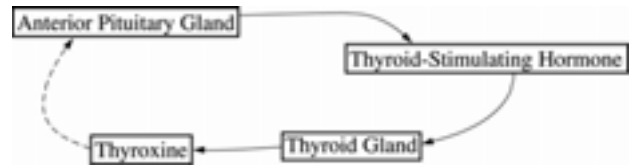
- (A) A man who lived to be seventy years old, had no children, and remained very healthy until just before he died
- (B) A man who lived to be fifty, had 4 children and 16 grandchildren, and was ill for five years before his death
- (C) A woman who lived to be eighty, had 6 children, 30 grandchildren, and 17 great-grandchildren, and was in poor health most of her life
- (D) A woman who lived to be ninety, had 1 child and no grandchildren, and was ill for four years before her death

141. In an experiment, cells are incubated in a nutrient media containing radioactive ^{35}S -methionine for 10 minutes. The media is then removed and replaced with nutrient media containing normal methionine. Periodically, a sample of the cells is removed and the cells are homogenized, centrifuged and organelles isolated. For a protein that will eventually be exported from the cell, which of the following is the correct order in which radioactivity will appear in the organelles of the cells?
- (A) Nucleus → rough endoplasmic reticulum → Golgi apparatus → transport vesicles
 - (B) Cytoplasmic ribosomes → plasma membrane → transport vesicles
 - (C) Rough endoplasmic reticulum → Golgi apparatus → transport vesicles
 - (D) Smooth endoplasmic reticulum → cytoplasmic ribosomes → plasma membrane
-

142. Calcium functions in all of the following ways in animals EXCEPT as
- (A) a component in some arthropod skeletons
 - (B) an intracellular messenger
 - (C) a cofactor in the coagulation cascade
 - (D) a carrier for certain plasma proteins
143. Using DNA technology, researchers are engineering nitrogen-fixing bacteria that can live in the tissues of nitrogen-demanding plants, which would reduce the use of chemical fertilizers. Which of the following crops would most likely benefit from this kind of research?
- (A) Soybeans
 - (B) Alfalfa
 - (C) Green beans
 - (D) Corn

144. Which of the following are functions of human luteinizing hormone (LH) in females?
- I. Ovarian follicle maturation
 - II. Triggering of ovulation
 - III. Stimulation of oxytocin production
- (A) I only
 - (B) II only
 - (C) I and II only
 - (D) II and III only
145. Which of the following statements about sea urchin development is correct?
- (A) The blastopore will become the mouth.
 - (B) Endoderm will form the future digestive surface.
 - (C) Ectoderm will form the outermost muscle layers.
 - (D) The blastocoel will form the coelom, or body cavity.

146. Which of the following is an example of a density-independent factor that affects a population?
- (A) Drought
 (B) Parasitism
 (C) Overcrowding
 (D) Predation
147. Which of the following is most likely to occur when double-stranded DNA is heated in the laboratory as part of the polymerase chain reaction (PCR) technique?
- (A) The DNA will coil tightly around histones.
 (B) The DNA will decompose and be transformed into RNA.
 (C) The DNA will separate into two strands as the hydrogen bonds are broken.
 (D) The DNA will become more stable because of an increased number of hydrogen bonds.
148. The changes in turgor pressure that cause the stomata of leaves to open and close result primarily from the reversible uptake and loss of which of the following ions by the guard cells?
- (A) Potassium
 (B) Sodium
 (C) Calcium
 (D) Chloride



149. The diagram above shows the relationship between the pituitary gland, thyroid-stimulating hormone, the thyroid gland, and thyroxine. An increase in the amount of thyroxine causes a decrease in the production of thyroid-stimulating hormone. This biological process is called
- (A) positive feedback
 (B) negative feedback
 (C) translocation
 (D) countercurrent exchange
150. Hardy-Weinberg equilibrium in a population may be disturbed by all of the following EXCEPT
- (A) mutation
 (B) immigration
 (C) random mating
 (D) natural selection

S T O P

If you finish before time is called, you may check your work on this test.

Scoring Your Practice Test

First, determine your raw score. To determine your raw score, check your answers against the answers shown in Table 1, and then count how many of the questions you answered correctly. (A description of the content categories represented by the Roman numerals in Table 1 can be found on page 44.)

Table 1 – Answers and Content Categories for the Biology: Content Knowledge Practice Test

Sequence Number	Correct Answer	Content Category
1	B	VI
2	A	II
3	C	I
4	D	III
5	C	II
6	D	V
7	A	IV
8	C	IV
9	B	VI
10	A	V
11	D	I
12	A	II
13	D	III
14	D	V
15	D	II
16	B	II
17	C	II
18	A	IV
19	D	II
20	D	V
21	D	III
22	A	I
23	C	I
24	B	I
25	D	IV
26	D	III
27	A	II
28	B	V
29	C	II
30	C	III
31	A	II
32	D	IV
33	C	III
34	A	III
35	A	V
36	B	I

Sequence Number	Correct Answer	Content Category
37	A	I
38	C	I
39	A	I
40	A	III
41	D	III
42	D	IV
43	D	II
44	B	IV
45	C	V
46	D	III
47	D	III
48	D	II
49	C	V
50	D	II
51	B	III
52	B	IV
53	D	IV
54	B	V
55	B	II
56	D	IV
57	A	IV
58	*	
59	C	II
60	C	II
61	C	II
62	C	V
63	A	IV
64	C	IV
65	B	III
66	C	III
67	A	IV
68	C	II
69	C	V
70	B	V
71	B	V
72	C	I

* - question omitted from test

Sequence Number	Correct Answer	Content Category
73	D	III
74	C	IV
75	C	VI
76	B	I
77	D	I
78	B	IV
79	B	IV
80	B	IV
81	B	II
82	C	II
83	A	II
84	C	II
85	C	II
86	B	II
87	D	VI
88	A	VI
89	B	VI
90	D	V
91	B	V
92	B	V
93	D	IV
94	A	IV
95	A	IV
96	C	IV
97	B	IV
98	C	IV
99	A	IV
100	B	IV
101	D	II
102	B	III
103	D	III
104	C	IV
105	C	IV
106	A	V
107	B	II
108	A	V
109	A	V
110	B	IV
111	C	IV
112	D	II
113	B	IV
114	D	VI

Sequence Number	Correct Answer	Content Category
115	B	II
116	C	II
117	B	III
118	B	V
119	B	III
120	D	IV
121	B	IV
122	D	IV
123	C	IV
124	C	II
125	A	II
126	D	II
127	A	VI
128	C	III
129	A	III
130	C	IV
131	B	V
132	C	IV
133	C	III
134	A	II
135	A	II
136	C	II
137	C	IV
138	C	VI
139	B	VI
140	C	III
141	C	II
142	D	IV
143	D	VI
144	C	IV
145	B	IV
146	A	V
147	C	II
148	A	IV
149	B	IV
150	C	III

Your raw score = _____ (the number of correct answers).

Next, determine your scaled score. Use Table 2 to find the scaled score corresponding to your raw score. You can compare your scaled score to the passing score required by your state. (You can find a list of the minimum passing scores at www.ets.org.)

Table 2 – Score Conversion Table

Raw Score	Scaled Score	Raw Score	Scaled Score	Raw Score	Scaled Score
0	100	33	100	64	132
1	100	34	100	65	133
2	100	35	100	66	134
3	100	36	100	67	135
4	100	37	101	68	136
5	100	38	102	69	137
6	100	39	103	70	138
7	100	40	105	71	139
8	100	41	106	72	140
9	100	42	107	73	141
10	100	43	108	74	142
11	100	44	109	75	143
12	100	45	110	76	144
13	100	46	111	77	145
14	100	47	112	78	146
15	100	48	114	79	147
16	100	49	115	80	148
17	100	50	116	81	149
18	100	51	117	82	150
19	100	52	118	83	151
20	100	53	119	84	152
21	100	54	120	85	153
22	100	55	121	86	153
23	100	56	123	87	154
24	100	57	124	88	155
25	100	58	125	89	156
26	100	59	126	90	157
27	100	60	127	91	158
28	100	61	128	92	159
29	100	62	129	93	159
30	100	63	130		
31	100				
32	100				

Raw Score	Scaled Score
94	160
95	161
96	162
97	163
98	163
99	164
100	165
101	166
102	167
103	168
104	168
105	169
106	170
107	171
108	172
109	173
110	173
111	174
112	175
113	176

Raw Score	Scaled Score
114	177
115	178
116	178
117	179
118	180
119	181
120	182
121	183
122	184
123	185
124	186
125	187
126	188
127	188
128	189
129	190
130	191
131	192
132	193
133	194

Raw Score	Scaled Score
134	195
135	196
136	197
137	198
138	199
139	200
140	200
141	200
142	200
143	200
144	200
145	200
146	200
147	200
148	200
149	200

Your scaled score = _____ Your state's passing score = _____

If your score was not high enough for you to pass, determine how many additional correct answers you would have needed to reach the required passing score.

The raw score corresponding to your state's passing score _____

(Subtract) Your raw score _____

Additional correct answers you would have needed to reach the passing score _____

Next, assess your strengths in the six content categories. Use the content category information in Table 1 to determine whether you need to prepare more intensely in any of the six areas covered by the test. The content categories are represented in Table 1 by Roman numerals, which correspond to the following descriptions:

- I. Basic Principles of Science
- II. Molecular and Cellular Biology
- III. Classical Genetics and Evolution
- IV. Diversity of Life, Plants, and Animals
- V. Ecology
- VI. Science, Technology, and Society

Fill in Table 3 to see where you have the most room for improvement.

Table 3—Assessment of Strengths in Each Category

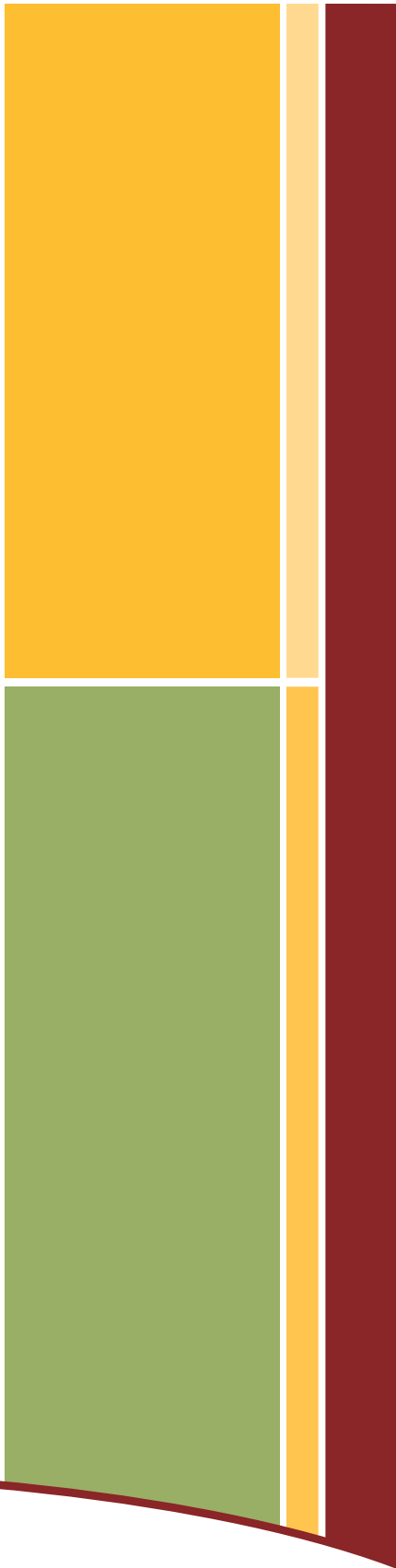
Content Category	Number of Correct Answers Possible	Number of Incorrect Answers
I	12	
II	37	
III	24	
IV	43	
V	22	
VI	11	

Focus on the content area or areas where there are the most incorrect answers (the rightmost column in Table 3). The *Sciences: Content Knowledge Study Guide* can help you review these content areas. (The guide can be purchased at www.ets.org/store.html or in your local bookstore.)

Using Your Practice Test Score to Estimate Your Future Score

When you take the *Biology: Content Knowledge* test at an actual administration, the questions you will be presented with will be similar to the questions in this practice test, but they will not be identical. Therefore, you should not expect to get exactly the same scaled score that you achieved on this practice test.

Good luck on your test!



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