Chapter 23
Practice Test 3

SECTION 1
ESSAY
Time — 25 minutes

Turn to Section 1 of your answer sheet to write your essay.

The essay gives you an opportunity to show how effectively you can develop and express ideas. You should, therefore, take care to develop your point of view, present your ideas logically and clearly, and use language precisely.

Your essay must be written on the lines provided on your answer sheet—you will receive no other paper on which to write. You will have enough space if you write on every line, avoid wide margins, and keep your handwriting to a reasonable size. Remember that people who are not familiar with your handwriting will read what you write. Try to write or print so that what you are writing is legible to those readers.

You have twenty-five minutes to write an essay on the topic assigned below. DO NOT WRITE ON ANOTHER TOPIC. AN OFF-TOPIC ESSAY WILL RECEIVE A SCORE OF ZERO.

Think carefully about the issue presented in the following excerpt and the assignment below.

> Whenever any form of government becomes destructive to these ends [the natural rights of men], it is the right of the people to alter or to abolish it, and to institute new government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness.
> The Declaration of Independence

Assignment: Does questioning authority make a society stronger? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

DO NOT WRITE YOUR ESSAY IN YOUR TEST BOOK. You will receive credit only for what you write on your answer sheet.

BEGIN WRITING YOUR ESSAY ON PAGE 3 OF THE ANSWER SHEET (FOUND AT THE BACK OF THE BOOK).

STOP

If you finish before time is called, you may check your work on this section only. Do not turn to any other section in the test.

SECTION 2
Time — 25 minutes
20 Questions

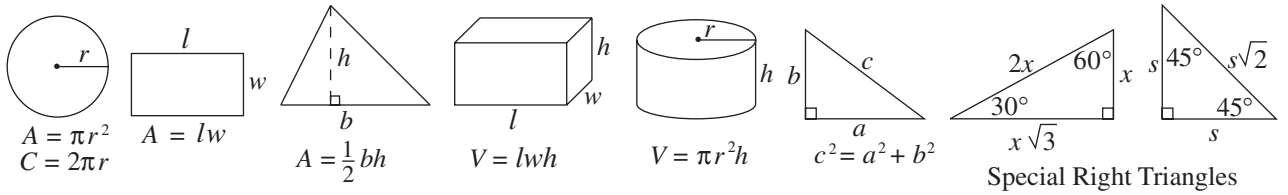
Turn to Section 2 of your answer sheet to answer the questions in this section.

Directions: For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes

1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless other wise indicated.
4. Unless otherwise specified, the domain of any function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number.

Reference Information



$A = \pi r^2$ $C = 2\pi r$ $A = lw$ $A = \frac{1}{2}bh$ $V = lwh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$

Special Right Triangles

The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

1. If $4y + 8 = 12y + 24$, then $y =$

(A) –2
(B) –1
(C) 1
(D) 2
(E) 4

2. If $f(2) = 10$ and $f(4) = 44$, which of the following could be $f(x)$?

(A) $2x + 6$
(B) $2x^2 + 12$
(C) $2x^3 + 2$
(D) $2x^3 - 4x$
(E) $3x^2 - x$

GO ON TO THE NEXT PAGE

3. A jar contains a number of jelly beans of which 58 are red, 78 are green, and the rest are blue. If the probability of choosing a blue jelly bean from this jar at random is $\frac{1}{5}$, how many blue jelly beans are in the jar?

(A) 34
(B) 56
(C) 78
(D) 102
(E) 152

4. If the nth term in a sequence is $3 \times 2n$, what is the 10th term in the sequence?

(A) 60
(B) 1,024
(C) 1,536
(D) 3,072
(E) 6,144

5. If 3 more than x is 2 more than y, what is x in terms of y ?

(A) $y - 5$
(B) $y - 1$
(C) $y + 1$
(D) $y + 5$
(E) $y + 6$

6. ABCD is a quadrilateral such that $AB = BC$, $AD = \frac{1}{2}CD$, and $AD = \frac{1}{4}AB$. If $BC = 12$, what is the perimeter of ABCD ?

(A) 44
(B) 42
(C) 40
(D) 36
(E) 33

GO ON TO THE NEXT PAGE

7. If a, *b, c,* and *d* are consecutive multiples of 5, and $a < b < c <$ d, what is the value of $(a - c)(d - b)$?

(A) –100
(B) –25
(C) 0
(D) 50
(E) 100

8. Which of the following is equivalent to $-9 \leq 3b + 3 \leq 18$?

(A) $-4 \leq b \leq 5$
(B) $-4 \leq b \leq 6$
(C) $-3 \leq$ b ≤ 5
(D) $3 \leq b \leq 5$
(E) $4 \leq b \leq 6$

9. A store sells boxes of 6 lightbulbs for $30 each, and boxes of 12 lightbulbs for $48 each. The price per bulb is what percent less when purchased in a box of 12 than in a box of 6 ?

(A) 80%
(B) 75%
(C) 50%
(D) 25%
(E) 20%

10. A cartographer is measuring the straight-line distance between five different towns. The towns are arranged in such a way that any given line connecting two of the towns will not pass through any of the other towns. How many such straight-line distances must she measure?

(A) 4
(B) 5
(C) 7
(D) 10
(E) 25

GO ON TO THE NEXT PAGE

Questions 11–12 refer to the following table, which shows the amount of rain that fell during a 30-day period in 1998.

Rainfall	
Rainfall (in inches)	Number of Days
0	17
1	5
2	3
3	3
4	2

11. What is the mode of the amount of rainfall, in inches, over these 30 days?

(A) 0
(B) 1
(C) 2
(D) 3
(E) 4

12. If 200 inches of rainfall were expected to fall during all of 1998, what percent of the expected yearly rainfall was reached during this 30-day period?

(A) 56%
(B) 42%
(C) 28%
(D) 14%
(E) 7%

13. Line l contains points (3, 2) and (4, 5). If line m is perpendicular to line l, then which of the following could be the equation of line m ?

(A) $y = -\frac{1}{5}x + 3$

(B) $y = -\frac{1}{3}x + 5$

(C) $y = -3x + 5$

(D) $y = 5x + \frac{1}{3}$

(E) $y = \frac{1}{3}x + 5$

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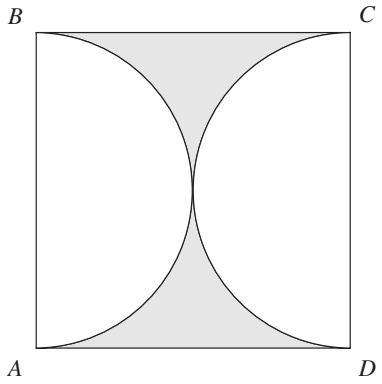


14. In the figure above, *ABCD* is a square with sides of length 2. The square contains two semicircles with diameters $\overline{AB}$ and $\overline{CD}$. What is the sum of the areas of the two shaded regions?

(A) $2-\frac{\pi}{2}$

(B) $2-\pi$

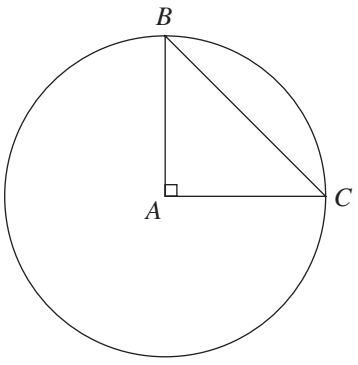
(C) $4-\pi$

(D) $4-2\pi$

(E) $4-\frac{\pi}{4}$

15. Jennifer ran from her house to school at an average speed of 6 miles per hour and returned along the same route at an average speed of 4 miles per hour. If the total time it took her to run to the school and back was one hour, how many minutes did it take her to run from her house to school?

(A) 16
(B) 18
(C) 20
(D) 22
(E) 24



16. In the figure above, $\overline{AC}$ and $\overline{AB}$ are radii of the circle with center *A*. If $\triangle ABC$ has area 18, what is the circumference of the circle?

(A) 6π
(B) 9π
(C) 12π
(D) 18π
(E) 36π

17. If a circle has an area that is half its circumference, what is its radius?

(A) $\frac{1}{2}$

(B) 1

(C) 4

(D) π

(E) 2π

GO ON TO THE NEXT PAGE

18. If Marta is assigned to Project A, then the project will be completed on time. Which of the following can be concluded?

(A) If Project A is completed on time, then Marta must have been assigned to Project A.
(B) If Marta was assigned to Project B, then Project A will not be completed on time.
(C) If Project A is not completed late, then no one other than Marta was assigned to Project A.
(D) If Marta is not assigned to Project A, then Project A will be completed late.
(E) If the project is completed one week late, then Marta was not assigned to Project A.

19. The lengths of two sides of a triangle are 5 and 7. If the length of the third side is an integer, what is the least possible perimeter of the triangle?

(A) 12
(B) 13
(C) 14
(D) 15
(E) 17

20. If $x^2 - x = 12$ and $y^2 - y = 12$, what is the greatest possible value of $x - y$?

(A) 0
(B) 4
(C) 7
(D) 12
(E) 24

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

SECTION 3
Time — 25 minutes
24 Questions

Turn to Section 3 of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Desiring to ------- his taunting friends, Mitch gave them taffy in hopes it would keep their mouths shut.

(A) eliminate (B) satisfy (C) overcome (D) ridicule (E) silence

ⒶⒷⒸⒹ●

1. While Sarah may have been rather quiet, she was by no means a -------, for she often spent evenings with other people and considered that time to be quite -------.

(A) recluse . . enjoyable
(B) conservative . . worthless
(C) reformer . . irritating
(D) barbarian . . confusing
(E) critic . . demanding

2. One of the serious ------- of meteorology is that natural weather patterns cannot be ------- in the laboratory for investigation.

(A) successes . . achieved
(B) complexities . . broadened
(C) premises . . accredited
(D) limitations . . recreated
(E) advantages . . analyzed

3. The playwright ------- realism and fantasy in her work so well that the audience is never sure whether the characters' experiences are ------- or imaginary.

(A) integrates . . actual
(B) mingles . . congenial
(C) combines . . apparent
(D) delineates . . indistinct
(E) exposes . . verifiable

4. The improvements made on the new automobile are largely -------; although the exterior has been changed, the engine has remained unchanged.

(A) mechanical (B) superficial (C) economical (D) redundant (E) expensive

5. Some educators view television as an entirely ------- presence in society, virtually disregarding the idea that television has the potential to be -------.

(A) pernicious . . understood
(B) auxiliary . . discontinued
(C) deleterious . . beneficial
(D) cohesive . . informative
(E) stabilizing . . veiled

6. Zora Neale Hurston's talent at convincing her readers to believe in the world as she describes it in her novels is due to her ability to create extremely ------- characters.

(A) unsavory (B) demonstrative (C) ambiguous (D) unilateral (E) credible

7. It is often said that seventeenth-century literature is ------- to today's readers, especially when compared with more recent works, which introduce fewer problems of -------.

(A) significant . . interpretation
(B) impractical . . tradition
(C) inscrutable . . comprehension
(D) opaque . . contemplation
(E) instructional . . agreement

8. Drew was a ------- boss, one who gave generous holiday bonuses and often overlooked minor lapses in judgment.

(A) miserly (B) supercilious (C) disingenuous (D) munificent (E) gregarious

GO ON TO THE NEXT PAGE

Directions: Each passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in each passage and in any introductory material that may be provided.

Questions 9–10 are based on the following passage.

The theory that a meteor struck the Earth 65 million years ago, blanketing the earth in dust and killing the dinosaurs, has recently been challenged. A layer of iridium has been identified in sites worldwide and linked with this event. Scientists concluded that the meteor that caused a large crater in Mexico also wiped out the dinosaurs. New evidence suggests otherwise. Current researchers note that many fossils that contain glass globules from the meteor were deposited immediately after impact, but are separated by a layer of shale and limestone from the iridium. Recent estimates that the shale and limestone would take 300,000 years to form suggest, instead, a second, later iridium-laden meteor.

9. The structure of the passage could best be described in what way?

(A) A theory is explained in depth and supported by additional information.
(B) A theory is explained and discredited based on inaccurate data.
(C) A theory is explained, a flaw is exposed, and another theory espoused.
(D) A theory is explained and its many flaws are exposed.
(E) A theory is explained and the proponents of that theory are then criticized.

10. The primary purpose of the passage is to

(A) estimate the time when the dinosaurs became extinct
(B) systematically debunk alternatives to the current theory explaining dinosaurs' extinction
(C) note the contents of meteors, particularly iridium and glass globules
(D) explain conclusively what caused the extinction of the dinosaurs
(E) propose a possible cause of the extinction of the dinosaurs

Questions 11–12 are based on the following passage.

The author of the Pledge of Allegiance was not an American political icon such as Thomas Jefferson or Benjamin Franklin, but rather an employee of Youth's Companion magazine named Francis Bellamy. Written in 1892, the Pledge was part of a larger program to commemorate the arrival of Christopher Columbus in the Americas, thereby inspiring allegiance in a country recuperating from the horrors of civil war. Later revisions added the words "under God" as a reaction to "godless" communism. In historical perspective, then, the Pledge of Allegiance assumes a surprisingly fluid meaning considering it has been recited for more than one hundred years.

11. The author of the passage mentions Thomas Jefferson and Benjamin Franklin in order to

(A) suggest authors who might have written a better Pledge of Allegiance
(B) emphasize the relative obscurity of the author of the Pledge of Allegiance
(C) provide more information about the origin of the Pledge of Allegiance
(D) commemorate their contributions to American political writings
(E) imply that they inspired Francis Bellamy to write the Pledge of Allegiance

12. It can be most reasonably inferred from the passage that

(A) the Pledge of Allegiance unified Americans after the Civil War
(B) the Pledge of Allegiance has not retained the original phrasing as written by Francis Bellamy
(C) Francis Bellamy would have supported the addition of "under God" to the Pledge of Allegiance
(D) the phrase "under God" sparked great controversy about reciting the Pledge of Allegiance
(E) an earlier version of the Pledge of Allegiance referred to the arrival of Christopher Columbus

GO ON TO THE NEXT PAGE

Questions 13–24 are based on the following passage.

In this excerpt from a book written in 1984, Dr. Richard M. Restak discusses two different schools of thought in brain research: those who believe there is a strong relationship between the brain and the mind, and those who do not. By citing various neuroscientists, Restak conveys the struggle many scientists have with the issue.

Two years before his death at age eighty-four, neurosurgeon Wilder Penfield was writing his final book, *The Mystery of the Mind*. During moments away from his desk, Penfield continued to ponder the theme of his book: the relationship of mind, brain, and science.

One weekend while at his farm outside of Montreal, Penfield began painting on a huge rock. On one side, he painted a Greek word for "spirit" along with a solid line connecting it to an Aesculapian torch, which represented science. The line continued around the rock to the other side, where he drew an outline of a human head with a brain drawn inside, which contained, at its center, a question mark. At this point, Penfield was satisfied: brain studies, if properly conducted, would lead inevitably to an understanding of the mind.

But as Penfield progressed with his book, he became less certain that the study of the brain, a field in which he had done pioneering work earlier in his career, would ever lead to an understanding of the mind. Finally, six months before he died, he reached a conclusion.

Donning six sweaters to protect himself from the harsh Canadian wind, Penfield returned to the rock and, with shaking hands, converted the solid line connecting the spirit and brain into an interrupted one. This alteration expressed, in a form for all to see, Penfield's doubts that an understanding of the brain would ever lead to an explanation of the mind.

Among neuroscientists, Penfield is not alone in undergoing, later in life, a change in belief about the relationship of the mind to the brain. Sir John Eccles, a Nobel Prize winner, has teamed up in recent years with Karl Popper. Together they have written *The Self and Its Brain*, an updated plea for dualism: the belief that the mind and the brain are distinct entities. Brain researcher Karl Pribram is currently collaborating with physicist David Bohm in an attempt to integrate mind and consciousness with ideas drawn from quantum physics. Together they are searching for a model capable of integrating matter and consciousness into a holistic worldview.

Why should these brain researchers have a change of heart late in their careers about the adequacy of our present knowledge of the brain to provide an "explanation" for mind and consciousness? What compels them toward a mystical bent?

Interest and enthusiasm regarding the brain can't be the only explanations why neuroscientists are susceptible to a mystical bent, since only a small number of them end up waxing philosophical. But the nature of their research and the kinds of questions asked undoubtedly contribute to later "conversions." Penfield's work involved neurosurgical explorations into the temporal lobes. In response to Penfield's electrical probe, his patients reported familiar feelings and vivid memories. In essence, these patients reported experiences that did not correspond to actual events in the operating theater, but rather were the result of direct stimulation of neural tissues. Does this mean that our conscious experience can be understood solely in terms of electrical impulses?

Researchers like Wilder Penfield and Roger Sperry are examples of brain researchers who have become disillusioned with claims that the mind can "be explained" in terms of brain functioning. They have revolted against what another neuroscientist calls the "Peter Pan school of neuroscience" with its "bloodless dance of action potentials" and its "hurrying to and fro of molecules."

Common to all these brain scientists is a willingness to adapt innovative attitudes as well as pursue unorthodox lines of inquiry. They have also been open to transcendental influences. Eccles, for instance, had a "sudden overwhelming experience" at age eighteen that aroused an intense interest in the mind-brain problem. He attributes his choice of career in the neurosciences to this experience.

Brain researchers with a "mystical bent" have also been comfortable sharing their findings and ideas with specialists in other fields. Penfield's book, *The Mystery of the Mind*, was encouraged by Charles Hendle, professor of philosophy at Yale. It was a much-needed encouragement, since the other neuroscientists to whom Penfield had shown his early draft discouraged him from proceeding with the project. To them, Penfield's speculative leap from neurophysiologist to philosopher was "unscientific." At Hendle's urging, Penfield proceeded to detail "how I came to take seriously, even to believe, that the consciousness of man, the mind, is something not to be reduced to brain mechanisms."

13. The "solid line" painted by Penfield (line 8) represents

(A) Penfield's desire to link art and science within one discipline
(B) Penfield's reluctance to make any connections between the mind and the brain
(C) Penfield's conclusion that experiments had proven the link between the brain and the mind
(D) an example of Penfield's mental confusion
(E) Penfield's confidence that the mind would eventually be understood through study of the brain

GO ON TO THE NEXT PAGE

14. It can be inferred from the passage that Pribram and Bohm decided to collaborate because

(A) they felt that a holistic world view could explain quantum physics
(B) they felt that consciousness might better be understood by unorthodox avenues of inquiry
(C) they wanted to expand on the findings of Eccles and Popper
(D) new findings in the field of quantum physics had convinced them that there is no relationship between matter and consciousness
(E) Penfield's book contained factual errors that they felt they must correct

15. The word "bent" in line 44 most nearly means

(A) inclination
(B) distortion
(C) determination
(D) talent
(E) revelation

16. It can be inferred that skeptics believe that advocates of the "Peter Pan school of neuroscience"

(A) succeed in creating a definitive technique for neurosurgeons to follow
(B) fail to take brain study seriously as a field of endeavor
(C) misunderstand the importance of brain waves in the study of the mind
(D) rely too much on the physiological to explain the workings of the mind
(E) believe that abstract aspects of the mind cannot be explained scientifically

17. The main distinction between orthodox and unorthodox neuroscientists is that

(A) the former believe in enlarging the pool of research topics, while the latter tend to stay within their own field
(B) the latter seek out alternative sources for research, while the former regard only those with a mystical bent as worthy
(C) the former encourage "unscientific" research, while the latter concern themselves primarily with mystical phenomena
(D) the latter regard the former with contempt, while the former consider the latter to be colleagues
(E) the former tend to ignore research that is not based in science, while the latter support exploration that calls on various sources

18. In line 48, "waxing" most nearly means

(A) shining
(B) waning
(C) becoming
(D) increasing
(E) sealing

19. Penfield's doubts about the validity of the brain-mind connection were tangibly represented by

(A) an Aesculapian torch
(B) a broken line
(C) a Greek word
(D) a large painted rock
(E) a solid line

GO ON TO THE NEXT PAGE

20. Which of the following statements is NOT supported by the information in the passage?

(A) Speculation about the mind-brain connection extends across disciplines.
(B) Some brain scientists are not unwilling to try avant-garde approaches.
(C) It is not unusual for brain researchers to have a late-in-life change of heart.
(D) Penfield expressed deep doubts about the correctness of his early conclusions.
(E) Properly executed brain studies lead to a full understanding of the mind.

21. According to the passage, during neurosurgical exploration, Penfield's patients

(A) behaved like victims of brain traumas
(B) asked their doctor probing questions
(C) followed their impulses while under sedation
(D) perceived events that had never happened
(E) clearly recalled things unrelated to their surroundings

22. The author mentions Eccles and Popper (lines 30 and 31) in order to

(A) prove definitively that neuroscience is incapable of explaining the mind
(B) give examples of other neuroscientists who altered their convictions about the brain-mind link
(C) indicate that only through teamwork can dualism be fully explained
(D) contrast their beliefs about the relation between the brain and the mind with those of Penfield
(E) present concrete evidence that the brain and the mind are distinct entities

23. An orthodox neuroscientist is most likely of the opinion that

(A) consciousness can be understood in terms of electrical impulses
(B) the Greeks were correct about the relation of the spirit to scientific inquiry
(C) mysticism and philosophy are useful disciplines for scientists
(D) transcendentalist concepts are influential in brain research
(E) quantum physics has great potential in the study of consciousness

24. Which of the following statements is NOT supported by information in the passage?

(A) Penfield gradually lost the convictions that had earlier satisfied him.
(B) Pribram and Bohm worked together to investigate the relation of physics to neuroscience.
(C) There may be more to the workings of the body and the mind than can be explained by science.
(D) Charles Hendle was Penfield's teacher when the latter was an undergraduate.
(E) Penfield used the results of brain experiments to try to form a theory of the mind.

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

NO TEST MATERIAL ON THIS PAGE.

SECTION 4
Time — 25 minutes
35 Questions

Turn to Section 4 of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence—clear and precise, without awkwardness or ambiguity.

EXAMPLE:

Bobby Flay baked his first cake and he was thirteen years old then.
(A) and he was thirteen years old then
(B) when he was thirteen
(C) at age thirteen years old
(D) upon the reaching of thirteen years
(E) at the time when he was thirteen

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1. Radio broadcasts once were the most popular form of entertainment; families used to gather around the radio at night for their favorite programs.

(A) gather around the radio at night for their favorite programs
(B) gather around to listen to its favorite programs
(C) gather around the radio at night for they're favorite programs
(D) gather around to listen to it's favorite programs
(E) gather around the radio at night for there favorite programs

2. Concluding the final session of the communications class, speak slowly and enunciate clearly while making eye contact was the recommendation Ms. Benton gave her students.

(A) speak slowly and enunciate clearly while making eye contact was the recommendation Ms. Benton gave her students
(B) speaking slowly and enunciating clearly while making eye contact were what Ms. Benton told her students to do
(C) her students were advised by Ms. Benton to speak slowly and enunciate clearly while making eye contact
(D) speak slowly and enunciate clearly while making eye contact, recommendations made by Ms. Benton, were what her students should do
(E) Ms. Benton recommended that her students speak slowly and enunciate clearly while making eye contact

3. First president George Washington is credited to breed the first mules in the United States using a jack and a jennet presented to him by the King of Spain in 1786.

(A) to breed
(B) since he bred
(C) by breeding
(D) with breeding
(E) having bred

4. Classical composers who influenced the genre of the string quartet range from Haydn's credit for its invention in the eighteenth century, as well as Shostakovich.

(A) Haydn's credit for its invention in the eighteenth century, as well as
(B) Haydn, who in the eighteenth century was inventing it, and
(C) Haydn, who is credited with its invention in the eighteenth century, to
(D) Haydn's invention in the eighteenth century, for which he received the credit, and
(E) its invention by Haydn, who received the credit in the eighteenth century, to

GO ON TO THE NEXT PAGE

5. A major cause of stress in school is <u>where seniors must manage not only academic requirements and sports schedules, but also</u> standardized testing and college applications, during the first semester.

(A) where seniors must manage not only academic requirements and sports schedules, but also
(B) seniors need to manage not only academic requirements and sports schedules, but also
(C) where seniors must manage not only academic requirements and sports schedules, and also
(D) when seniors must manage both academic requirements and sports schedules, but also
(E) the management by seniors of not only academic requirements and sports schedules, but also

6. Alaska, the largest state by far with nearly 2.5 times the land area of the next largest <u>state, which has one of the smallest populations</u> with only 650 thousand residents.

(A) state, which has one of the smallest populations
(B) state, that has one of the smallest populations
(C) state and has one of the smallest populations
(D) state, has one of the smallest populations
(E) state, will have one of the smallest populations

7. Stars other than our sun, <u>astronomers have discovered, have</u> planets the size of Jupiter in orbit about them.

(A) astronomers have discovered, have
(B) which, astronomers have discovered, have
(C) having possibly, according to the discovery of many astronomers
(D) there are some astronomers who have discovered that they may have
(E) astronomers are discovering they have

8. <u>She was one of the most famous mystery writers of the century, and Dorothy L. Sayers</u> also built one of her most famous novels around the question of higher education for women in the pre-war era.

(A) She was one of the most famous mystery writers of the century, and Dorothy L. Sayers
(B) One of the most famous mystery writers of the century, Dorothy L. Sayers
(C) Famous mystery writer of the century that she was, Dorothy L. Sayers
(D) Dorothy L. Sayers has been one of the most famous mystery writers of the century, and she
(E) Being one of the most famous mystery writers of the century, Dorothy L. Sayers

9. In addition to having more natural resources, <u>the land area of the United States is significantly larger than most other countries</u>.

(A) the land area of the United States is significantly larger than most other countries
(B) the land area is significantly larger than most other countries for the United States
(C) the United States also has significantly more land area than most other countries
(D) the United states has more land area also than most other significant countries
(E) the land area of other countries is less than that of the United States

10. Carrie, Tanya, and Alex were shopping <u>when, after trying to buy shoes, she realized she didn't have her wallet</u>.

(A) when, after trying to buy shoes, she realized she didn't have her wallet
(B) and then she realized she didn't have her wallet after trying to buy shoes
(C) when Tanya realized she didn't have her wallet since she tried to buy shoes
(D) and, since Tanya tried to buy shoes, she realized she didn't have her wallet
(E) when Tanya realized she didn't have her wallet after trying to buy shoes

11. Clifton Chenier became known as the "King of Zydeco" because <u>of his spending much of his life in the popularizing of</u> zydeco music.

(A) of his spending much of his life in the popularizing of
(B) he spent much of his life popularizing it,
(C) of his popularization for much of his life of
(D) he spent much of his life in the popularizing of
(E) he spent much of his life popularizing

GO ON TO THE NEXT PAGE

The following sentences test your ability to recognize grammar and usage errors. Each sentence contains either a single error or no error at all. No sentence contains more than one error. The error, if there is one, is underlined and lettered. If the sentence contains an error, select the one underlined part that must be changed to make the sentence correct. If the sentence is correct, select choice E. In choosing answers, follow the requirements of standard written English.

EXAMPLE:

The other (A) players and her (B) significantly (C) improved the game plan created by (D) the coaches. No error (E)

Ⓐ●ⓒⒹⒺ

12. Celestial navigation, the ancient practice of using (A) heavenly bodies to guide a ship's course (B), has becoming (C) a dying art since the advent of modern (D) global positioning systems. No error (E)

13. The artist's repeated use (A) of pale colors and amorphous forms, intended to imbue (B) his paintings with a sense of ambiguity, (C) only makes the paintings look weakly. (D) No error (E)

14. Excessive (A) sugar intake (B) can (C) lead to addiction, obesity, and to diabetes. (D) No error (E)

15. During late summer evenings (A), we would sit on (B) the porch swing and rock very slow (C) in time to the sound of the cicadas. (D) No error (E)

16. Popping corn is possible because of the tiny amount of water present (A) in dried kernels; when the kernels are heated, the water expands (B) until it (C) bursts the seams of (D) the kernels. No error (E)

17. The improvements people make in how (A) they eat and exercise pay off in that (B) individuals have more energy and are happier (C) after becoming more healthier. (D) No error (E)

18. *Fortuitous* means "happening by chance," but (A) since so many have used (B) it to mean "lucky," this malapropism (C) has been added to dictionaries as (D) a secondary definition. No error (E)

19. After (A) I realized last summer that (B) no one could see through my (C) mirrored sunglasses, I wear (D) them everywhere. No error (E)

20. During the Triassic period, there was only one huge land mass, Pangaea, which encompassed (A) all the present-day (B) continents; some of the plants and trees familiar to us (C) today also grew on (D) Pangaea. No error (E)

GO ON TO THE NEXT PAGE

21. Many of the students which (A) were chosen for the National Student Leadership Conference opted for (B) the U.S. Politics and Policies program; they spent several days attending Congressional events and touring the capitol's (C) sights (D). No error (E)

22. If you do not enjoy fearless pigeons landing (A) on yourself (B) for food, you should avoid (C) St. Mark's Square in (D) Venice. No error (E)

23. Some books contend (A) that, as a student familiarizes himself with early American history, one must (B) keep in mind (C) that certain parts of history are recounted by (D) those who lived it and are therefore subjective. No error (E)

24. Some (A) people, independent from (B) their approval of citizen participation in government (C), dislike performing jury duty themselves (D). No error (E)

25. They say (A) comedians face (B) a difficult task: they must challenge and mock the status quo (C) without alienating (D) their audiences who represent the status quo. No error (E)

26. Upon reviewing (A) a map of his property, John realized that he could not build (B) the barn where he had intended because it belonged (C) to a neighboring (D) farmer. No error (E)

27. Most art critics agree (A) that of the two (B) painters, Elena is (C) more (D) skilled at conveying the inner emotions of her subjects. No error (E)

28. The viewers will have (A) the opportunity to make their preference (B) clear, as (C) the station plans to conduct (D) an extensive voter survey. No error (E)

29. In many (A) offices, the use of halogen (B) light bulbs is (C) more popular than fluorescent bulbs (D), even though fluorescent bulbs save more energy than halogen bulbs. No error (E)

GO ON TO THE NEXT PAGE

Directions: The following passage is an early draft of an essay. Some parts of the passage need to be rewritten.

Read the passage and select the best answers for the questions that follow. Some questions are about particular sentences or parts of sentences and ask you to improve sentence structure or word choice. Other questions ask you to consider organization and development. In choosing answers, follow the requirements of standard written English.

Questions 30–35 are based on the following passage.

(1) John Graham had been taking pre-law courses at Yale in hopes of becoming a lawyer. **(2)** In 1980 his career path took a major turn when he decided to be a professional football player. **(3)** Graham is always enthusiastic about sports, and so his change of path was not a total surprise. **(4)** When he was growing up in Sayville, New York, he played varsity football in high school.

(5) His father was the Sayville High School football coach. **(6)** When Graham was playing on the Yale football team, a professional football scout discovered him. **(7)** Because of this, upon graduating from college, Graham became a part of the New York Jets. **(8)** After a highly successful football career, he began to receive offers from the major networks for sports commentary jobs. **(9)** Jobs that relied upon his keen insight and understanding of the workings of football.

(10) Now he is one of the most respected football commentators in the country, frequently compared to Howard Cosell. **(11)** One might assume that any well-known sports broadcaster would be satisfied enough with his success. **(12)** A highly compassionate person, Graham cares very much about the assistance he gives to charities that help seriously ill children. **(13)** Because of the work he has done, he was named "Sportsman of the Year" on two occasions. **(14)** As an athlete, broadcaster, and philanthropist, John Graham is certainly someone to look up to.

30. In the context of the passage, which of these words would be most logical to insert at the beginning of sentence 2 ?

(A) Certainly,
(B) Of course,
(C) Furthermore,
(D) However,
(E) Predictably,

31. Which of the following changes is most needed in sentence 3 ?

(A) Change "Graham" to "He"
(B) Change "is always" to "had always been"
(C) Omit "and so"
(D) Replace "path" with "paths"
(E) Replace "change of" with "changing"

32. Which of the following is the best revision of the underlined portion of sentence 9 (reproduced below)?

<u>Jobs that relied</u> upon his keen insight and understanding of the workings of football.

(A) These jobs relied
(B) Such jobs were relying
(C) Jobs like these ones relied
(D) In them, he relied
(E) These were relying

GO ON TO THE NEXT PAGE

33. Which of the following would be the best way to combine sentences 11 and 12 (reproduced below)?

One might assume that any well-known sports broadcaster would be satisfied enough with his success. A highly compassionate person, Graham cares very much about the assistance he gives to charities that help seriously ill children.

(A) Like any well-known sport broadcaster satisfied with his success, Graham is a highly compassionate person, assisting charities that help seriously ill children.
(B) A well-known sports broadcaster, Graham assists charities that help seriously ill children, and is a highly compassionate person.
(C) Graham is a highly compassionate person, which means assisting charities that help seriously ill children as well as being a well-known sports broadcaster.
(D) Graham has shown his compassionate nature, assisting charities which help seriously ill children, and is a well-known sports broadcaster.
(E) Not satisfied with his success as a well-known sports broadcaster, Graham has shown his compassionate nature by assisting charities that help seriously ill children.

34. Which of the following would be the best way to conclude the passage?

(A) (As it is now)
(B) Add the phrase "Of course," at the beginning of sentence 14.
(C) Omit sentence 14.
(D) Place sentence 13 after sentence 14.
(E) Add the sentence "He too had many accomplishments." after sentence 14.

35. In context, which of the following is the best sentence to insert between sentences 11 and 12 ?

(A) But not for Graham.
(B) Graham became too well-known for his own good.
(C) For Graham, though, success is not enough.
(D) Graham is a great admirer of Howard Cosell.
(E) Graham, having qualities of success and of caring.

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

SECTION 5
Time — 25 minutes
18 Questions

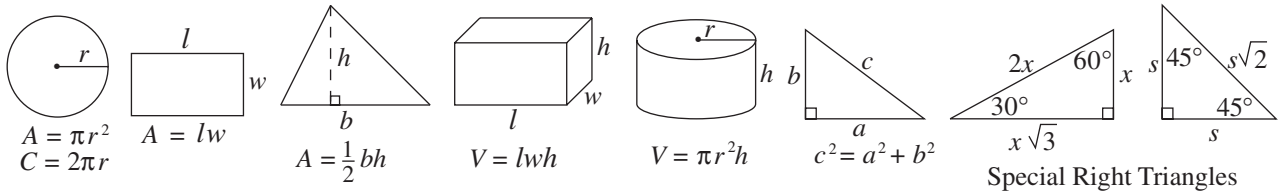
Turn to Section 5 of your answer sheet to answer the questions in this section.

Directions: For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes

1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless other wise indicated.
4. Unless otherwise specified, the domain of any function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number.

Reference Information



$A = \pi r^2$ $C = 2\pi r$ $A = lw$ $A = \frac{1}{2}bh$ $V = lwh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$

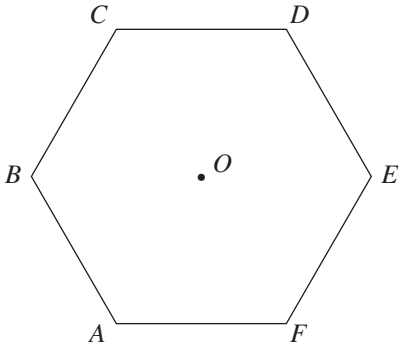
Special Right Triangles

The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

1. If x and y are both integers, and $xy \neq 0$, which of the following MUST be true of $|xy|$?

(A) It is greater than zero.
(B) It is less than zero.
(C) It is an even number.
(D) It is an odd number.
(E) It is a prime number.



2. O is the center of equilateral hexagon $ABCDEF$, shown above. What is the degree measure of $\angle FOD$ (not shown) ?

(A) 60
(B) 72
(C) 110
(D) 120
(E) 150

GO ON TO THE NEXT PAGE

3. Which of the following points lies the greatest distance from the origin in the *xy* coordinate system?

(A) $\left(-\frac{3}{2},-\frac{3}{2}\right)$

(B) $(-1, -1)$

(C) $\left(-\frac{1}{2},0\right)$

(D) $(0, 1)$

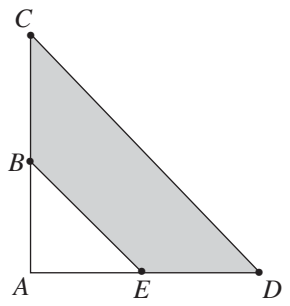
(E) $\left(2,-\frac{1}{2}\right)$

4. If one worker can pack 15 boxes every two minutes, and another can pack 15 boxes every three minutes, how many minutes will it take these two workers, working together, to pack 300 boxes?

(A) 10
(B) 12
(C) 15
(D) 24
(E) 30

5. If the remainder when x is divided by 5 equals the remainder when x is divided by 4, then x could be any of the following EXCEPT

(A) 20
(B) 21
(C) 22
(D) 23
(E) 24



Note: Figure not drawn to scale.

6. If B is the midpoint of $\overline{AC}$ and E is the midpoint of $\overline{AD}$, what fraction of $\triangle ACD$ is shaded?

(A) $\frac{1}{4}$

(B) $\frac{1}{3}$

(C) $\frac{1}{2}$

(D) $\frac{2}{3}$

(E) $\frac{3}{4}$

GO ON TO THE NEXT PAGE

7. If $x > 0$ and $\left(3-\sqrt{x}\right)\left(3+\sqrt{x}\right) = 7$, what is the value of x ?

(A) 4
(B) 3
(C) 2
(D) 1
(E) 0

8. The product of integers x and y is divisible by 36. If x is divisible by 6, which of the following must be true?

I. y is divisible by x.

II. y is divisible by 6.

III. $\frac{y}{6}$ is divisible by 6.

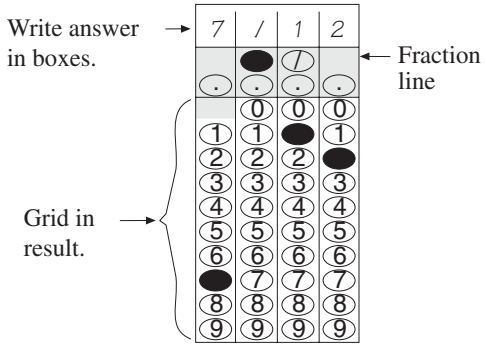
(A) None
(B) I only
(C) II only
(D) I and III only
(E) II and III only

GO ON TO THE NEXT PAGE

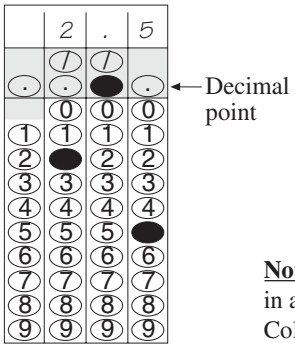
Directions: For Student-Produced Response questions 9–18, use the grids to the right of the answer document page on which you have answered questions 1–8.

Each of the remaining 10 questions requires you to solve the problem and enter your answer by marking the circles in the special grid, as shown in the examples below. You may use any available space for scratch work.

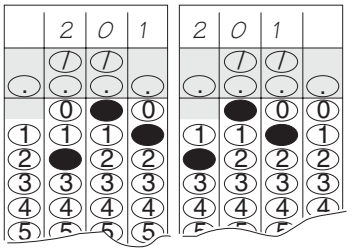
Answer: $\frac{7}{12}$



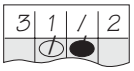
Answer: 2.5



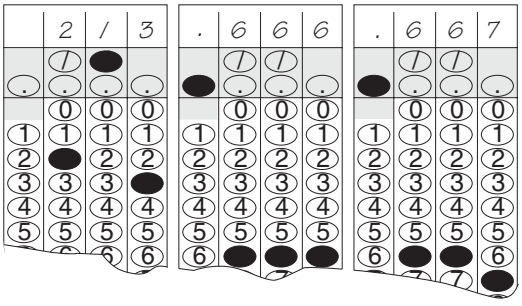
Answer: 201
Either position is correct.



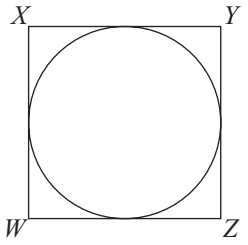
Note: You may start your answers in any column, space permitting. Columns not needed should be left blank.

- Mark no more than one circle in any column.
- Because the answer document will be machine-scored, **you will receive credit only if the circles are filled in correctly.**
- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- No question has a negative answer.
- **Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or 7/2. (If  is gridded, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)
- **Decimal Answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid. For example, if you obtain an answer such as 0.6666..., you should record your result as .666 or .667. **A less accurate value such as .66 or .67 will be scored as incorrect.**

Acceptable ways to grid $\frac{2}{3}$ are:



9. If $9^{-2} = \left(\frac{1}{3}\right)^{x}$, then $x =$



10. In the figure above, a circle is inscribed in square *WXYZ*. If the area of the circle is 400π, what is the area of *WXYZ* ?

GO ON TO THE NEXT PAGE

11. There were 320 students at a school assembly attended only by juniors and seniors. If there were 60 more juniors than seniors and if there were 30 more female juniors than male juniors, how many male juniors were at the assembly?

12. A rectangle of width 5 has a diagonal of length 13. What is the perimeter of the rectangle?

13. Jeannette's average (arithmetic mean) score for six tests was 92. If the sum of the scores of two of her tests was 188, then what was her average score for the other four tests?

14. If Alexandra pays $56.65 for a table, and this amount includes a tax of 3% on the price of the table, what is the amount, in dollars, that she pays in tax? (Ignore the dollar sign when gridding your answer.)

GO ON TO THE NEXT PAGE

15. Tiles numbered 1 through 25 are placed in a bag. If one tile is removed at random, what is the probability that the number on the tile is a prime number?

16. Alan and Ben each run at a constant rate of 7.5 miles per hour. Carla runs at a constant rate of 10 miles per hour. Debby runs at a constant rate of 12 miles per hour. In a relay race with these four runners as a team running one right after the other, Alan runs 0.3 miles, then Ben runs 0.3 miles, then Carla runs 0.5 miles, then Debby runs 0.24 miles. What is the team's average speed in miles per hour?

17. If the distance from (2, 6) to (1, b) is a, $a = \left(|-1|+16\right)^{\frac{1}{2}}$, and $b < a$, what is the value of b ?

18. If $-1 \le a \le 2$ and $-3 \le b \le 2$, what is the greatest possible value of $(a + b)(b - a)$?

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

SECTION 6
Time — 25 minutes
24 Questions

Turn to Section 6 of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Desiring to ------- his taunting friends, Mitch gave them taffy in hopes it would keep their mouths shut.

(A) eliminate (B) satisfy (C) overcome
(D) ridicule (E) silence

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. The fireworks display created so much ------- that the night sky was completely -------, almost as if it were the middle of the day.

(A) heat . . exploded
(B) gunpowder . . polluted
(C) color . . decorated
(D) refuse . . detonated
(E) light . . illuminated

2. In speech and in action, she was never haughty or -------; she was always willing to ------- any recommendations, even if she did not agree with them at first.

(A) arrogant . . deny
(B) conceited . . consider
(C) ornery . . oppose
(D) lenient . . embrace
(E) accommodating . . ignore

3. Presidents of large companies have traditionally been very -------; they rarely suggest radical new ideas unless all other options have been investigated and found to be impossible.

(A) inventive (B) conservative (C) gentrified
(D) ingenuous (E) gratuitous

4. Although it has begun to garner -------, until recently, African drum music was virtually ------- by all but those with the most esoteric tastes.

(A) acclaim . . overlooked
(B) respect . . praised
(C) criticism . . ignored
(D) recognition . . played
(E) censure . . disregarded

5. While many health-conscious individuals have stopped eating eggs, dietitians say that in appropriate quantities, eggs can be quite -------.

(A) injurious (B) erudite (C) convenient
(D) perfunctory (E) salubrious

GO ON TO THE NEXT PAGE

Directions: Each passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in each passage and in any introductory material that may be provided.

Questions 6–9 are based on the following passages.

Passage 1

The most striking outgrowths of the expansion of the Internet over the past few years have been the numerous legal questions regarding copyright laws and the right to privacy. For many consumers, these two issues create a surprising paradox. Jane Doe wants to freely download music and movies without fear of retribution for violation of copyright laws. Simultaneously, she opposes companies acquiring her personal information to sell to advertisers. Activist groups, whose presence will play a major role in legal decisions, are still considering the issue. In the meantime, Ms. Doe pays for her new CDs with an unusual currency: a list of the sites she frequents each week and an e-mail address with lenient filters.

Passage 2

In the days of the Victorian operetta-creators Gilbert and Sullivan, artists learned that "pirates" in American audiences transcribed songs and lyrics during shows and rushed away afterwards to produce cribbed versions of the play. The artists' outrage helped to spark the first American copyright law. However, with the advent of low-tech home recording equipment, new measures needed to be taken. In response to the rapid increase in copyright infringement, Congress has aided copyright holders, imposing draconian punishments to discourage breach of the laws. Today's casual Internet users should take care to avoid getting caught in the crossfire between consumers and copyright owners.

6. The statements about Jane Doe in the third and fourth sentences (lines 5–8)

(A) exacerbate an already controversial issue
(B) argue for more lenient copyright laws
(C) illustrate the contradiction identified in the previous sentence
(D) contradict the paradox explained earlier in the paragraph
(E) apply the theory from the previous sentence to a specific case

7. The content of both passages suggests that Jane Doe and the "pirates" in American audiences would not be averse to

(A) divulging personal details
(B) protecting intellectual property
(C) appealing to the activist groups to support their claims
(D) having open access to others' creative yield
(E) seeking retribution for copyright violations

8. It is implied in both passages that

(A) in earlier times, singers and songwriters were glad to share their works freely
(B) existing copyright laws on intellectual property are not always effectual
(C) civic activist organizations deserve more respect than the law
(D) unusual currency is an equitable exchange for intellectual property
(E) artists and songwriters should be more defensive of their property

9. In the context of the passage, the meaning of "draconian" (line 22) is closest to

(A) high-tech
(B) dragon-like
(C) illicit
(D) legal
(E) severe

GO ON TO THE NEXT PAGE

Questions 10–15 are based on the following passage.

The following passage is about the art and recreation of Southeastern Indians.

The ceremonies and rituals of the Southeastern Indians seem bizarre, outlandish, even irrational, until viewed against the background of their belief system. When seen in their original context, the ceremonies and rituals of the Southeastern Indians are no more irrational than are our own. We encounter the same sort of problem in understanding the art forms and games of the Southeastern Indians, and likewise we find the solution to be similar. Our best road to understanding the Indians' artistic and recreational forms is to view them as the outward expressions of their belief system.

In some ways the task of understanding the artistic and recreational forms of the Southeastern Indians is more difficult than understanding their ceremonial life. One problem is that the Indians reached their highest artistic development in the late prehistoric and early historic period. De Soto saw architectural forms and artistic creations that surpassed anything witnessed by the Europeans who came after him, and because many of these creations were made of perishable materials, they did not survive. Hence, perhaps the best Southeastern Indian art is irretrievably gone.

A further difficulty in dealing with the artistic and recreational forms of the Southeastern Indians is that all of these are intimately imbedded in other social and cultural institutions. They are neither as self-contained nor as separable from other institutions as are the art forms and games in our own culture. For instance, the Southeastern Indians placed a high value on men who could use words skillfully. Jack and Anna Kilpatrick have discussed the condensed poetry in some of the Cherokee magical formulas, some of them containing a single word, compound in form, which might be likened to tiny imagist poems. Another form of verbal artistry was oratory, the words of a gifted speaker that could move contentious men to reach consensus or the timid and hesitant to go against the enemy. And yet oratory can hardly be separated from the political institutions of the Southeastern Indians.

In looking at the art and recreation of the Southeastern Indians, we will often wish that we knew more about underlying social factors. For example, even though we know much about the Southeastern Indian ball game, we do not know the precise nature of the social and political forces that led them to play it with such ferocity. To a lesser extent, we know the basic rules of chunkey, but what we do not understand is why the Indians would sometimes bet the last thing they owned on the outcome of a game. In general, we sense that the players of these games were motivated by social factors that lie outside the playing field, but we cannot often be specific about what these factors were.

10. The main purpose of the passage is to

(A) show how bizarre certain Southeastern Indian ceremonies and rituals are
(B) explain the rules of several games played by the Southeastern Indians
(C) describe the difficulties inherent in appreciating the Southeastern Indians' artistic and recreational forms
(D) explore the mysticism of the ceremonies and rituals in the Southeastern Indians' belief system
(E) delineate the difference between the artistic forms of the Southeastern Indians and the Cherokee Indians

11. Which of the following best describes the "problem" mentioned in line 6?

(A) The belief system of the Southeastern Indians was irrational and therefore impossible to understand.
(B) It is difficult to comprehend the artistic and recreational expression of the Southeastern Indians without understanding their belief system.
(C) A superficial examination of the ceremonies and rituals of the Southeastern Indians makes them appear similar to our own.
(D) Since we have virtually no understanding of the beliefs of the Southeastern Indians, it is unlikely we will ever understand the significance of their art.
(E) Scholars are unwilling to acquaint themselves sufficiently with the artistic and recreational forms of the Southeastern Indians.

GO ON TO THE NEXT PAGE

12. According to the passage, which of the following was an advantage of skilled oratory?

(A) It was effective in enhancing one's athletic ability.
(B) An orator was responsible for composing the magical formulas used in spiritual rituals.
(C) Orators were usually the most powerful warriors among the Southeastern Indians.
(D) Timid and hesitant speakers could soothe anxious tempers.
(E) A skilled speaker could mend differences between opposing parties.

13. The author mentions the game "chunkey" in line 44 primarily in order to

(A) prove that the Southeastern Indians were more concerned with politics than with organized competition
(B) show how social politics and ferocious violence were interconnected in the lives of the Southeastern Indians
(C) explain how the Southeastern Indians' interest in competition and artistic endeavor was dictated by separate social factors
(D) provide an example of how the Southeastern Indians' competitive nature was motivated by social influences
(E) describe the unusual and ambiguous rules of a little-known competition

14. Our difficulties in understanding the recreational and artistic systems of the Southeastern Indians can be ascribed to which of the following causes?

I. All instances of original Southeastern Indian art are unavailable to us.
II. We do not know to what degree Indian poetic and rhetorical output was political, and to what extent it was artistic.
III. We are unclear about the exact significance of certain forms of Indian recreation.

(A) I
(B) III
(C) I and II
(D) II and III
(E) I, II, and III

15. The author mentions the loss of many of the Indians' artistic and architectural creations as a parallel to

(A) the Indian art seen by later European explorers
(B) our own irrational rituals and ceremonies
(C) poetry expressed by Cherokee magical formulas
(D) contentious men rallying against attackers
(E) the reason the Indians wagered heavily on chunkey

GO ON TO THE NEXT PAGE

Questions 16–24 are based on the following passage.

The following passage discusses the history and some of the characteristics of jazz.

Like the blues, jazz emphasizes individualism. The performer is at the same time the composer, shaping the music into style and form. A traditional melody or harmonic framework may serve as the takeoff point for improvisation, but it is the personality of the player and the way he or she improvises that produce the music. Performances of the same work differ from player to player, for each recreates the music in his or her own individual way. Jazz is learned through oral tradition, as is folk song, and those who would learn to play it do so primarily by listening to others playing jazz.

Although improvisational in nature, jazz nonetheless contains recognizable elements that derive from older musical traditions. The influence of ragtime is represented in jazz by the emphasis on syncopation and the presence of the piano in the ensemble. The influence of the brass band reveals itself in the jazz instrumentation,* in the roles assigned to each instrument, and in the resulting musical texture. In the classic New Orleans band, for example, three instruments are given melodic roles; the cornet typically plays the lead, the clarinet plays a counter melody, and the trombone plays the lower voice of the trio. The other instruments—the drums, banjos, guitars, and basses—function as the rhythm section. Although pianos were added to jazz bands from the beginning, and often a second cornet as well, the instruments remained basically the same as in brass bands. Later, trumpets took the place of cornets and saxophones were added or used in place of clarinets. The addition of saxophones suggests the influence of the syncopated dance orchestra, which used saxophones early in its development.

The brass band emphasized the ensemble sound, as distinguished from solo music, and this tradition, too, passed over into the performances of early jazz bands. In many jazz performances of the early 1920s, for example, all of the instruments played throughout the piece, the cornet always retaining the lead melody. In performances that included solo passages, the other instruments typically gave firm support, particularly the rhythm section. The ensemble sound of the brass band was basically polyphonic in nature, not chordal. As many as two or three clearly defined melodic lines dominated the texture, and frequently the rhythm instruments furnished little counter melodies.

The polyphonic texture of the music was a result of "collective improvisation" with each melody player improvising his or her part in such a way that the parts combined into a balanced, integrated whole. The concept of jazz improvisation changed its implications over the years. In this early period, the performer embellished the melody, adding extra tones and altering note values, but in such a manner as to retain the essential shape of the original melody.

The most salient features of jazz derive directly from the blues; its soloists approximate the voice with their instruments, but try to recreate its singing style and blue notes by using scooping, sliding, whining, growling, and falsetto effects. Finally, jazz uses the call-and-response style of the blues, by employing an antiphonal relationship between two solo instruments or between solo and ensemble.

Jazz is created from the synthesis of certain elements in the style of its precursors. Its most striking feature is its exotic sound, which is produced not only by the kinds of instruments used in the orchestra, but also by the manner in which intonation is used. Instead of obtaining exact pitches, the players glide freely from one note to another (or through long series of notes in glissandos) and frequently fluctuate the pitches (i.e., use a wide vibrato).

* Instrumentation refers to the choice of instruments within a musical group.

16. The main purpose of the passage is to show that

(A) three instrument melodies were not the dominant style of jazz
(B) the call-and-response style of the blues was highly successful
(C) blues was a uniquely American form of music with a completely original style
(D) the New Orleans band was the single greatest influence on the evolution of jazz
(E) jazz is a complex musical form with a complicated history

17. The author uses the examples of ragtime and brass bands to illustrate

(A) that jazz is not entirely an original creation
(B) the diversity of elements that jazz has passed on to other styles
(C) the origins of certain jazz compositions
(D) the relative growth in popularity of modern jazz
(E) the long, illustrious history that led to the creation of jazz

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18. The influence of the brass band on jazz performance includes all of the following EXCEPT

(A) the playing of the lead melody by the cornet
(B) emphasis on the ensemble sound
(C) polyphonic music rather than chordal music
(D) the playing of all the instruments throughout the song
(E) the complete lack of solo passages

19. One of the "salient features" of jazz (line 50) would be that

(A) the instruments mimic human voices
(B) jazz is dominated by singers
(C) music lovers prefer the blues to jazz
(D) the music is composed with singers in mind
(E) every jazz musician is also a jazz singer

20. The word "striking" in line 58 most nearly means

(A) removing
(B) pounding
(C) thoughtful
(D) remarkable
(E) believable

21. The exotic sound of jazz is primarily a result of

(A) the use of syncopated rhythms
(B) the influences of ragtime and brass bands
(C) the selection of instruments and the ways in which sounds are manipulated
(D) the addition of extra tones and the replacement of one note with another
(E) the first and third beat percussion work

22. According to the passage, the development of jazz was influenced by all of the following EXCEPT

(A) ragtime bands
(B) dance orchestras
(C) brass bands
(D) folk instrumentation
(E) blues singing

23. Which of the following statements is NOT supported by the information in the passage?

(A) Jazz is sometimes considered to be the only original American art form.
(B) Learning jazz takes place through the ear more so than through the eye.
(C) Jazz is more contrapuntal than harmonic.
(D) Jazz compositions do not always observe strict rhythms.
(E) The clarinet was the precursor to the saxophone in the jazz band.

24. It can be inferred from the passage that

(A) music composed or performed before the advent of jazz was not polyphonic
(B) the first known instance of a jazz performance was in 1920
(C) the classic New Orleans jazz band consisted of three categories of instruments
(D) a clear and exact sound is characteristic of instruments playing jazz
(E) a jazz composition may not sound exactly the same from one performance to the next

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

SECTION 7
Time — 25 minutes
24 Questions

Turn to Section 7 of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Desiring to ------- his taunting friends, Mitch gave them taffy in hopes it would keep their mouths shut.

(A) eliminate (B) satisfy (C) overcome
(D) ridicule (E) silence

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. Their daughter's story that she was robbed of her homework by wandering gypsies was so entirely implausible that the parents believed it to be -------.

(A) an explanation (B) an intimidation
(C) a fabrication (D) a rationalization
(E) a confirmation

2. While industry in the late twentieth century believed itself to be ------- in its treatment of laborers, Cesar Chavez made a career of revealing the ------- experienced by farm workers.

(A) generous . . injustices
(B) just . . satisfaction
(C) vindictive . . challenges
(D) superior . . relationships
(E) immutable . . consistency

3. The two teams reached an agreement that was -------: they promised to exchange players of comparable talent.

(A) equitable (B) variable (C) hypocritical
(D) inconvenient (E) extended

4. Professor Yang's article was unusually -------, but its brevity did not conceal the importance of Yang's discovery.

(A) intricate (B) coherent (C) irrelevant
(D) terse (E) ambitious

5. The Black Plague was so ------- that in a few short years it had reduced the population of medieval Europe substantially.

(A) lenient (B) susceptible (C) suppressed
(D) maudlin (E) virulent

6. Her promotional tour was ------- by missteps, but the increasing appreciation for her works suggests that the effects of these blunders were -------.

(A) enervated . . destructive
(B) avoided . . ancillary
(C) surrounded . . astute
(D) beleaguered . . negligible
(E) besmirched . . indubitable

7. While the ambassador was not ------- about the path that his country was taking, he did not believe that its economic politics would cause a significant amount of -------.

(A) pragmatic . . affluence
(B) sanguine . . distress
(C) impartial . . ambivalence
(D) despondent . . despair
(E) agitated . . tumult

8. Lisa was known for her ------- speeches in which she rambled for a long time with frequent repetitions about trivial topics.

(A) eloquent (B) hoarse (C) garrulous
(D) terse (E) compelling

GO ON TO THE NEXT PAGE

Directions: Each passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in each passage and in any introductory material that may be provided.

Questions 9–10 are based on the following passage.

A procedure known as a cochlear implant can allow people who exhibit certain kinds of deafness to detect and interpret sounds. Although the procedure does not restore the natural hearing mechanism, it does permit the interpretation of speech and a high level of interaction with the "hearing world." Despite its possible benefits, the procedure remains controversial. In addition to concerns regarding the risk of surgery to correct a non-fatal disorder, opponents of the procedure cite a moderately high proportion of cases in which the procedure is not effective. Moreover, deaf individuals often value their deafness as an integral part of their identity; cochlear implants may jeopardize that identity.

9. The author's primary purpose is to

(A) argue for the universal implementation of cochlear implants
(B) introduce the cochlear implant procedure and illustrate some of its drawbacks
(C) soundly condemn doctors who perform cochlear implants
(D) admonish those who do not value an individual's unique identity
(E) describe the scientific basis for a certain type of hearing loss

10. Which of the following most accurately describes the purpose of the final three sentences of the passage?

(A) To illustrate important points about the nature of identity
(B) To discuss possible objections to a potentially beneficial procedure
(C) To offer alternatives to a controversial surgery
(D) To provide factual evidence in support of a disputed theory
(E) To question the appropriateness of surgical interventions in non-fatal maladies

GO ON TO THE NEXT PAGE

Questions 11–12 are based on the following passage.

When Igor Stravinsky's *Le Sacre du Printemps* (*The Rite of Spring*) premiered in Paris in 1913, the ballet sparked violent riots for over three days. Although the composer blamed the dancers, choreography, and theater's management for causing the melee, contemporary reports suggest that it may have been the composer's use of unconventional harmonies that provoked the crowd. The resulting violence may remind modern audiences of the riots sometimes associated with sporting events. While the public's propensity for rioting seems to have remained constant over the last century, the nature of the events that trigger public violence has certainly changed.

11. Which of the following was NOT mentioned as a possible cause of the riots in 1913 ?

(A) Theater management
(B) Ballet dancers
(C) Unconventional harmonies used in the ballet
(D) Choreography used in *Le Sacre du Printemps*
(E) Dissatisfied audience members

12. Which of the following can be properly inferred from the information above?

(A) Before 1913, people did not riot over public performances.
(B) No prior rioting event had been as long or as widespread as was the 1913 Paris incident.
(C) Stravinsky had hoped to spark violence in support of the arts.
(D) The catalyst of the modern riot may be different from that of its antecedents.
(E) Violence is never justified, regardless of the provocation.

Questions 13–24 are based on the following passage.

The following passage written in 1989 is taken from A Year in Provence *by Peter Mayle. In this excerpt, we follow a family's first exposure to the French district.*

The proprietor of Le Simiane wished us a happy new year and hovered in the doorway as we stood in the narrow street, blinking into the sun.

"Not bad, eh?" he said, with a flourish of one velvet-clad arm which took in the village. "One is fortunate to be in Provence."

Yes indeed, we thought, one certainly was. If this was winter, we wouldn't be needing all the foul-weather paraphernalia—boots and coats and inch-thick sweaters—that we had brought over from England. We drove home, warm and well fed, making bets on how soon we could take the first swim of the year, and feeling a smug sympathy for those poor souls in harsher climates who had to suffer real winters.

Meanwhile, a thousand miles to the north, the wind that had started in Siberia was picking up speed for the final part of its journey. We had heard stories about the mistral. It drove people, and animals, mad; it was an extenuating circumstance in crimes of violence. It blew for fifteen days on end, uprooting trees, overturning cars, smashing windows, tossing old ladies into the gutter, splintering telegraph poles, moaning through houses like a cold and baleful ghost—every problem in Provence that couldn't be blamed on the politicians was the fault of the *sacre vent*[1] which the Provençeaux spoke about with a kind of masochistic pride.

Typical Gallic exaggeration, we thought. If they had to put up with the gales that come off the English Channel and bend the rain so that it hits you in the face almost horizontally, then they might know what a real wind was like. We listened to their stories and, to humor the tellers, pretended to be impressed.

And so we were poorly prepared when the first mistral of the year came howling down the Rhône valley, turned left, and smacked into the west side of the house with enough force to skim roof tiles into the swimming pool and rip a window that had carelessly been left open off its hinges. The temperature dropped twenty degrees in twenty-four hours. It went to zero, then six below. Readings taken in Marseilles showed a wind speed of 180 kilometers an hour. And then one morning, with the sound of branches snapping, the pipes burst one after the other under the pressure of water that had frozen in them overnight.

They hung off the wall, swollen and stopped up with ice, and Monsieur Menicucci studied them with his professional plumber's eye.

"Oh là là," he said. *"Oh là là."* He turned to his young apprentice, whom he invariably addressed as *jeune homme*[2] or *jeune*. "You see what we have here, *jeune*. Naked pipes. No insulation. Côte d'Azur plumbing. In Cannes, in Nice, it would do, but here . . ."

GO ON TO THE NEXT PAGE

He made a clucking sound of disapproval and wagged his finger under *jeune's* nose to underline the difference between the soft winters of the coast and the biting cold in which we were now standing, and pulled his woolen bonnet firmly down over his ears. He was short and compact, built for plumbing, as he would say, because he could squeeze himself into constricted spaces that more ungainly men would find inaccessible. While we waited for *jeune* to set up the blowtorch, Monsieur Menicucci delivered the first of a series of lectures and collected *pensées* which I would listen to with increasing enjoyment throughout the coming year. Today, we had a geophysical dissertation on the increasing severity of Provençal winters.

For three years in a row, winters had been noticeably harder than anyone could remember—cold enough, in fact, to kill ancient olive trees. But why? Monsieur Menicucci gave me a token two seconds to ponder this phenomenon before warming to his thesis, tapping me with a finger from time to time to make sure I was paying attention.

It was clear, he said, that the winds which brought the cold down from Russia were arriving in Provence with greater velocity than before, taking less time to reach their destination and therefore having less time to warm up en route. And the reason for this—Monsieur Menicucci allowed himself a brief but dramatic pause—was a change in the configuration of the earth's crust. *Mais oui*.[3] Somewhere between Siberia and Ménerbes the curvature of the earth had flattened, enabling the wind to take a more direct route south. It was entirely logical. Unfortunately, part two of the lecture ("Why the Earth Is Becoming Flatter") was interrupted by a crack of another burst pipe, and my education was put aside for some virtuoso work with the blowtorch.

[1] French for "sacred wind"

[2] French for "young man"

[3] French for "But, of course"

13. The author's comment about the family "making bets on how soon we could take the first swim of the year" (lines 11–12) refers to

(A) the vain desire to partake of the French waters
(B) the longing for real pleasure on an otherwise dull French vacation
(C) the hope that a return to the British shore would cure their homesickness
(D) the faith that the powerful mistral would soon vanish and allow them to swim happily once again
(E) the anticipation of warm weather that would make it conceivable to swim, despite the season

14. The word "poor" in line 12 most nearly means

(A) humble
(B) unfortunate
(C) inferior
(D) destitute
(E) underprivileged

15. The author describes the mistral as "an extenuating circumstance in crimes of violence" in lines 17–18 in order to

(A) explain the problems attributed to the judicial system
(B) illustrate that the primary cause of problems in Provence is natural disasters beyond human control
(C) explain how the mistral is blamed for damage caused by politicians
(D) emphasize that damage caused by the mistral is negligible compared to that caused by the English gale winds
(E) illustrate the severity of the effects of the mistral on people

16. The word "baleful" in line 21 most nearly means

(A) lonely
(B) ambitious
(C) sprightly
(D) menacing
(E) rambunctious

17. In line 26 the author implies that "the gales that come off the English Channel"

(A) prevent most nautical vessels from reaching their destination
(B) can combine with a mistral and cause unimaginable havoc across the European countryside
(C) have greater force than their French counterparts
(D) bend the rain into horizontal streams only under certain storm conditions
(E) cause damage only around the English Channel

GO ON TO THE NEXT PAGE

18. The "clucking sound of disapproval" (line 50) made by Monsieur Menicucci signifies his

(A) belief that the plumbing installation was inappropriate for the climate conditions
(B) disdain for the English visitors
(C) opinion of his assistant's work ethic
(D) preference for the warmer winters of the coast
(E) sense that the plumbing in Cannes and Nice is superior to that in Provence

19. The author implies that Monsieur Menicucci offers the "token two seconds" (line 66)

(A) as an effrontery to the author whose opinion was not regarded with sufficient consideration
(B) in sincere hope that the author might be able to shed some light on the mystery
(C) simply as a courtesy, since Menicucci believes he can provide the definitive theory on the phenomenon's cause
(D) in confusion, momentarily forgetting what he had been discussing
(E) to reveal his own respect for the mistral's capacity for destruction

20. Which of the following best describes Menicucci's theory about the earth's crust?

(A) The burst pipes were the result of the increased velocity of the mistral.
(B) Siberia is gradually moving closer to Provence.
(C) The presence of wind in most regions is completely determined by the curvature of the earth.
(D) Wind slows down across a flat plain, since it wants to change directions.
(E) A deviation in the earth's shape results in changes in weather patterns.

21. The author's comment *"Mais oui"* suggests the author regards Menicucci as a

(A) highly educated thinker whose theory is provocative
(B) confused character who cannot adequately articulate his ideas
(C) plumber whose grasp of the English language is impressive
(D) slightly pompous comic figure who perceives himself to be overly knowledgeable
(E) deceitful man interested in misleading the author into believing fanciful tales

22. Which of the following can be inferred from the passage?

I. The author's house in Provence had a swimming pool.
II. The author was born in England.
III. The first mistral that the author experienced lasted for fifteen days.

(A) None of the above
(B) I only
(C) III only
(D) I and II only
(E) I, II, and III

23. The tone of the passage can best be described as

(A) passionate
(B) exasperated
(C) anecdotal
(D) argumentative
(E) sentimental

24. Which of the following does the passage imply about Cannes?

(A) It is a coastal city.
(B) It shares a border with Nice.
(C) It is a popular tourist destination.
(D) It typically has harsher winters than does Provence.
(E) It is the hometown of Monsieur Menicucci.

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

NO TEST MATERIAL ON THIS PAGE.

SECTION 8
Time — 20 minutes
19 Questions

Turn to Section 8 of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Desiring to ------- his taunting friends, Mitch gave them taffy in hopes it would keep their mouths shut.

(A) eliminate (B) satisfy (C) overcome
(D) ridicule (E) silence

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. Upon learning that she had won the grand prize instead of just any prize, her initial joy turned into -------.

(A) apathy (B) euphoria (C) spontaneity
(D) contention (E) misery

2. The increased humidity coupled with oppressively high temperatures made us feel ------- at the beach this summer.

(A) earnest (B) animated (C) resilient
(D) exotic (E) listless

3. Anthropologists had long assumed that hunter-gatherers moved continually in their search for food; however, recent findings indicate that during the Mesolithic period, such groups were often quite -------.

(A) prudent (B) credulous (C) industrious
(D) indigent (E) sedentary

4. Since none of the original doors or windows of the Mayan Indian homes have survived, restoration work on these portions of the buildings has been largely -------.

(A) exquisite (B) impertinent (C) speculative
(D) decorous (E) abstract

5. The council was divided into such strong factions that it was almost impossible to garner ------- support to pass the bill.

(A) biased (B) strenuous (C) bureaucratic
(D) bipartisan (E) unnecessary

6. The boys expected to be admonished for their -------, so it was no surprise when they were severely ------- by their parents.

(A) proficiency . . censured
(B) magnanimity . . beguiled
(C) dilemma . . esteemed
(D) roguery . . nonplussed
(E) impishness . . castigated

GO ON TO THE NEXT PAGE

Directions: Each passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in each passage and in any introductory material that may be provided.

Questions 7–19 are based on the following passages.

The following passages deal with the question of air pollution. Passage 1 gives a broad historical overview, and Passage 2 discusses one type of pollutant.

Passage 1

Even before there were people, there were cases of air pollution. Volcanoes erupted, spewing ash and poisonous gases into the atmosphere. There were dust storms. Gases collected over marshes. When people appeared on the scene and began their conquest of nature, they also began to pollute the air. They cleared land, which made possible even larger dust storms. They built cities, and the soot from their hearths and the stench from their waste filled the air. The Roman author Seneca wrote in A.D. 61 of the "stink, soot and heavy air" of the imperial city. In 1257, the Queen of England was forced to move away from the city of Nottingham because the heavy smoke was unendurable.

The Industrial Revolution brought even worse air pollution. Coal was burned to power factories and to heat homes. Soot, smoke, and sulfur dioxide filled the air. The good old days? Not in the factory towns. But there were large rural areas unaffected by air pollution.

With increasing population, the entire world is becoming more urban. It is the huge megalopolises that are most affected by air pollution. But rural areas are not unaffected. In the neighborhoods around smoky factories, there is evidence of increased rates of spontaneous abortion and of poor wool quality in sheep, decreased egg production and high mortality in chickens, and increased food and care required for cattle. The giant Ponderosa pines are dying over a hundred miles from the smog-plagued Los Angeles basin. Orbiting astronauts visually traced drifting blobs of Los Angeles smog as far east as western Colorado. Other astronauts, more than 100 kilometers up, were able to see the plume of smoke from the Four Corners power plant near Farmington, New Mexico. This was the only evidence from that distance that Earth is inhabited.

Traffic police in Tokyo have to wear gas masks and take "oxygen breaks"—breathing occasionally from tanks of oxygen. Smog in Athens at times has forced factory closings and traffic restrictions. Acid rain in Canada is spawned by air pollution in the United States, contributing to strained relationships between the two countries. Sydney, Rome, Tehran, Ankara, Mexico City, and most other major cities in the world have had frightening episodes of air pollution.

Passage 2

One of the two major types of smog—consisting of smoke, fog, sulfur dioxide, sulfuric acid, ash, and soot—is called London smog. Indeed, the word smog is thought to have originated in England in 1905 as a contraction of the words "smoke" and "fog."

Probably the most notorious case of smog in history started in London on Thursday, 4 December, 1952. A large cold air mass moved into the valley of the Thames River. A temperature inversion placed a blanket of warm air over the cold air. With nightfall, a dense fog and below-freezing temperatures caused the people of London to heap coal into their small stoves. Millions of these fires burned throughout the night, pouring sulfur dioxide and smoke into the air. The next day, Friday, the people continued to burn coal when the temperature remained below freezing. The factories added their smoke and chemical fumes to the atmosphere.

Saturday was a day of darkness. For twenty miles around London, no light came through the smog. The air was cold and still. And the coal fires continued to burn throughout the weekend. On Monday, 8 December, more than one hundred people died of heart attacks while trying desperately to breathe. The city's hospitals were overflowing with patients with respiratory diseases.

By the time a breeze cleared the air on Tuesday, 9 December, more than 4,000 deaths had been attributed to the smog. This is more people than were ever killed in any single tornado, mine disaster, shipwreck, or airplane crash. This is more people than were killed in the attack on Pearl Harbor in 1941. Air pollution episodes may not be as dramatic as other disasters, but they can be just as deadly.

Soot and ash can be removed by electrostatic precipitators. These devices induce an electric charge on the particles, which then are attracted to oppositely charged plates and deposited. Unfortunately, electrostatic precipitators use large amounts of electricity, and the electrical energy has to come from somewhere. Fly ash removed from the air has to be put on the land or water, although it could be used in some way. Increasingly, fly ash is being used to replace part of the clay in making cement.

The elimination of sulfur dioxide is more difficult. Low-sulfur coal is scarce and expensive. The most plentiful fuel that exists is low-grade, high-sulfur coal. Pilot runs have shown that sulfur can be washed from finely pulverized coal, but the process is expensive. There are also processes for converting dirty coal to clean liquid and gaseous fuels. These processes may hold promise for the future, but they are too expensive to compete economically with other fuels at present. They also waste a part of the coal's energy.

GO ON TO THE NEXT PAGE

7. Passage 1 implies that air pollution

(A) was originally caused by the Industrial Revolution
(B) affects only urban areas
(C) has natural as well as manmade causes
(D) will never be eliminated through the use of better fuels because they are too expensive
(E) seriously affects the nervous systems of both people and animals

8. The author of Passage 1 uses both the Roman author Seneca and the Queen of England (lines 9–12) as evidence that

(A) civilization has necessarily caused air pollution
(B) air pollution has always existed in cities
(C) urban air pollution is not just a modern problem
(D) humanity disregards its environment
(E) recently, the level of air pollution has risen dramatically

9. According to the author of Passage 1, air pollution problems of today differ from those of the Industrial Revolution and before in that

(A) remote communities may now feel the effects of air pollution regardless of their proximity to the source of the pollution
(B) today's polluted factory towns were once clean rural communities unaffected by urban air pollution
(C) modern urban areas are no longer more polluted than the suburban and rural communities that surround them
(D) the use of coal as fuel has greatly increased the number of cities and megalopolises that are contributing to the world's air pollutants
(E) modern disasters caused by incidents of extreme air pollution cause far more damage than they did hundreds of years ago

10. The orbiting astronauts are discussed by the author (lines 26–32) in order to

(A) demonstrate the increased urbanization of modern civilization
(B) prove that air pollution is an inevitable consequence of human progress
(C) support the claim that pollution has become the defining characteristic of modern society
(D) provide evidence that pollution is no longer restricted to urban areas
(E) further the argument that large urban areas are most affected by air pollution

11. The last paragraph of Passage 1 suggests that air pollution causes all of the following EXCEPT

(A) difficulties in international relations
(B) otherwise unnecessary closings of businesses
(C) changes in the quality of some water
(D) changes in work habits
(E) high levels of lung disease

12. The author of Passage 2 discusses the 1952 outbreak of London smog in order to

(A) demonstrate that smog has serious effects that are not controllable by human action
(B) point out that air pollution is a major threat to human health only over a long period of time
(C) describe an example of the lethal potential of air pollution
(D) support the claim that air pollution must be controlled
(E) prove that the toxic effects of air pollution are far worse in Europe than in the United States

13. According to Passage 2, London smog can best be described as

(A) a deadly type of air pollution that cannot be completely eliminated
(B) a phenomenon responsible for more deaths than from any other natural cause
(C) a threat to human health that we are often unaware of
(D) a combination of fog conditions and heavy accumulations of smoke from fossil fuel fires
(E) a new, mostly uninvestigated, type of air pollution

14. The statistics cited in lines 64–70 imply that

(A) any effects of a serious air pollution episode cannot be seen until some time after the episode
(B) in the short run, air pollution produces more traumatic health problems than other disasters
(C) most of the fatalities from air pollution do not occur during an air pollution episode
(D) air pollution episodes can be among the most devastating types of disasters
(E) it is impossible to know the total death rate from a given episode of air pollution

GO ON TO THE NEXT PAGE

15. Passage 2 suggests that electrostatic precipitators work by a process in which

(A) electricity is attracted to particles
(B) charged particles are attracted to plates with the opposite charge
(C) a large amount of electricity ionizes the air
(D) induction acts on charged particles
(E) ash and soot are naturally charged particles

16. The author of Passage 2 believes that the removal of sulfur dioxide from air pollution is difficult because

(A) the technology to remove sulfur dioxide is only currently in development
(B) any successful process utilizes more natural resources than it produces
(C) sulfur is made up of very resilient molecules that cannot be broken down easily
(D) sulfur is a basic compound in all fuels that are currently used
(E) the available methods are costly and involve some waste

17. It can be inferred that the author of Passage 1 would agree with which statement about the cost of pollution control discussed in Passage 2?

(A) Society must be prepared to spend whatever it takes to eliminate all forms of air pollution.
(B) The cost of pollution control is too high to make it economically efficient with current technology.
(C) The more we are concerned with limiting the effects of pollution, the less we will be able to eliminate the sources of pollution.
(D) Dealing with pollution can be a significant challenge for urban populations.
(E) The cost of pollution control is much higher than the cost of changing to better energy sources.

18. Which factor mentioned in Passage 1 most likely contributed to the environmental disaster described in Passage 2?

(A) The Industrial Revolution
(B) Natural sources of air pollution
(C) Land clearing
(D) Heavy smoke from Nottingham
(E) Improper disposal of solid waste

19. Which of the following is NOT a difference that exists between the two passages?

(A) Passage 1 views air pollution as a timeworn problem and gives historical contexts to show its permanence in human society past and present while Passage 2 focuses only on the modern era.
(B) Passage 2 focuses on the effect of air pollution on urban populations while Passage 1 discusses the effect it has had on both urban and rural areas.
(C) Passage 2 uses one historical example to illustrate the dangers of air pollution while Passage 1 uses several historical examples.
(D) Passage 1 recognizes the Industrial Revolution as a major factor in air pollution while Passage 2 contends that it was no worse than other factors.
(E) Passage 2 provides the reader with possible methods for preventing or treating polluted air while Passage 1 does not.

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

SECTION 9
Time — 20 minutes
16 Questions

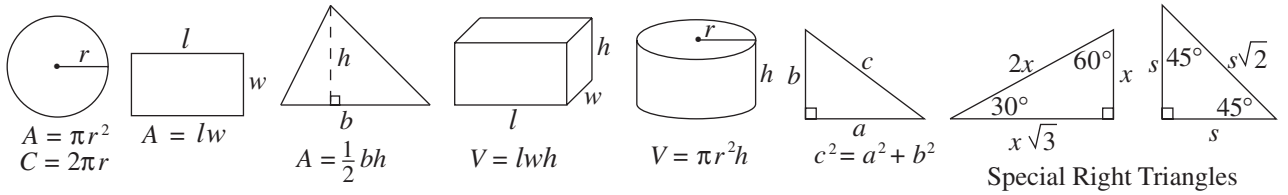
Turn to Section 9 of your answer sheet to answer the questions in this section.

Directions: For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes

1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless other wise indicated.
4. Unless otherwise specified, the domain of any function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number.

Reference Information



$A = \pi r^2$ $C = 2\pi r$ $A = lw$ $A = \frac{1}{2}bh$ $V = lwh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$

Special Right Triangles

The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

1. Which of the following represents the statement "the sum of the squares of x and y is equal to the square root of the difference of x and y" ?

(A) $x^2 + y^2 = \sqrt{x - y}$
(B) $x^2 - y^2 = \sqrt{x + y}$
(C) $(x + y)^2 = \sqrt{x} - \sqrt{y}$
(D) $\sqrt{x + y} = (x - y)^2$
(E) $\sqrt{x} + \sqrt{y} = x^2 - y^2$

2. If $3a + 2b + c = 22$, $b + c = 8$, and $c = 6$, what is the value of $a + b + c$?

(A) 4
(B) 8
(C) 12
(D) 18
(E) 36

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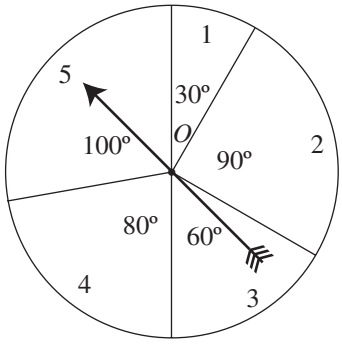


3. In the ABC board game, the circular spinner centered at O shown in the figure above is used to determine how far a player's piece will advance on the board during a given turn. After each spin, the arrow points in a random direction, and the number printed in the region where the arrow points gives the number of spaces a piece will advance. What is the probability that Kim's piece will advance 3 or 4 spaces during her turn?

(A) $\frac{11}{18}$

(B) $\frac{7}{18}$

(C) $\frac{2}{9}$

(D) $\frac{1}{6}$

(E) $\frac{1}{18}$

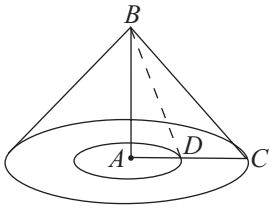
---

4. If x and y are integers such that $4x - 8 > 0$ and $4y + 8 < 0$, then which of the following must be true?

(A) xy is even.
(B) xy is odd.
(C) xy is negative.
(D) xy is positive.
(E) xy is equal to zero.

5. A rectangle with length 16 and width 6 has an area that is 3 times the area of a triangle with height 8. What is the length of the base of the triangle?

(A) 4
(B) 8
(C) 12
(D) 16
(E) 22



Note: Figure not drawn to scale.

6. A right circular cone is drawn above, with two circles centered at A on its base as shown. AB is the height of the cone, the measure of $\angle ABC$ is 60°, and $\overline{BC}$ has a length of y. If $\overline{BD}$ bisects $\angle ABC$, which of the following gives the area of the smaller circle in terms of y ?

(A) $8\pi\sqrt{y}$

(B) $4\pi\sqrt{y}$

(C) $y\pi$

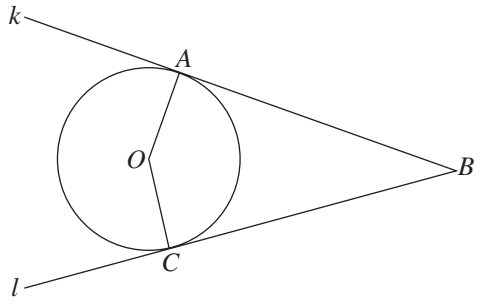
(D) $\frac{\pi}{4}y^2$

(E) $\frac{\pi}{12}y^2$

GO ON TO THE NEXT PAGE

7. During the past week, a factory produced 10,000 computer disks, of which 30 were found to be defective. At this rate, if the factory produced 1,000,000 computer disks, approximately how many would be defective?

(A) 3
(B) 30
(C) 300
(D) 3,000
(E) 30,000



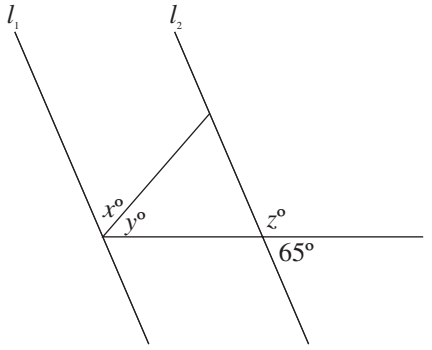
Note: Figure not drawn to scale.

8. In the figure above, lines k and l are tangent to the circle with center O at points A and C, respectively. If $OB = 4$, $OA = AB$, $AB = BC$, and $\overline{OA} \perp \overline{OC}$ then $OA =$

(A) $\sqrt{2}$
(B) 2
(C) $2\sqrt{2}$
(D) 4
(E) $4\sqrt{2}$

9. If it costs z dollars to buy n pizzas, how much will it cost, in dollars, to buy b pizzas at the same rate?

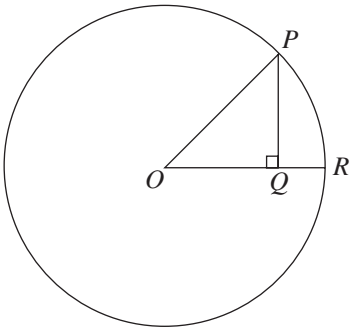
(A) $\frac{zb}{n}$
(B) $\frac{b}{zn}$
(C) $\frac{nb}{z}$
(D) $\frac{zn}{b}$
(E) znb



10. In the figure above, if $l_1 \| l_2$ and $x = 55$, then $y + z =$

(A) 120
(B) 145
(C) 175
(D) 180
(E) 195

GO ON TO THE NEXT PAGE



Note: Figure not drawn to scale.

11. In the circle above with center O, $OQ = QR$. If the radius of the circle is 8, what is the area of $\triangle OPQ$?

(A) 4
(B) $4\sqrt{3}$
(C) 8
(D) $8\sqrt{3}$
(E) 16

12. Eighty students went on a class trip. If there were fourteen more boys than girls on the trip, how many girls were on the trip?

(A) 26
(B) 33
(C) 40
(D) 47
(E) 66

13. For all x, let $f(x) = (10 - x)^2$. If $p = f(6)$, which of the following is equal to $4p$?

(A) $f(24)$
(B) $f(18)$
(C) $f(12)$
(D) $f(8)$
(E) $f(4)$

14. If b is a positive number not equal to 1, which of the following must also be positive?

(A) $\dfrac{b}{b+1}$

(B) $\dfrac{b+6}{b-3}$

(C) $\dfrac{1}{2b-2}$

(D) $2 - b$

(E) $2b - 1$

GO ON TO THE NEXT PAGE

15. What is the distance between the x-intercept and the y-intercept of the line $y = \frac{2}{3}x - 6$?

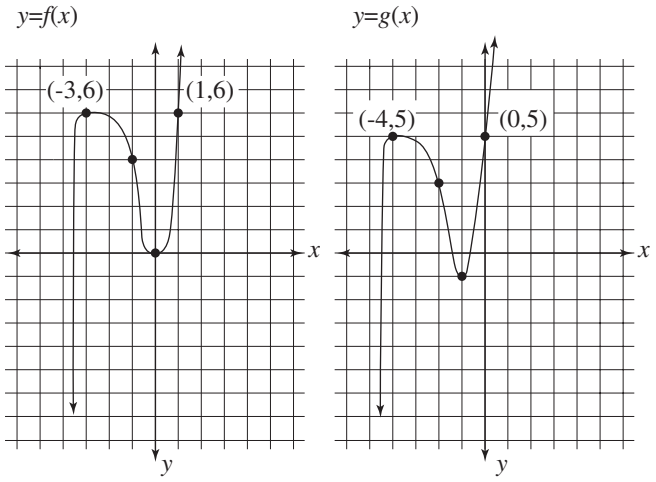
(A) 9

(B) 15

(C) $\sqrt{89}$ (approximately 9.43)

(D) $\sqrt{117}$ (approximately 10.82)

(E) $15 + \sqrt{117}$ (approximately 25.82)



16. The figures above show the graphs of the functions f and g. The function f is defined by $f(x) = 2x^3 + 5x^2 - x$. The function g is defined by $g(x) = f(x - h) - k$, where h and k are constants. What is the value of hk ?

(A) –2
(B) –1
(C) 0
(D) 1
(E) 2

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

NO TEST MATERIAL ON THIS PAGE.

SECTION 10
Time — 10 minutes
14 Questions

Turn to Section 10 of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence—clear and precise, without awkwardness or ambiguity.

EXAMPLE:

Bobby Flay baked his first cake <u>and he was thirteen years old then</u>.
(A) and he was thirteen years old then
(B) when he was thirteen
(C) at age thirteen years old
(D) upon the reaching of thirteen years
(E) at the time when he was thirteen

Ⓐ●ⓒⒹⒺ

1. Theater doesn't allow much extra time, a fact with which Ryan is familiar <u>being as he was</u> in many different productions.

(A) being as he was
(B) as he has been
(C) seeing as how he will be
(D) being that he was
(E) because he will be

2. In order to follow the building code for commercial construction, all doors should be <u>at least 3 feet wide and swing outward to allow wheelchair access</u>.

(A) at least 3 feet wide and swing outward to allow wheelchair access
(B) at least 3 feet wide and swung outward to allow wheelchair access
(C) at least 3 feet wide and should be made to swing outward to allow wheelchair access
(D) at least 3 feet wide or wider and swing outward to allow wheelchair access
(E) at least 3 feet wide or wider and swung outward to allow wheelchair access

3. *On a Sunday Afternoon on the Island of the Grande Jatte*, <u>a nineteenth-century pointillism masterpiece by Seurat, is one of the better examples</u> of paintings created in this unique style.

(A) a nineteenth-century pointillism masterpiece by Seurat, is one of the better examples
(B) Seurat's pointillism masterpiece of the nineteenth-century can be one of the best examples
(C) a nineteenth-century pointillism masterpiece by Seurat, is to be one of the better examples
(D) Seurat's pointillism masterpiece, is one of the best examples in the nineteenth century
(E) a nineteenth-century pointillism masterpiece by Seurat, is one of the best examples

4. American etiquette is different from <u>other countries</u> in that it requires the recipients of compliments to accept them with thanks, rather than turn them aside with protest.

(A) other countries
(B) other countries are
(C) that of another country
(D) what another country is
(E) that of other countries

GO ON TO THE NEXT PAGE

5. Dr. Eglise's students were required to do a certain amount of preparation for each class: this being that they had to read an article he gave them and brainstorm ideas for an essay on the same topic.

(A) class: this being that they had to
(B) class, including
(C) class: they had to
(D) class, however having to
(E) class, and they had to not only

6. Renowned for her writing across several subjects and genres, Barbara Kingsolver's poems are impassioned denunciations of violence in Central America.

(A) genres, Barbara Kingsolver's poems are impassioned denunciations of
(B) genres; Barbara Kingsolver wrote poems that are impassioned denunciations of
(C) genres, Barbara Kingsolver writes poems which passionately denounce
(D) genres, the poems of Barbara Kingsolver poems passionately denounce
(E) genres; passionately denouncing is what Barbara Kingsolver's poems do to

7. The scientist allowed very few of his experiments to be published because his exacting standards caused him to question whether his findings were complete and able to be shown to the scientific community.

(A) because his exacting standards caused him to question
(B) as a result of his standards being exacting, he questioned
(C) having exacting standards causing him to question
(D) his standards being so exacting that he questioned
(E) because of his exacting standards, which causing him to question

8. Although the badger has a reputation as a fierce animal, it has a gentler side which is shown in several works of literature, these include *Cold Moons* by Aeron Clement and *Incident at Hawk's Hill* by Allen Eckert.

(A) literature, these include
(B) literature, two of these are
(C) literature, these being
(D) literature, such as
(E) literature, like

9. A majority of the girls in Toria's class wore sandals even on wintry days, however there was a great effort made by teachers and parents to discourage them from doing so.

(A) however there was a great effort made by teachers and parents
(B) along with great efforts made by the teachers and parents
(C) when even parents and teachers are making the effort
(D) despite great efforts made by teachers and parents
(E) even though great efforts by teachers and parents

10. After polling the parish, the church's roof committee voted to replace the slate tiles with asphalt shingles and they did this to save thousands of dollars.

(A) and they did this to
(B) and so it could
(C) they wanted to
(D) in order that they might
(E) in order to

11. A truck collided with Emma's car and, although she was uninjured, she could hardly stop trembling with fright.

(A) uninjured, she could hardly stop
(B) uninjured; she couldn't hardly stop
(C) uninjured, she couldn't hardly stop
(D) uninjured, since she couldn't stop
(E) uninjured, she could, however, hardly stop

12. Because of the danger of rabies within the state, this is the reason for the ban on transporting skunks and raccoons to open spaces across town lines.

(A) this is the reason for the ban on transporting skunks and raccoons to open spaces across town lines
(B) there is a ban on transporting skunks and raccoons to open spaces across town lines
(C) a ban on skunks and raccoons in open spaces across town lines has been declared
(D) a ban has been declared on skunks and raccoons openly across town lines
(E) it is the reason for the open ban to transport skunks and raccoons to spaces across town lines

GO ON TO THE NEXT PAGE

13. The population of Las Vegas, the fastest growing city in the United States, has increased by more than three times in the past hundred years.

(A) has increased by more than three times
(B) increased by more than three times
(C) was more than tripled
(D) has more than tripled
(E) had more than tripled

14. Several recent studies have indicated that a student's ability to seek help from their teachers predicts college success as well as a standardized test score does.

(A) to seek help from their teachers predicts
(B) in seeking help from their teachers and predicting
(C) to seek help from teachers predicts
(D) to seek help from his or her teachers always predicts
(E) to not only seek the help of teachers but also predict

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

NO TEST MATERIAL ON THIS PAGE.