

PRACTICE TEST 4

Start with number 1 for each new section. If a section has fewer questions than answer spaces, leave the extra answer spaces blank. Be sure to erase any errors or stray marks completely.

**SECTION
2**

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E
17	A	B	C	D	E
18	A	B	C	D	E
19	A	B	C	D	E
20	A	B	C	D	E
21	A	B	C	D	E
22	A	B	C	D	E
23	A	B	C	D	E
24	A	B	C	D	E
25	A	B	C	D	E
26	A	B	C	D	E
27	A	B	C	D	E
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34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E
40	A	B	C	D	E

**SECTION
3**

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
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27	A	B	C	D	E
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33	A	B	C	D	E
34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E
40	A	B	C	D	E

CAUTION

Use the answer spaces in the grids below for Section 2 or Section 3 only if you are told to do so in your test book.

Student-Produced Responses

ONLY ANSWERS ENTERED IN THE CIRCLES IN EACH GRID WILL BE SCORED. YOU WILL NOT RECEIVE CREDIT FOR ANYTHING WRITTEN IN THE BOXES ABOVE THE CIRCLES.

9	10	11	12	13
14	15	16	17	18

Each grid consists of a top row with four empty boxes above four circles. Below the circles are columns of digits 0-9. In grid 9, the second and third circles contain a '1'. In grid 10, the second and third circles contain a '0'. In grid 11, the second and third circles contain a '1'. In grid 12, the second and third circles contain a '0'. In grid 13, the second and third circles contain a '0'. In grid 14, the second and third circles contain a '1'. In grid 15, the second and third circles contain a '0'. In grid 16, the second and third circles contain a '1'. In grid 17, the second and third circles contain a '0'. In grid 18, the second and third circles contain a '0'.

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SECTION 6

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
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17	A	B	C	D	E
18	A	B	C	D	E
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27	A	B	C	D	E
28	A	B	C	D	E
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30	A	B	C	D	E
31	A	B	C	D	E
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33	A	B	C	D	E
34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E
40	A	B	C	D	E

SECTION 7

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
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7	A	B	C	D	E
8	A	B	C	D	E
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34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E
40	A	B	C	D	E

CAUTION Use the answer spaces in the grids below for Section 6 or Section 7 only if you are told to do so in your test book.

Student-Produced Responses ONLY ANSWERS ENTERED IN THE CIRCLES IN EACH GRID WILL BE SCORED. YOU WILL NOT RECEIVE CREDIT FOR ANYTHING WRITTEN IN THE BOXES ABOVE THE CIRCLES.

9				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
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7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
11				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
12				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
13				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
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7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
14				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
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7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
15				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
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7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
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	7	7		
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3	3	3	3	3
4	4	4	4	4
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6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
17				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
18				
	7	7		
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

PLEASE DO NOT WRITE IN THIS AREA

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**SECTION
8**

- | | | | |
|------------------------|------------------------|------------------------|------------------------|
| 1 (A) (B) (C) (D) (E) | 11 (A) (B) (C) (D) (E) | 21 (A) (B) (C) (D) (E) | 31 (A) (B) (C) (D) (E) |
| 2 (A) (B) (C) (D) (E) | 12 (A) (B) (C) (D) (E) | 22 (A) (B) (C) (D) (E) | 32 (A) (B) (C) (D) (E) |
| 3 (A) (B) (C) (D) (E) | 13 (A) (B) (C) (D) (E) | 23 (A) (B) (C) (D) (E) | 33 (A) (B) (C) (D) (E) |
| 4 (A) (B) (C) (D) (E) | 14 (A) (B) (C) (D) (E) | 24 (A) (B) (C) (D) (E) | 34 (A) (B) (C) (D) (E) |
| 5 (A) (B) (C) (D) (E) | 15 (A) (B) (C) (D) (E) | 25 (A) (B) (C) (D) (E) | 35 (A) (B) (C) (D) (E) |
| 6 (A) (B) (C) (D) (E) | 16 (A) (B) (C) (D) (E) | 26 (A) (B) (C) (D) (E) | 36 (A) (B) (C) (D) (E) |
| 7 (A) (B) (C) (D) (E) | 17 (A) (B) (C) (D) (E) | 27 (A) (B) (C) (D) (E) | 37 (A) (B) (C) (D) (E) |
| 8 (A) (B) (C) (D) (E) | 18 (A) (B) (C) (D) (E) | 28 (A) (B) (C) (D) (E) | 38 (A) (B) (C) (D) (E) |
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| 10 (A) (B) (C) (D) (E) | 20 (A) (B) (C) (D) (E) | 30 (A) (B) (C) (D) (E) | 40 (A) (B) (C) (D) (E) |

**SECTION
9**

- | | | | |
|------------------------|------------------------|------------------------|------------------------|
| 1 (A) (B) (C) (D) (E) | 11 (A) (B) (C) (D) (E) | 21 (A) (B) (C) (D) (E) | 31 (A) (B) (C) (D) (E) |
| 2 (A) (B) (C) (D) (E) | 12 (A) (B) (C) (D) (E) | 22 (A) (B) (C) (D) (E) | 32 (A) (B) (C) (D) (E) |
| 3 (A) (B) (C) (D) (E) | 13 (A) (B) (C) (D) (E) | 23 (A) (B) (C) (D) (E) | 33 (A) (B) (C) (D) (E) |
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| 6 (A) (B) (C) (D) (E) | 16 (A) (B) (C) (D) (E) | 26 (A) (B) (C) (D) (E) | 36 (A) (B) (C) (D) (E) |
| 7 (A) (B) (C) (D) (E) | 17 (A) (B) (C) (D) (E) | 27 (A) (B) (C) (D) (E) | 37 (A) (B) (C) (D) (E) |
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| 9 (A) (B) (C) (D) (E) | 19 (A) (B) (C) (D) (E) | 29 (A) (B) (C) (D) (E) | 39 (A) (B) (C) (D) (E) |
| 10 (A) (B) (C) (D) (E) | 20 (A) (B) (C) (D) (E) | 30 (A) (B) (C) (D) (E) | 40 (A) (B) (C) (D) (E) |

ESSAY

ESSAY

ESSAY
Time—25 minutes

Write your essay on separate sheets of standard lined paper.

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.

Important reminders:

- **A pencil is required for the essay.** An essay written in ink will receive a score of zero.
- **Do not write your essay in your test book.** You will receive credit only for what you write on your answer sheet.
- **An off-topic essay will receive a score of zero.**

You have twenty-five minutes to write an essay on the topic assigned below.

Consider carefully the issue discussed in the following passage, then write an essay that answers the question posed in the assignment.

We like to believe that physical phenomena, animals, people, and societies obey predictable rules, but such rules, even when carefully ascertained, have their limits. Every rule has its exceptions.

Assignment: **What is one particularly interesting “exception” to a rule?** Write an essay in which you answer this question and discuss your point of view on this issue. Support your position logically with examples from literature, the arts, history, politics, science and technology, current events, or your experience or observation.

**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.**

2

2

2

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2

2

SECTION 2
Time—25 minutes
20 questions

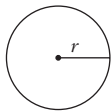
Turn to Section 2 of your answer sheet to answer the questions in this section.

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

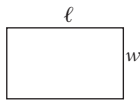
1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise 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

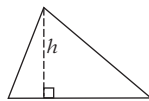


$$A = \pi r^2$$

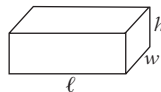
$$C = 2\pi r$$



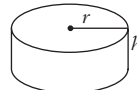
$$A = \ell w$$



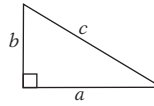
$$A = \frac{1}{2}bh$$



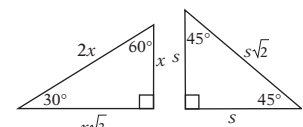
$$V = \ell wh$$



$$V = \pi r^2 h$$



$$c^2 = a^2 + b^2$$



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. A playground with an area of 3,600 square feet is to be divided into six different play stations. What is the average (arithmetic mean) area, in square feet, of the six stations?
 - (A) 400
 - (B) 500
 - (C) 600
 - (D) 700
 - (E) 800
2. If $3a = 15$ and $4b = 10$, what is the value of $\frac{a}{b}$?
 - (A) $\frac{1}{2}$
 - (B) $\frac{2}{3}$
 - (C) $\frac{3}{2}$
 - (D) 2
 - (E) $\frac{5}{2}$

GO ON TO THE NEXT PAGE

2

2

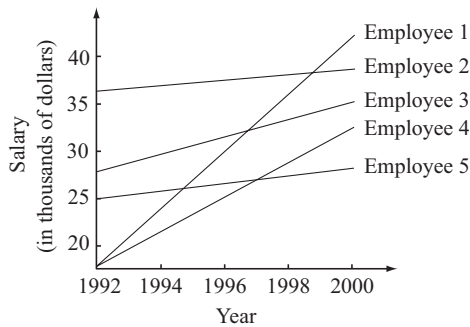
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SALARIES AT ULTRACORP



3. The graph above shows the salaries of five employees at UltraCorp over an eight-year period. Which employee's salary has risen at the fastest rate over this period?

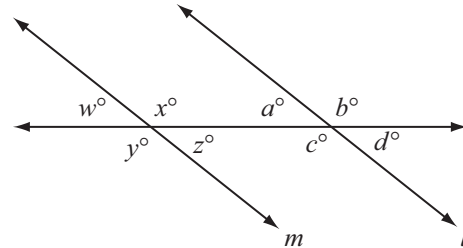
(A) Employee 1
 (B) Employee 2
 (C) Employee 3
 (D) Employee 4
 (E) Employee 5

4. One bucket of fried chicken serves either three adults or five children. If the Memorial Day fair committee wants to have enough chicken to serve 100 children and 60 adults, how many buckets of chicken are needed?

(A) 29
 (B) 32
 (C) 35
 (D) 40
 (E) 45

5. $(5x - 3x + 4)(3x + 6x - 2) =$

(A) $9x^2 + 16x - 4$
 (B) $18x^2 + 32x - 8$
 (C) $18x^2 - 40x + 8$
 (D) $72x^2 + 20x - 8$
 (E) $72x^2 - 20x + 8$



Note: Figure not drawn to scale.

6. In the figure above, $l \parallel m$ and $z = 55$. What is the value of $a + b + c$?

(A) 235
 (B) 265
 (C) 275
 (D) 305
 (E) 315

7. If $7\sqrt{x} + 16 = 79$, what is the value of x ?

(A) 3
 (B) 6
 (C) 9
 (D) 27
 (E) 81

8. Each term in a sequence of numbers, except for the first term, is 2 less than the square root of the previous term. If the third term of this sequence is 1, what is the first term?

(A) 1
 (B) 9
 (C) 11
 (D) 121
 (E) 123

2

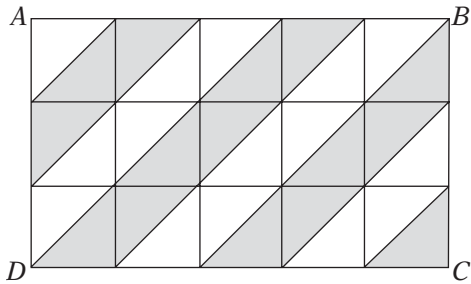
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9. In the figure above, rectangle $ABCD$ has an area of 90 and is divided into 15 smaller squares. What is the sum of the areas of the shaded regions?
- (A) 39
 - (B) 42
 - (C) 45
 - (D) 48
 - (E) 51

10. For all x greater than 2, let \star_x be defined as the sum of the positive integers less than x .

What is the value of $\star_{16} - \star_{13}$?

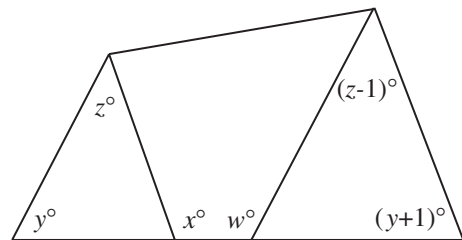
- (A) 27
- (B) 29
- (C) 42
- (D) 45
- (E) 54

$$\begin{array}{r} X3Y \\ + 5YX \\ \hline 1,33X \end{array}$$

11. In the correctly worked addition problem above, X and Y represent two different digits. What digit does X represent?
- (A) 0
 - (B) 1
 - (C) 4
 - (D) 8
 - (E) 9

$x, y, 3y$

12. If the average (arithmetic mean) of the three numbers above is $3x$ and $x \neq 0$, what is y in terms of x ?
- (A) $\frac{x}{2}$
 - (B) $2x$
 - (C) $3x$
 - (D) $x + 7$
 - (E) $3x - 3$



Note: Figure not drawn to scale.

13. In the figure above, what is the value of x in terms of w ?
- (A) $w - 2$
 - (B) $w - 1$
 - (C) w
 - (D) $w + 1$
 - (E) $w + 2$

14. When r is divided by 10, the remainder is 9. What is the remainder when $r + 2$ is divided by 5?
- (A) 0
 - (B) 1
 - (C) 3
 - (D) 4
 - (E) 14

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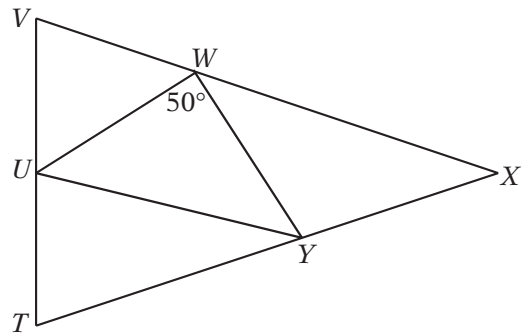
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15. If five distinct lines lie in a plane, then at most how many distinct points can lie on two or more of these lines?

(A) 6
 (B) 7
 (C) 8
 (D) 9
 (E) 10

16. A pile of playing cards consists of only kings, jacks, and queens. If the probability of randomly choosing a king is $\frac{1}{4}$ and the probability of randomly choosing a queen is $\frac{2}{7}$, what is the probability of randomly choosing a jack?

(A) $\frac{3}{7}$
 (B) $\frac{13}{28}$
 (C) $\frac{15}{28}$
 (D) $\frac{4}{7}$
 (E) $\frac{9}{14}$



Note: Figure not drawn to scale.

17. In the figure above, $\triangle VXT$ is equilateral and $WU = WY$. If the measure of $\angle VWU$ is twice the measure of $\angle VUW$, what is the measure of $\angle TUY$?

(A) 55°
 (B) 60°
 (C) 65°
 (D) 70°
 (E) 75°

18. If m and n are positive numbers, what percent of $m - 4$ is $n + 2$?

(A) $\frac{100(n+2)}{(m-4)}\%$
 (B) $\frac{m-4}{n+2}(100)\%$
 (C) $\frac{100n+2}{(m-4)}\%$
 (D) $\frac{m-4}{100n}\%$
 (E) $\frac{n+2}{m-4}\%$

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$$h(t) = -5t^2 + 120t + m$$

19. At time $t = 0$, a rocket was launched from a platform m meters above the ground. Until the rocket hit the ground, its height, in meters, after t seconds was given by the function h above. For which of the following values of t did the rocket have the same height as it did when $t = 10$?

- (A) 8
- (B) 12
- (C) 14
- (D) 16
- (E) 18

20. The price of a certain stock was d dollars on January 1, 2003. The price decreased by 20% in January, increased by 40% in February, decreased by 25% in March, and increased by 25% in April. In terms of d , what was the price of the stock at the end of April?

- (A) $0.80d$
- (B) $0.84d$
- (C) $1.05d$
- (D) $1.12d$
- (E) $1.20d$



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

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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:

Rather than accepting the theory unquestioningly, Deborah regarded it with-----.

- (A) mirth
- (B) sadness
- (C) responsibility
- (D) ignorance
- (E) skepticism

(A) (B) (C) (D) ●

1. Jacques Lugard's world-renowned 34th-Street bistro is known best for its ----- main courses, but many go there simply to enjoy the restaurant's ----- desserts.
 - (A) delectable . . scrumptious
 - (B) unpalatable . . tantalizing
 - (C) divine . . bland
 - (D) debilitating . . uninspired
 - (E) savory . . mediocre

2. Decades of political ----- have left the region on the brink of war; the slightest ----- could cause it to explode into destructive conflict.
 - (A) dissension . . construct
 - (B) tension . . communication
 - (C) harmony . . instigation
 - (D) strife . . provocation
 - (E) unanimity . . agitation

3. For over 500 years, the smile on the *Mona Lisa* has been the source of much ----- among art historians, who continue to interpret her enigmatic expression in many different ways.
 - (A) assent
 - (B) deliberation
 - (C) concurrence
 - (D) remuneration
 - (E) reconciliation

4. Even after his death, Elvis Presley continues to be one of the most ----- singers of all time; every year hundreds of thousands of fans travel to his hometown to pay tribute to his memory.
 - (A) satirized
 - (B) unexalted
 - (C) revered
 - (D) despised
 - (E) shunned

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5. Professional poker player Howard Lederer is known as “the professor” because of the ----- tactics he uses to outthink his opponents.
- (A) entertaining
(B) obscure
(C) cerebral
(D) transparent
(E) outlandish
6. Detractors of the new building say that it is ----- aesthetically and furthermore that, far from being the financial ----- that its developers claimed it would be, the project has cost the city dearly in lost revenue.
- (A) an eyesore . . adversary
(B) an enhancement . . gratuity
(C) an embellishment . . windfall
(D) a defacement . . calamity
(E) an atrocity . . boon
7. Nineteenth-century author Edgar Allen Poe was acclaimed for his ----- inventiveness; he had an unmatched ability to write ----- tales of cruelty and torture that mesmerized his readers.
- (A) tenuous . . spellbinding
(B) grotesque . . enthralling
(C) interminable . . sacrilegious
(D) eclectic . . sadistic
(E) chimerical . . mundane
8. DNA evidence taken from the scene of the crime was used to ----- the defendant; the genomic “fingerprint” taken from the blood sample was not a match for the accused, thus proving his innocence.
- (A) perambulate
(B) expedite
(C) incriminate
(D) exculpate
(E) equivocate

Questions 9 and 10 are based on the following passage.

Line Debussy, though less radical harmonically
than Schoenberg, preceded him in starting
the breakdown of the old system. Debussy,
one of the most instinctive musicians who
5 ever lived, was the first composer of our time
who dared to make his ear the sole judge of
what was good harmonically. With Debussy,
analysts found chords that could no longer be
explained according to the old harmony. If
10 one had asked Debussy why he used such
chords, I am sure he would have given the
only possible answer: “I like it that way!” It
was as if one composer finally had confidence
in his ear. I exaggerate a little, for, after all,
15 composers have never had to wait for theo-
reticians to tell them what or what not to do.
On the contrary, it has always been the other
way about—theoreticians have explained the
logic of the composer’s thought after he has
20 instinctively put it down.

9. It can be inferred from the passage that the “old system” (line 3) most likely involved
- (A) a way of developing musical intuition
(B) a rigid method for writing musical harmonies
(C) a means by which musicians could incorporate the ideas of theoreticians into their music
(D) a method of transcribing music that arose spontaneously from a musician’s imagination
(E) methods that theoreticians used for distinguishing the harmonies of different composers

First passage: *What to Listen for in Music*, Aaron Copland, McGraw-Hill, 1957. Reprinted with permission of the Aaron Copland Fund for Music, Inc., Copyright owner.
Second passage: *The Oceans*, Ellen J. Prager; McGraw-Hill, 2000. Reprinted with permission of The McGraw-Hill Companies.

The passages below are followed by questions based on their content. Answer the questions on the basis of what is stated or implied in the passage and in any introductory material that may be provided.

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10. The passage characterizes Debussy primarily as being
- (A) less self-assured than other composers of his time
 - (B) reverential of traditional musical forms
 - (C) preoccupied more with musical theory than with practice
 - (D) harmonically inventive
 - (E) derisive of musical theoreticians

Questions 11 and 12 are based on the following passage.

Imagine flying in a hot-air balloon over the lush, green canopy of a rainforest. Through the clouds and mist you can barely make out the treetops and a few of the birds flying among them. What lies hidden in the undergrowth? How many organisms are there, what do they look like, and how do they behave? Using a rope and bucket you blindly drag the rainforest from above hoping to ensnare some of its inhabitants or the materials that make up its infrastructure. But alas, with such feeble and limited means you can learn little about the environment and life below. For years this is essentially how we have studied the ocean—blindly sampling the sea with limited and relatively ineffective methods. Even today, with technology as advanced as it is, study of the ocean remains a difficult and expensive task. Whether through large-scale satellite imagery, small-scale chemical and biological measures, or even the collecting of fossil impressions of ancient sea creatures, all aspects of oceanographic study require some type of observation or sample collection, and herein lies the problem.

11. The passage describes a trip in a hot-air balloon primarily in order to
- (A) describe the variety of life forms in the rainforest
 - (B) make an analogy to ocean exploration
 - (C) exemplify the advanced equipment that land-based biologists have at their disposal
 - (D) show the difficulties that most biologists encounter in extracting samples from the rainforest
 - (E) demonstrate how methods of biological exploration have evolved over time

12. The “small-scale chemical and biological measures” (lines 20–21) are mentioned primarily as examples of
- (A) methods that are not as cost-effective or simple as the author would like
 - (B) challenges for the explorer of the rainforest
 - (C) technologies that hold great promise for revealing the nature of oceanic life
 - (D) techniques that require little or no training to employ
 - (E) inexpensive means of exploring the deepest parts of the ocean

Questions 13–17 are based on the following passage.

The following is an excerpt from a book about the history of primitive art.

Pictures from the earliest artistic periods are the traces of a primal concept of the world. In spite of the thematic treatment of real creatures we can still recognize, paintings of animals or men from the early Stone Age are charged with magical strength, exaggerated and concentrated as they are into forms of existential experience. They fulfilled still other functions beyond the mere representation of the visible.

The degree of naïveté in archaic primitive art varies. A certain naïveté is always present when observation of nature is not overlaid with rational thought. Art first had to discover the world and to invent ways of making it perceivable. Along with visible things, invisible forces too were given form and substance and began to make their appearance. And as they achieved form they took on permanence.

The early hunters attempted to influence the chance fortunes of the hunt through magical practices. The power of magic was as real to them as the power of the stone ax they had invented. Art ensnared the form of the animal.

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25 Whenever the figure of woman appears it is a sign of fertility; representations of men are rarer, and when they occur they show him in his role as hunter. Man does not yet look beyond the borders of existence that mark his practical life. Magic precedes the fall of man into knowledge.

30 It must have meant a considerable revolution in prehistoric times when man discovered that he did not have to live solely from hunting, that not only the animals but indeed all of nature round about him was full of life. Stars and seasons take their rhythms from unknown forces; a mysterious power functioning beyond human understanding, propitious or forbidding, helpful or threatening; forces of ancestors, spirits, and demons, and forces of the departed and the coming gods.

35 With the transition from the early to the late Stone Age there appears the first stylistic change in art. The original naturalism based on observation and experience gives way to a geometrically stylized world of forms discoverable only through thought and speculation.

40 Prehistoric man, leaving behind him the life of the hunter and gatherer, invents abbreviations and pictographic signs which are no longer pictures proper but rather thought models, reflections of his more settled existence as a beginning herdsman and farmer.

45 Following the late Stone Age, the art of the Bronze Age—which in Asia dates from the middle of the third millennium B.C. and which began in Europe around 2100 B.C.—contains, as does the art of the Iron Age as well, elements of naïveté and inventive immediacy side by side with highly developed, formalized compositions. The bronze sculptures of the Celts and the Illyrians are ample witnesses to them.

50 With the substitution of conceptual rationalization for more primitive, mythical explanations of the world, a kind of art arises in which objective criteria of reality and the natural laws of optics come into play. The simplicity and vividness of the naïve become more rare.

55 The art of the period of the catacombs was informed with the naturalistic naïveté of late antiquity. In medieval Christian art, which

60 was averse to any spatial illusions, a “moral” perspective dominated; all action was pressed onto the holy, two-dimensional surface.

65 While the primitive and instinctual accompanies the course of art until the Renaissance, it recedes in the face of the humanistic concept of the world and the discovery of linear and aerial perspective. High art forsakes the realm of instinct in exchange for the province of reason.

70 But parallel with it, in folk art and among so-called primitive peoples, naïve representation lives on.

- 75
- 80
- 85
13. The first paragraph suggests that the “primal concept of the world” (lines 2–3) involved
- (A) a belief that art was more important even than hunting
 - (B) a need to preserve a record of events for the future
 - (C) a focus on the realistic depiction of animals
 - (D) a sense that paintings can have powers beyond what can be seen
 - (E) a desire to communicate with animals
14. In line 6, the word “charged” most nearly means
- (A) exchanged
 - (B) approached violently
 - (C) accused
 - (D) trampled
 - (E) filled
15. The “stylistic change” (lines 44–45) is a transition from
- (A) representations of real things to representations of ideas
 - (B) magical applications of art to representations of hunting scenes
 - (C) depictions of gods to depictions of herdsmen
 - (D) art used to depict the natural environment to art used for magical rituals
 - (E) a focus on the theme of hunting to a focus on the theme of fertility

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16. The “bronze sculptures of the Celts and the Illyrians” (lines 62–63) are mentioned primarily as examples of
- (A) a new appreciation of three-dimensional art
 - (B) art with both primitive and formal characteristics
 - (C) a revival of the art of the Stone Age
 - (D) illustrations of the herding life
 - (E) art with moralistic themes
17. The passage indicates that, unlike the “art of the period of the catacombs” (line 71), Renaissance art is characterized by
- (A) an appreciation of three-dimensional forms
 - (B) an emphasis on religious themes
 - (C) representations of magical creatures
 - (D) a primitive view of the world
 - (E) a focus on the realm of instinct

Questions 18–24 are based on the following passage.

The following passage, from a modern textbook on anthropology, discusses a debate among biologists and anthropologists about how humans evolved.

Does evolution occur gradually or in “punctuated equilibria”? Charles Darwin, a gradualist, maintained that life forms arise from others in a gradual and orderly fashion. Small modifications that accumulate over the generations add up to major changes after millions of years. Gradualists cite intermediate fossils as evidence for their position, contending that there would be even more transitional forms if it weren’t for gaps in the fossil record.

The advocates of the punctuated equilibrium model believe that long periods of equilibrium, during which species change little, are interrupted (punctuated) by sudden changes—evolutionary leaps. One reason for such jumps in the fossil record may be extinction followed by invasion by a closely related species. For example, a sea species may die out when a shallow body of water dries up, while a closely related species will survive in deeper waters. Then, later, when the sea reinvades the first locale, the protected species will extend its range to the first area. Another possibility is that when barriers are removed, a group may replace, rather than succeed, a related one because it has a trait that makes it adaptively superior in the environment they now share.

When a major environmental change occurs suddenly, one possibility is for the pace of evolution to increase. Another possibility is extinction. The earth has witnessed several mass extinctions—worldwide ecosystem catastrophes that affect multiple species. The biggest one divided the era of “ancient life” (the Paleozoic) from the era of “middle life” (the Mesozoic). This mass extinction occurred 245 million years ago, when 4.5 million of the earth’s estimated 5 million species (mostly invertebrates) were wiped out. The second biggest extinction, which occurred 65 million years ago, destroyed the dinosaurs and many other Mesozoic species. One explanation for the extinction of the dinosaurs is that a massive, long-lasting cloud of gas and dust arose from the impact of a huge meteorite. The cloud blocked solar radiation and therefore photosynthesis, ultimately destroying most plants and the chain of animals that fed on them.

The hominid fossil record exemplifies both gradual and rapid change, confirming that evolution can be faster or slower depending on the rate of environmental change, the speed with which geographic barriers rise or fall, and the value of the group’s adaptive response. Australopithecine teeth and skulls show some gradual transitions. For example, some of the fossils that are intermediate between *Australopithecus* and early *Homo* combine a larger brain (characteristic of *Homo*) with huge back teeth and supportive structures (characteristic of the australopithecines). However, there is no doubt that the pace of hominid evolution sped up around 18 million years ago. This spurt resulted in the emergence (in just 200,000 years) of *Homo erectus*. This was followed by a long period of relative stability. The probable key to the rapid emergence of *Homo erectus* was a dramatic change in adaptive strategy: greater reliance on hunting through improved tools and other cultural means of adaptation. The new economy, tools, and phenotype arose and spread rapidly, then remained fairly stable for about 1 million years.

Anthropology: The Exploration of Human Diversity, Conrad Phillip Kottak, McGraw-Hill. Reprinted with permission of The McGraw-Hill Companies.

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18. The passage suggests that the existence of “transitional forms” (line 9) would demonstrate
- (A) how some species have come to dominate others
 - (B) how life first arose on earth
 - (C) the gradual nature of evolution
 - (D) the divisions in the scientific community over the manner in which evolution occurs
 - (E) how barriers arise between species
19. The example of the two “sea species” (line 18) described in the second paragraph is intended to demonstrate
- (A) the differences between the demands of an aquatic environment and the demands of a terrestrial environment
 - (B) how the fossil record can misrepresent the history of a species
 - (C) the manner in which one species gradually evolves into a more advanced one
 - (D) a current theory of how mass extinctions occur
 - (E) how punctuated evolution can occur
20. According to the passage, the dinosaurs most likely became extinct because
- (A) they were struck by a large meteorite
 - (B) their food supply was eliminated
 - (C) a more dominant species invaded their environment and destroyed them
 - (D) the earth’s temperature increased dramatically after the impact of a meteorite
 - (E) a sudden ice age destroyed their environment
21. In line 60, “supportive” most nearly means
- (A) providing evidence
 - (B) secondary
 - (C) emotionally sustaining
 - (D) weight-bearing
 - (E) scientific
22. According to the passage, the early Mesozoic era differed from the late Paleozoic era chiefly in that the early Mesozoic era
- (A) was no longer dominated by the dinosaurs
 - (B) was characterized by the rise of *Homo erectus*
 - (C) was characterized by a greater diversity of life than that in the late Paleozoic era
 - (D) was far colder than the late Paleozoic era
 - (E) contained far fewer species than the late Paleozoic era did
23. According to the passage, “the pace of hominid evolution sped up around 18 million years ago” (lines 62–63) most likely because
- (A) *Australopithecus* developed a larger brain
 - (B) *Homo erectus* developed better means of hunting and social interaction
 - (C) *Homo erectus* invaded and took over the environment of *Australopithecus*
 - (D) *Australopithecus* developed large teeth, which enabled it to eat a wider variety of foods
 - (E) a natural catastrophe, perhaps a meteor, destroyed many species that were competing with the hominids
24. Given the information in the passage as a whole, how would the author most likely answer the opening question of the passage?
- (A) The gaps in the fossil record indicate clearly that all organisms evolve in punctuated equilibrium.
 - (B) The example of *Homo erectus* demonstrates that no species can remain stable for very long.
 - (C) The rapidity with which species evolve depends on many factors, so evolution can occur gradually or in a punctuated manner.
 - (D) Only occasional mass extinctions interrupt the gradual evolution of species.
 - (E) The father of evolution, Charles Darwin, was correct in believing that all species evolve gradually over long periods of time.



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

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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:

The children couldn't hardly believe their eyes.

- (A) couldn't hardly believe their eyes
- (B) could hardly believe their eyes
- (C) would not hardly believe their eyes
- (D) couldn't nearly believe their eyes
- (E) couldn't hardly believe his or her eyes

(A) ● (C) (D) (E)

1. Renowned for his skills on the trumpet, Louis Armstrong also thrilling listeners with his remarkable and unique singing voice.
 - (A) thrilling listeners with his remarkable and unique singing voice
 - (B) thrilled listeners with his remarkable and unique singing voice
 - (C) with his remarkable and unique singing voice thrilled listeners
 - (D) thrilled listeners remarkably with his singing voice that was unique
 - (E) thrilling listeners, his remarkable and unique singing voice

2. Like children, cats often develop a love for certain toys, creating games and diversions that can occupy them for hours.
 - (A) toys, creating games and diversions
 - (B) toys and creating games and diverting
 - (C) toys and in creating games and diversions
 - (D) toys; and these create games and diversions
 - (E) toys, the creation of games and diversions

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3. Marcus Garvey argued that assimilation into mainstream culture, far from being a panacea for African Americans, would be a distracting factor from their ultimate goals.
- (A) would be a distracting factor from their ultimate goals
 - (B) would factor to distract them from their ultimate goals
 - (C) would, for their ultimate goals, be a distraction
 - (D) distracting them from their ultimate goals
 - (E) would distract them from their ultimate goals
4. Pretending to be sick to avoid taking her chemistry test, Chandra's attempt failed to convince her parents.
- (A) Chandra's attempt failed to convince
 - (B) Chandra's attempt to convince failed
 - (C) Chandra attempted to fail to convince
 - (D) Chandra failed to convince
 - (E) Chandra failed but attempted to convince
5. Believing his speech to be superior to the other candidates, Walter walked confidently into the assembly hall.
- (A) Believing his speech to be superior to the other candidates
 - (B) Believing his speech superior to the other candidates
 - (C) Of the belief that his speech was superior to the other candidates
 - (D) Believing his speech to be superior to those of the other candidates
 - (E) Of the belief that his speech was superior over the other candidates
6. Undeterred by her parents' opposition, Rachel changed majors during her junior year, convinced that she had found her calling in the study of romantic poetry.
- (A) Undeterred by her parents' opposition
 - (B) Undeterred and opposed by her parents
 - (C) Undeterred by her parents whose opposition
 - (D) Her parents' opposition undetering her
 - (E) Undeterred to her parents opposition
7. The field commanders quickly realized that they had lost command of their troops, who had become scattered, undisciplined, and most were becoming demoralized.
- (A) undisciplined, and most were becoming demoralized
 - (B) were losing discipline and morale
 - (C) undisciplined, and demoralized
 - (D) were undisciplined, and they were demoralized
 - (E) and had become undisciplined and demoralized
8. Standardized tests, some argue, do not indicate a student's academic skill but rather their ability to memorize and use a set of test-taking tricks.
- (A) rather their ability to memorize and use a set of test-taking tricks
 - (B) instead it tests your ability to memorize and use test-taking tricks
 - (C) also the ability to memorize and use a set of test-taking tricks
 - (D) rather the ability to memorize and use a set of test-taking tricks
 - (E) instead the ability of memorizing and using a set of test-taking tricks
9. Muhammad Ali, known almost as much for his controversies outside the ring as for his glory within it, becoming a great American icon.
- (A) it, becoming a great American icon
 - (B) it, has become a great American icon
 - (C) it; has thereby become a great American icon
 - (D) it; he has become a great American icon
 - (E) it, and so has become a great American icon
10. The brochure describing the camp requested that we are at the registration center promptly at noon.
- (A) are at the registration center
 - (B) should be getting to the registration center
 - (C) should get at the registration center
 - (D) would be to the registration center
 - (E) be at the registration center

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11. Without such detailed information about the disaster, the agency could not have allocated the proper resources to distribute the necessary food, medicine, and clothing.
- (A) have allocated the proper resources to distribute
 (B) allocate the proper resources in order for the distribution of
 (C) be allocating the proper resources to distribute
 (D) have been allocating the proper resources for the distribution of
 (E) allocated the proper resources to distribute
12. After all the children's names were wrote down, they were allowed to proceed to recess, joining the rest of their classmates outside. No error
- (A) A B C ● E
13. Because each of the candidates had a very different position on the matter, the voters were able to select from a very diverse set of options from which to choose.
- A B
C
D
No error
E
14. The film was a watershed in art history: its stylistic innovations catalyzed a revolution in American movies.
- A B
C
D E
No error
15. An astute tactician, an experienced player, and charismatic as a leader, Terrence was an obvious choice to be the next captain of the soccer team.
- A B
C
D E
No error
16. His chronic back pain and strong dislike for manual labor were a reason why Thomas refused to help the others shovel snow from the driveway. No error
- A B
C D
E
17. Tabitha had a maddening habit of extending trips unnecessarily, leading friends on roundabout, circuitous routes. No error
- A B C
D E
No error

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:

By the time they reached the halfway point in the race, most of the runners hadn't hardly begun to hit their stride. No error

A B C D E

(A) (B) (C) ● (E)

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18. The subtle oration left Perry confused; he
 A B
 was not confident that he truly understood
 C
 the message eluded to by the speaker.
 D
No error
 E
19. Still nervous hours after watching the
 A
 horror movie, Annie clutching her sheets
 B
tighter every time a noise from the street
 C
reached her ear. No error
 D E
20. Throwing her shoe, stomping on the floor,
 A
 and screaming at the top of her lungs, the
demonstrative girl persisted in arguing her
 B C
 point, leaving her parents at a loss as to how
 D
 to subdue her. No error
 E
21. Ariel was dumbfounded when she did not get
 A
 into her favorite college, because her grade
 B
 point average was higher than
the rest of her classmates and her
 C
 after-school activities were so impressive.
 D
No error
 E
22. The emissary for the committee stated that
 A
their position on the matter remained
 B C
 neutral and that no amount of cajolery
 D
 would cause a shift in either direction.
No error
 E
23. Brian hopes that his training program
will help him to become faster and stronger
 A B
 than both of his chief rivals for the position
 C
 of quarterback, each of whom receive more
 D
 practice time with the varsity team.
No error
 E
24. The magician's skill left the children
 A
 both awestruck and inspired; they all
 B
 left the party convinced that, if they
 C
tried hard enough, they could pull a rabbit
 D
 out of any hat. No error
 E
25. The genre of romance literature, now
primarily associated with love stories,
 A
 actually encompass a much broader range
 B
 of themes including chivalry, heroism,
 C
and travel to foreign lands. No error
 D E

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26. The settlers experimented for months
 A
to find the best method to channel water
 B C
 from the river to their fields and homes.
 D
No error
 E
27. Ms. Parker read the account with so much
 A B
 emotion and urgency as we could clearly
 C
 envision ourselves embroiled in the battle
 D
 ourselves. No error
 E
28. Several college coaches came to the
 tournament hoping to find perspective
 A
 players who demonstrated not only
 B C
 strong basketball skills but also the ability
to work as members of a team. No error
 D E
29. In the school's new camp for the performing
 A
arts, students choreograph their own dances,
 B
 develop their acting skills, and will write
 C D
 and perform their own plays. No error
 E

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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 refer to the following passage.

(1) Few people have had as strong an impact on an industry as the impact that Charlie Chaplin had on the world of film. (2) Born into an impoverished London family, Chaplin crossed the Atlantic and became a pioneer in silent comedic movies. (3) Charlie’s mother suffered from severe mental illness, which forced her to spend time institutionalized. (4) Early in his film career, Chaplin developed his signature character, the “Little Tramp,” who amused audiences repeatedly with his clever physical comedy and endearing sensitivity. (5) Modest yet clearly intelligent, shy yet always at the center of action, the Tramp’s embodiment was of the genius of Chaplin’s artistry.

(6) Being writer, director, and editing his own work, Chaplin faced a daunting challenge with the rise of “talkie” films, which dried up the market for the Tramp. (7) His response was to take on the additional role of composer, writing beautiful scores to accompany his work and thus allowing the Tramp to remain speechless. (8) Whether it was the mastery of his work or the audience’s tendency, during the Great Depression, to identify with his character, Chaplin managed to defy the odds and maintain a tremendous level of popularity and success in the face of technological advancement.

(9) A vocal liberal in a time of conservative rule, he became a target for men like Senator Joseph McCarthy and his House Un-American Activities Committee. (10) While he managed to avoid being named to McCarthy’s Hollywood Ten, a list of black-listed entertainment industry figures suspected of Communist connections, he drew the ire of J. Edgar Hoover with the messages imbedded within his films. (11) The fascination with Chaplin went beyond his artistic genius, however.

(12) Chaplin saw the dangers in Hitler’s rise to power before most of the world had heard of the dictator. (13) He saw industry becoming mechanized and impersonal and believed in a connection between the atomic bomb and murder. (14) Outraged at what they viewed as subversive propaganda created by an immoral man, the United States government revoked Chaplin’s re-entry visa during a trip to London in 1952. (15) Sixty-three years old and tired of fighting against a force unwilling to hear his message, Chaplin agreed to exile rather than to going back to America and facing interrogation and lived the rest of his years in Europe. (16) He returned twenty years later to receive an Academy Award for lifetime achievement.

30. Which of the following is the best revision of the underlined portion of sentence 1 (reproduced below)?

Few people have had as strong an impact on an industry as the impact that Charlie Chaplin had on the world of film.

- (A) the impact that Charlie Chaplin had on the world of film
- (B) Charlie Chaplin had on the world of film
- (C) the impact upon the world of film by Charlie Chaplin
- (D) Charlie Chaplin’s impact on the world of film
- (E) Charlie Chaplin and his impact on the world of film

31. Which sentence contributes least to the unity of the first paragraph?

- (A) sentence 1
- (B) sentence 2
- (C) sentence 3
- (D) sentence 4
- (E) sentence 5

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32. Which of the following is the best version of the underlined portion of sentence 5 (reproduced below)?

Modest yet clearly intelligent, shy yet always at the center of action, the Tramp's embodiment was of the genius of Chaplin's artistry.

- (A) (no revision needed)
(B) Tramp was embodied for the genius of Chaplin's artistry
(C) Tramp and his embodiment of the genius of Chaplin's artistry
(D) Tramp embodied the genius of Chaplin's artistry
(E) Tramp's embodiment and the genius of Chaplin's artistry
33. Which of the following is the best version of the underlined portion of sentence 6 (reproduced below)?

Being writer, director, and editing his own work, Chaplin faced a daunting challenge with the rise of "talkie" films, which dried up the market for the Tramp.

- (A) (no revision needed)
(B) Writing, directing, and being editor of his own work
(C) Being writer of his own work, directing and editing too
(D) Writing his own work, directing, and editing also
(E) As the writer, director, and editor of his own work

34. What is the most logical way to rearrange the sentences in paragraph 3?

- (A) 11, 9, 10
(B) 10, 11, 9
(C) 11, 10, 9
(D) 9, 11, 10
(E) 10, 9, 11

35. In context, which of the following sentences best precedes sentence 12 as an introduction to the fourth paragraph?

- (A) But Chaplin did not let his politics overwhelm his art.
(B) Chaplin's films allowed audiences to escape from hard political and economic times.
(C) Chaplin's fame and power came to dominate Hollywood.
(D) These messages addressed political and moral issues both inside and outside of the United States.
(E) Chaplin would never again be the same actor he once was.



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

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SECTION 5
Time—25 minutes
18 questions

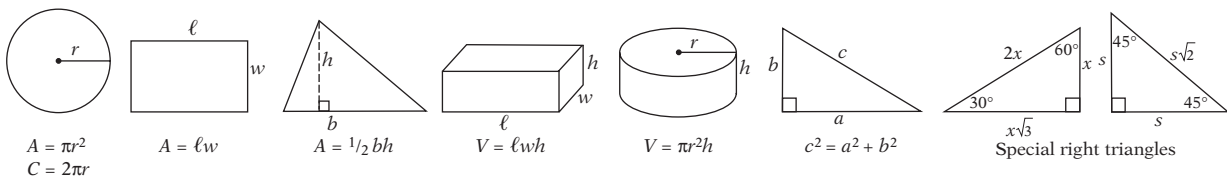
Turn to Section 5 of your answer sheet to answer the questions in this section.

Directions: This section contains two types of questions. You have 25 minutes to complete both types. For questions 1–8, 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

- The use of a calculator is permitted.
- All numbers used are real numbers.
- 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 otherwise indicated.
- 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



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.

- Eric earns a 5% commission on each \$200 stereo that he sells. How many stereos must he sell to earn \$100?
 - 5
 - 10
 - 15
 - 20
 - 25

JANE'S DISCOUNT MUSIC
 SUPERSTORE HOLIDAY SALES

	CDs	DVDs	Total
New		4,500	7,500
Used			
Total	7,000		14,000

- Jane's Discount Music Superstore sells both new and used CDs and DVDs. On the basis of the information listed above, how many used DVDs were sold during the holiday season?
 - 2,500
 - 3,000
 - 4,000
 - 6,500
 - 7,000

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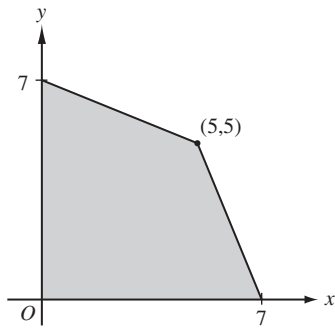
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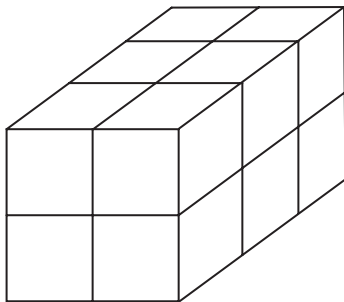
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3. One bag of potatoes of a certain brand weighs 40 ounces. Five pounds of these potatoes cost \$4.00. If Larry has exactly \$20.00 to spend on potatoes, what is the maximum number of bags he can buy? (1 pound = 16 ounces)
- (A) 7
(B) 8
(C) 9
(D) 10
(E) 11



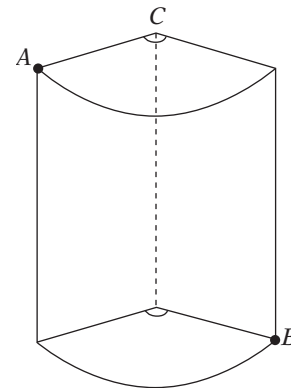
4. What is the area of the shaded region in the figure above?
- (A) 15
(B) 20
(C) 25
(D) 30
(E) 35



5. The rectangular solid above is constructed of 12 cubes that each have a volume of 8 cubic inches. What is the surface area of the solid?
- (A) 32
(B) 48
(C) 96
(D) 128
(E) 144

6. Set M consists of the consecutive integers from -15 to y , inclusive. If the sum of all of the integers in set M is 70, how many numbers are in the set?
- (A) 33
(B) 34
(C) 35
(D) 36
(E) 37

7. In a round robin tennis tournament involving seven players, each player will play every other player twice. How many total matches will be played in the tournament?
- (A) 21
(B) 28
(C) 42
(D) 48
(E) 56



8. The figure above shows a right prism, the base of which is a quarter of a circle with center C . If the area of each base of the prism is 12.5π and the volume of the solid is 300π , what is the distance from point A to point B ?
- (A) 24
(B) 26
(C) 28
(D) 30
(E) 32

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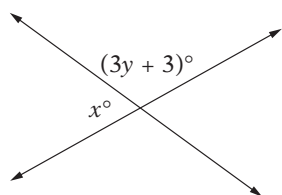
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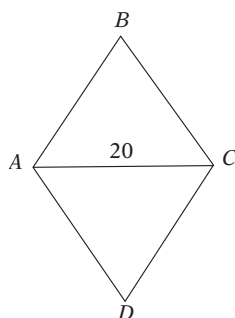
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9. In the figure above, if $x = y + 1$, what is the value of $3y + 3$?



Note: Figure not drawn to scale.

10. In the figure above, $AB = BC = CD = AD$ and quadrilateral $ABCD$ has an area of 480 square inches. What is the perimeter, in inches, of quadrilateral $ABCD$?

$$f(x) = 7x + 2$$

$$g(x) = x^2 - 5$$

11. Given the functions above, what is the value of $f(g(3))$?

12. How much less than x is $\frac{6x-9}{5} - \frac{x+6}{5}$?

13. If a and b are positive integers, $a + b < 20$, and the product ab is an even number, what is the largest possible value of a ?

U	V
W	X
Y	Z

Note: Figure not drawn to scale.

14. In the figure above, a large rectangle is divided into six smaller rectangles that each have integer lengths and widths. The areas of rectangles U , V , and W are 18, 21, and 12, respectively. If the area of the entire figure is 117, what is the area of rectangle Z ?

15. An elementary school class of 55 students is planning a field trip to a nearby aquarium. The price of admission is \$15 per person. However, for groups of 60 or more people, the price is reduced to \$13 per person. How much money would the class save by buying 60 tickets at the discounted price and using only 55 of them, instead of buying 55 individual tickets?

16. Points W , X , Y , and Z lie on a line in that order. If $WY = 15$, X is the midpoint of \overline{WY} , and $YZ = 2WX$, what is the length of \overline{XZ} ?

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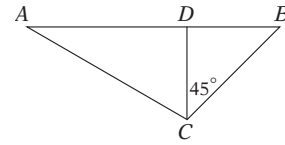
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17. For all numbers r and s , let $r \square s$ be defined by

$$r \square s = \frac{rs^2}{r-s}. \text{ If } 3 \square 2 = x, \text{ what is the value of } x \square 3?$$



Note: Figure not drawn to scale.

18. In $\triangle ABC$ above, \overline{DC} is perpendicular to \overline{AB} , $BC = 5\sqrt{2}$, and $AD = 2DB$. What is the area of $\triangle ABC$?



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

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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:

Rather than accepting the theory unquestioningly, Deborah regarded it with-----.

- (A) mirth
- (B) sadness
- (C) responsibility
- (D) ignorance
- (E) skepticism

(A) (B) (C) (D) (E)

1. The knee-jerk reflex is nearly ----- because it produces an immediate muscular response without sending information to the brain.
 - (A) transient
 - (B) instantaneous
 - (C) stagnant
 - (D) revitalized
 - (E) consecutive
2. Although starved and emaciated, the two stray cats nevertheless summoned the energy to fight ----- for the scraps of food.
 - (A) humanely
 - (B) vigilantly
 - (C) fluently
 - (D) ferociously
 - (E) dispassionately
3. Jennifer's ----- demeanor irritated her peers, who hated listening to her supercilious and pretentious remarks.
 - (A) reticent
 - (B) belligerent
 - (C) lofty
 - (D) self-effacing
 - (E) discomfited
4. The art of the sushi master takes years to grasp; only after years of ----- will a chef in training have the ----- to create his or her own work.
 - (A) apprenticeship . . . autonomy
 - (B) tutelage . . . ineptitude
 - (C) dormancy . . . sovereignty
 - (D) cultivation . . . boorishness
 - (E) quiescence . . . authority
5. The journalist had been called ----- by her editors because of her ability to get news stories before anyone else, but she later admitted that she had received early information from privileged sources, rather than through -----, as many thought.
 - (A) prophetic . . . prescience
 - (B) premeditated . . . predilection
 - (C) dismissive . . . omniscience
 - (D) preeminent . . . reluctance
 - (E) insolvent . . . foresight

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The passages below are followed by questions based on their content; questions following a pair of related passages may also be based on the relationship between the paired passages. Answer the questions on the basis of what is stated or implied in the passage and in any introductory material that may be provided.

Questions 6–9 are based on the following passages.

PASSAGE 1

The very differentness of the medieval universe from our own invites our study of it, for we cannot fully appreciate the world we live in until we contrast it with a different *weltanschauung*, or “world picture,” and the older cosmology is indeed very unlike our own. For example, C. S. Lewis has pointed out that where our universe is thought to be dark, the other one was presumed to be illuminated; and while Pascal could be disturbed by the silence of the vast spaces between the stars, the universe was formerly thought to produce the “music of the spheres” that only the wise man could hear. Furthermore, the often-heard charge that the earth-centered universe of former times was the product of man’s sense of self-importance is questionable, for we may observe in a medieval poet and philosopher like Dante that although the spheres are first described as surrounding the earth, they are then more properly seen in an inverted order surrounding God, so that God, not man, is at the center.

PASSAGE 2

The mystical works of Hildegard of Bingen, a 12th-century German nun and daughter of a knight, reveal a great deal about the medieval mind. One of the earliest known composers of hymns, she also wrote plays and other works based on her migraine-inspired visions. She also composed treatises, like *Physica*, that analyzed the physical world from a religious perspective. Hildegard’s science was based on the Aristotelian categories of earth, water, air and

fire, and on the then-common view of the relationship between mankind and nature: “All the elements served mankind and, sensing that man was alive, they busied themselves in aiding his life in every way.”

6. Both passages are primarily concerned with
- (A) describing the discoveries of great medieval scientists
 - (B) providing examples of how medieval thinkers perceived the world
 - (C) disproving modern assumptions about medieval history
 - (D) questioning medieval scientific theories
 - (E) showing the influence of religion on everyday life in medieval Europe
7. In Passage 1, the “other one” (line 9) refers to
- (A) the far side of the galaxy
 - (B) the earth in contrast with outer space
 - (C) the sun
 - (D) the medieval universe
 - (E) an alternative cosmological theory
8. Pascal is mentioned in the passage primarily as an example of someone
- (A) who could hear the “music of the spheres”
 - (B) who was among the first scientists to explore the medieval universe
 - (C) whose “world picture” was different from that of medieval times
 - (D) whose cosmology is very similar to that of poets like Dante
 - (E) who assumed that the universe was illuminated
9. Hildegard’s view of the world as described in Passage 2 differs from Dante’s view of the world as described in Passage 1 primarily in terms of its
- (A) focus on religion
 - (B) assumption that the universe is ordered
 - (C) application of scientific methods
 - (D) public acceptance
 - (E) anthropocentrism

Passage 1: *The Literature of Medieval England*,

D. W. Robertson, Jr., McGraw-Hill, 1970. Reprinted with permission of The McGraw-Hill Companies.

Passage 2: Christopher Black 2005. All Rights reserved.

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Questions 10–16 are based on the following passage.

The following passage was written by a naturalist about his studies of the wildlife in the African plains, particularly Serengeti National Park in Tanzania.

Line How can so many wild animals manage to
survive in the Serengeti? Their migrations of
course tell part of the story. By moving from
place to place with the changing seasons, they
5 do not overuse and damage the grass in any
one area. But other, less obvious factors also
are involved.

Here on the eastern plains in January, it is
clear that most of the animals are eating the
10 abundant grass that springs up like a well-
mown lawn between low clumps of Sodom
apple and indigo plants. Nearly all of them,
from 1,500-pound eland bulls to tiny 10-pound
Thomson's gazelle calves, are grazers, rather
15 than browsers, which feed on shrubs or the
leaves of trees. Singly or in pairs, long lines,
or little groups, they move over the green
pastures, never remaining long in one place.
Where the grass is all short, as it will be when
20 it has been heavily grazed, all the animals ap-
parently eat much the same sort of grass. But
where the grass is of varied lengths and tough-
ness, we can see that each animal copes dif-
ferently with the available fodder.

25 The herds of zebras tend to roam in areas
separate from the rest of the grazing multi-
tude. Unlike all the other grazers on the plain,
they have teeth in both jaws. This enables
them to deal with taller, coarser grass than can
30 the other herbivores. All the rest are various
species of antelope, which nip off the grass be-
tween their lower incisors and toothless upper
palates. Thus, the zebras eat down the longer
grasses to a certain level and then move on.

35 Following the zebras come the wildebeests
and, in better-wooded areas, hartebeests.
These animals eat the grass down a stage fur-
ther, until it is really short. (They also eat new
growth before it has had a chance to grow
40 tall.) Then the Thomson's gazelles take over.
With their tails flicking constantly, they nibble
at the individual leaves of the tussocks and on
the tiny plants that grow between them. By the

time all of them have finished, the plain resem-
45 bles a closely but rather unevenly mown lawn.

Thus, one species or another of animal
often predominates over a great expanse of the
plain, depending on the height to which the
grass has grown or has been grazed. Finally,
50 when all has been eaten down rather short,
most of the grazers leave the area altogether.

Two or three weeks later, when more rain
has brought on fresh growth, the herds may
return to feed over the area again. Perhaps
55 they move about in response to the intensity
of local showers, which can vary a good deal
over a distance of only a mile or two. In any
case, the result of their returning again and
again to the same areas is to keep the grass
60 green and short, just as the repeated mowing
of a lawn in summer does.

If, as a result of badly drawn park bound-
aries or some other cause, the migrant herds
of Serengeti were confined to either the west-
65 ern woodlands or the eastern short-grass
plains, they would be forced to return to the
same areas too often and would eventually so
weaken the grass that it would die out. But as
they eat it down, they move away and the
70 grass recovers.

10. As a whole, this passage is primarily concerned with
- (A) criticizing human intervention in a natural habitat
 - (B) describing the life cycle of particular plants
 - (C) suggesting a way to avert a natural disaster
 - (D) showing how to distinguish grazers from browsers
 - (E) describing how a particular ecosystem works

Excerpted from *The Life of the African Plains*, Leslie Brown, McGraw-Hill, 1972. Reprinted with permission of The McGraw-Hill Companies.

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11. Lines 22–24 (“Where the grass . . . the available fodder”) discuss the relationship between
- (A) what they eat
 - (B) the seasons and relative animal populations
 - (C) plant size and dietary variety
 - (D) zebras and antelopes
 - (E) climate and plant health
12. According to the passage, browsers differ from grazers primarily in terms of
- (A) what they eat
 - (B) how quickly they eat
 - (C) their weight
 - (D) how they digest their food
 - (E) the season in which they migrate
13. The passage indicates that the various species of antelope that graze on the Serengeti
- (A) feed on shrubs and leaves of trees
 - (B) lack upper teeth
 - (C) can easily eat tall and coarse grass
 - (D) usually graze with zebras
 - (E) tend to consume all of the vegetation in an area before moving on
14. The passage suggests that the sequence of grazers described in lines 25–45— zebras followed by wildebeests followed by Thomson’s gazelles—is generally maintained UNLESS
- (A) the grazers arrive at a new pasture
 - (B) the grass is of various lengths and textures
 - (C) there are browsers among them
 - (D) fresh rains have fallen
 - (E) all of the available grass is short
15. According to the passage, rain affects the feeding habits of Serengeti grazers primarily by
- (A) flooding and destroying some of the pastures
 - (B) forcing the browsers to take shelter under trees
 - (C) rendering the plants edible again
 - (D) weakening the grass
 - (E) confining the herds to high plateaus
16. The final paragraph suggests that maintaining the grasslands of the Serengeti requires
- (A) freedom of the grazers to move as they wish
 - (B) frequent rainless periods
 - (C) frequent removal of dead plants
 - (D) the restriction of grazers to the woodlands
 - (E) a separation of grazers and browsers
- Questions 17–24 are based on the following passage.**
- The following is an excerpt from an essay by George Bernard Shaw, written in 1889, on the economic basis of socialism.*
- All economic analyses begin with the cultivation of the earth. To the mind’s eye of the astronomer the earth is a ball spinning in space without ulterior motives. To the bodily eye of the primitive cultivator it is a vast green plain, from which, by sticking a spade into it, wheat and other edible matters can be made to spring. To the eye of the sophisticated city man this vast green plain appears rather as a great gaming table, your chances in the game depending chiefly on the place where you deposit your stakes. To the economist, again, the green plain is a sort of burial place of hidden treasure, where all the forethought and industry of man are set at naught by the caprice of the power which hid the treasure. The wise and patient workman strikes his spade in here, and with heavy toil can discover nothing but a poor quality of barley, some potatoes, and plentiful nettles, with a few dock leaves to cure his stings. The foolish spendthrift on the other side of the hedge, gazing idly at the sand glittering in the sun, suddenly realizes that the earth is offering him gold—is dancing it before his listless eyes lest it should escape him. Another man, searching for some more of this tempting gold, comes upon a great hoard of coal, or taps a jet of petroleum. Thus is Man mocked by Earth his stepmother, and never knows as he tugs at her closed hand whether

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