Graduate
Management
Admission
Council˜

**Educational
Testing Service**

Graduate Management
Admission Test (GMAT®)

Disclosed Edition

Test Code 14

ABOUT THIS EDITION OF THE GMAT®

This booklet contains the questions that were used to derive scores on the edition of the Graduate Management Admission Test (GMAT®) with test code 14. If the first two digits of the test code on your answer sheet (item 5 on Side 1) are not 14, please contact ETS to send you the correct booklet to match your answer sheet. The answer key follows the test questions. This booklet also contains instructions for calculating raw scores corrected for guessing. These are followed by unique tables for converting raw scores to the reported scaled scores for test code 14.

In this edition of the GMAT, the following essay and multiple-choice sections contributed to your scores:

Analytical Writing Assessment

      Essay 1   Analysis of an Issue

      Essay 2   Analysis of an Argument

Verbal Assessment

      Section 1   Critical Reasoning

      Section 4   Reading Comprehension

      Section 6   Sentence Correction

Quantitative Assessment

      Section 3   Data Sufficiency

      Section 5   Problem Solving

      Section 7   Problem Solving

GMAT Total

      All six verbal and quantitative sections combined as one score

      Section 2 in this edition of the GMAT contained trial or equating questions and does not contribute to your score. Questions from this section are not included in this booklet.

Analytical Writing 1

ANALYSIS OF AN ISSUE

Time—30 minutes

Directions: In this section, you will need to analyze the issue presented below and explain your views on it. The question has no "correct" answer. Instead, you should consider various perspectives as you develop your own position on the issue.

Read the statement and the instructions that follow it, and then make any notes in your test booklet that will help you plan your response. Begin writing your response on the separate answer sheet. Make sure that you use the answer sheet that goes with this writing task.

In matching job candidates with job openings, managers must consider not only such variables as previous work experience and educational background but also personality traits and work habits, which are more difficult to judge.

What do you consider essential in an employee or colleague? Explain, using reasons and/or examples from your work or worklike experiences, or from your observations of others.

NOTES

Use the space below or on the facing page to plan your response. Any writing on these pages will not be evaluated.

S T O P

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.

Analytical Writing 2

ANALYSIS OF AN ARGUMENT

Time—30 minutes

Directions: In this Section you will he asked to write a critique of the argument presented below.   You may, for example, consider what questionable assumptions underlie the thinking, what alternative explanations or counter-examples might weaken the conclusion, or what sort of evidence could help strengthen or refute the argument.

Read the argument and the instructions that follow it, and then make any notes in your test booklet that will help you plan your response. Begin writing your response on the separate answer sheet. Make sure that you use the answer sheet that goes with this writing task.

The following appeared in the editorial section of a corporate newsletter:

"The common notion that workers are generally apathetic about management issues is false, or at least outdated: a recently published survey indicates that 79 percent of the nearly 1,200 workers who responded to survey questionnaires expressed a high level of interest in the topics of corporate restructuring and redesign of benefits programs."

Discuss how logically convincing you find this argument. In explaining your point of view, be sure to analyze the line of reasoning and the use of evidence in the argument. Also discuss what, if anything, would make the argument more sound and persuasive, or would help you to better evaluate its conclusion.

NOTES

Use the space below or on the facing page to plan your response. Any writing on these pages will not he evaluated.

S T O P

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ANSWER SHEET – Test Code 14

Section 1	Section 3	Section 4	Section 5	Section 6	Section 7
1.	1.	1.	1.	1.	1.
2.	2.	2.	2.	2.	2.
3.	3.	3.	3.	3.	3.
4.	4.	4.	4.	4.	4.
5.	5.	5.	5.	5.	5.
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		22.		22.	
		23.			

Directions: For each question in this section, select the best of the answer choices given.

1. When three Everett-owned Lightning-built airplanes crashed in the same month, the Everett company ordered three new Lightning-built airplanes as replacements. This decision surprised many in the airline industry because, ordinarily when a product is involved in accidents, users become reluctant to buy that product.

   Which of the following, if true, provides the best indication that the Everett company's decision was logically well supported?

   (A) Although during the previous year only one Lightning-built airplane crashed, competing manufacturers had a perfect safety record.

   (B) The Lightning-built airplanes crashed due to pilot error, but because of the excellent quality of the planes there were many survivors.

   (C) The Federal Aviation Association issued new guidelines for airlines in order to standardize safety requirements governing preflight inspections.

   (D) Consumer advocates pressured two major airlines into purchasing safer airplanes so that the public would be safer while flying.

   (E) Many Lightning Airplane Company employees had to be replaced because they found jobs with the competition.

2. Recently a court ruled that current law allows companies to reject a job applicant if working in the job would entail a 90 percent chance that the applicant would suffer a heart attack. The presiding judge justified the ruling, saying that it protected both employees and employers.

   This use of his court ruling as part of the law could not be effective in regulating employment practices if which of the following were true?

   (A) The best interests of employers often conflict with the interests of employees.

   (B) No legally accepted methods exist for calculating the risk of a job applicant's having a heart attack as a result of being employed in any particular occupation.

   (C) Some jobs might involve health risks other than the risk of heart attack.

   (D) Employees who have a 90 percent chance of suffering a heart attack may be unaware that their risk is so great.

   (E) The number of people applying for jobs at a company might decline if the company, by screening applicants for risk of heart attack, seemed to suggest that the job entailed high risk of heart attack.

3. Robot satellites relay important communications and identify weather patterns. Because the satellites can be repaired only in orbit, astronauts are needed to repair them. Without repairs, the satellites would eventually malfunction. Therefore, space flights carrying astronauts must continue.

   Which of the following, if true, would most seriously weaken the argument above?

   (A) Satellites falling from orbit because of malfunctions burn up in the atmosphere.

   (B) Although satellites are indispensable in the identification of weather patterns, weather forecasters also make some use of computer projections to identify weather patterns.

   (C) The government, responding to public pressure, has decided to cut the budget for space flights and put more money into social welfare programs.

   (D) Repair of satellites requires heavy equipment, which adds to the amount of fuel needed to lift a spaceship carrying astronauts into orbit.

   (E) Technical obsolescence of robot satellites makes repairing them more costly and less practical than sending new, improved satellites into orbit.

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4. Advocates of a large-scale space-defense research project conclude that it will represent a net benefit to civilian business. They say that since government-sponsored research will have civilian applications, civilian businesses will reap the rewards of government-developed technology.

    Each of the following, if true, raises a consideration arguing against the conclusion above, EXCEPT:

    (A) The development of cost-efficient manufacturing techniques is of the highest priority for civilian business and would be neglected if resources go to military projects, which do not emphasis cost efficiency.

    (B) Scientific and engineering talent needed by civilian business will be absorbed by the large-scale project.

    (C) Many civilian businesses will receive subcontracts to provide materials and products needed by the research project.

    (D) If government research money is devoted to the space project, it will not be available for specifically targeted needs of civilian business, where it could be more efficiently used.

    (E) The increase in taxes or government debt needed to finance the project will severely reduce the vitality of the civilian economy.

5. In an attempt to promote the widespread use of paper rather than plastic, and thus reduce nonbiodegradable waste, the council of a small town plans to ban the sale of disposable plastic goods for which substitutes made of paper exist. The council argues that since most paper is entirely biodegradable, paper goods are environmentally preferable.

    Which of the following, if true, indicates that the plan to ban the sale of disposable plastic goods is ill suited to the town council's environmental goals?

    (A) Although biodegradable plastic goods are now available, members of the town council believe biodegradable paper goods to be safer for the environment.

    (B) The paper factory at which most of the townspeople are employed plans to increase production of biodegradable paper goods.

    (C) After other towns enacted similar bans on the sale of plastic goods, the environmental benefits were not discernible for several years.

    (D) Since most townspeople prefer plastic goods to paper goods in many instances, they are likely to purchase them in neighboring towns where plastic goods are available for sale.

    (E) Products other than those derived from wood pulp are often used in the manufacture of paper goods that are entirely biodegradable.

6. Since the deregulation of airlines, delays at the nation's increasingly busy airports have increased by 25 percent. To combat this problem, more of the takeoff and landing slots at the busiest airports must be allocated to commercial airlines.

    Which of the following, if true, casts the most doubt on the effectiveness of the solution proposed above?

    (A) The major causes of delays at the nation's busiest airports are bad weather and overtaxed air traffic control equipment.

    (B) Since airline deregulation began, the number of airplanes in operation has increased by 25 percent.

    (C) Over 60 percent of the takeoff and landing slots at the nation's busiest airports are reserved for commercial airlines.

    (D) After a small midwestern airport doubled its allocation of takeoff and landing slots, the number of delays that were reported decreased by 50 percent.

    (E) Since deregulation the average length of delay at the nation's busiest airports has doubled.

7. The more frequently employees take time to exercise during working hours each week, the fewer sick days they take. Even employees who exercise only once a week during working hours take less sick time than those who do not exercise. Therefore, if companies started fitness programs, the absentee rate in those companies would decrease significantly.

    Which of the following, if true, most seriously weakens the argument above?

    (A) Employees who exercise during working hours occasionally fall asleep for short periods of time after they exercise.

    (B) Employees who are frequently absent are the least likely to cooperate with or to join a corporate fitness program.

    (C) Employees who exercise only once a week in their company's fitness program usually also exercise after work.

    (D) Employees who exercise in their company's fitness program use their working time no more productively than those who do not exercise.

    (E) Employees who exercise during working hours take slightly longer lunch breaks than employees who do not exercise.

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8. Many people argue that tobacco advertising plays a crucial role in causing teen-agers to start or continue smoking. In Norway, however, where there has been a ban on tobacco advertising since 1975, smoking is at least as prevalent among teen-agers as it is in countries that do not ban such advertising.

Which of the following statements draws the most reliable conclusion from the information above?

(A) Tobacco advertising cannot be the only factor that affects the prevalence of smoking among teenagers.

(B) Advertising does not play a role in causing teenagers to start or continue smoking.

(C) Banning tobacco advertising does not reduce the consumption of tobacco.

(D) More teen-agers smoke if they are not exposed to tobacco advertising than if they are.

(E) Most teen-agers who smoked in 1975 did not stop when the ban on tobacco advertising was implemented.

9. Laws requiring the use of headlights during daylight hours can prevent automobile collisions. However, since daylight visibility is worse in countries farther from the equator, any such laws would obviously be more effective in preventing collisions in those countries. In fact, the only countries that actually have such laws are farther from the equator than is the continental United States.

Which of the following conclusions could be most properly drawn from the information given above?

(A) Drivers in the continental United States who used their headlights during the day would be just as likely to become involved in a collision as would drivers who did not use their headlights.

(B) In many countries that are farther from the equator than is the continental United States, poor daylight visibility is the single most important factor in automobile collisions.

(C) The proportion of automobile collisions that occur in the daytime is greater in the continental United States than in the countries that have daytime headlight laws.

(D) Fewer automobile collisions probably occur each year in countries that have daytime headlight laws than occur within the continental United States.

(E) Daytime headlight laws would probably do less to prevent automobile collisions in the continental United States than they do in the countries that have the laws.

10. A company's two divisions performed with remarkable consistency over the past three years: in each of those years, the pharmaceuticals division has accounted for roughly 20 percent of dollar sales and 40 percent of profits, and the chemicals division for the balance.

Which of the following can properly be inferred regarding the past three years from the statement above?

(A) Total dollar sales for each of the company's divisions have remained roughly constant.

(B) The pharmaceuticals division has faced stiffer competition in its markets than has the chemicals division.

(C) The chemicals division has realized lower profits per dollar of sales than has the pharmaceuticals division.

(D) The product mix offered by each of the company's divisions has remained unchanged.

(E) Highly profitable products accounted for a higher percentage of the chemicals division's sales than of those of the pharmaceuticals division.

11. According to a review of 61 studies of patients suffering from severely debilitating depression, a large majority of the patients reported that missing a night's sleep immediately lifted their depression. Yet sleep-deprivation is not used to treat depression even though the conventional treatments, which use drugs and electric shocks, often have serious side effects.

Which of the following, if true, best explains the fact that sleep-deprivation is not used as a treatment for depression?

(A) For a small percentage of depressed patients, missing a night's sleep induces a temporary sense of euphoria.

(B) Keeping depressed patients awake is more difficult than keeping awake people who are not depressed.

(C) Prolonged loss of sleep can lead to temporary impairment of judgment comparable to that induced by consuming several ounces of alcohol.

(D) The dramatic shifts in mood connected with sleep and wakefulness have not been traced to particular changes in brain chemistry.

(E) Depression returns in full force as soon as the patient sleeps for even a few minutes.

Questions 12-13 are based on the following.

According to the Tristate Transportation Authority, making certain improvements to the main commuter rail line would increase ridership dramatically. The authority plans to finance these improvements over the course of five years by raising automobile tolls on the two highway bridges along the route the rail line serves. Although the proposed improvements are indeed needed, the authority's plan for securing the necessary funds should be rejected because it would unfairly force drivers to absorb the entire cost of something from which they receive no benefit.

12.   Which of the following, if true, would cast the most doubt on the effectiveness of the authority's plan to finance the proposed improvements by increasing bridge tolls?

(A) Before the authority increases tolls on any of the area bridges, it is required by law to hold public hearings at which objections to the proposed increase can be raised.

(B) Whenever bridge tolls are increased, the authority must pay a private contractor to adjust the automated toll-collecting machines.

(C) Between the time a proposed toll increase is announced and the time the increase is actually put into effect, many commuters buy more tokens than usual to postpone the effects of the increase.

(D) When tolls were last increased on the two bridges in question, almost 20 percent of the regular commuter traffic switched to a slightly longer alternative route that has since been improved.

(E) The chairman of the authority is a member of the Tristate Automobile Club that has registered strong opposition to the proposed toll increase.

13.   Which of the following, if true, would provide the authority with the strongest counter to the objection that its plan is unfair?

(A) Even with the proposed toll increase, the average bridge toll in the tristate region would remain less than the tolls charged in neighboring states.

(B) Any attempt to finance the improvements by raising rail fares would result in a decrease in ridership and so would be self-defeating.

(C) Automobile commuters benefit from well-maintained bridges, and in the tristate region bridge maintenance is funded out of general income tax revenues to which both automobile and rail commuters contribute.

(D) The roads along the route served by the rail line are highly congested and drivers benefit when commuters are diverted from congested roadways to mass transit.

(E) The only alternative way of funding the proposed improvements now being considered is through a regional income tax surcharge, which would affect automobile commuters and rail commuters alike.

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14. Manufacturers sometimes discount the price of a product to retailers for a promotion period when the product is advertised to consumers. Such promotions often result in a dramatic increase in amount of product sold by the manufacturers to retailers. Nevertheless, the manufacturers could often make more profit by not holding the promotions.

Which of the following, if true, most strongly supports the claim above about the manufacturers' profit?

(A) The amount of discount generally offered by manufacturers to retailers is carefully calculated to represent the minimum needed to draw consumers' attention to the product.

(B) For many consumer products the period of advertising discounted prices to consumers is about a week, not sufficiently long for consumers to become used to the sale price.

(C) For products that are not newly introduced, the purpose of such promotions is to keep the products in the minds of consumers and to attract consumers who are currently using competing products.

(D) During such a promotion retailers tend to accumulate in their warehouses inventory bought at discount; they then sell much of it later at their regular price.

(E) If a manufacturer falls to offer such promotions but its competitor offers them, that competitor will tend to attract consumers away from the manufacturer's product.

15. When people evade income taxes by not declaring taxable income, a vicious cycle results. Tax evasion forces lawmakers to raise income tax rates, which causes the tax burden on nonevading taxpayers to become heavier. This, in turn, encourages even more taxpayers to evade income taxes by hiding taxable income.

The vicious cycle described above could not result unless which of the following were true?

(A) An increase in tax rates tends to function as an incentive for taxpayers to try to increase their pretax incomes.

(B) Some methods for detecting tax evaders, and thus recovering some tax revenue lost through evasion, bring in more than they cost, but their success rate varies from year to year.

(C) When lawmakers establish income tax rates in order to generate a certain level of revenue, they do not allow adequately for revenue that will be lost through evasion.

(D) No one who routinely hides some taxable income can be induced by a lowering of tax rates to stop hiding such income unless fines for evaders are raised at the same time.

(E) Taxpayers do not differ from each other with respect to the rate of taxation that will cause them to evade taxes.

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16. Advertisement:

Today's customers expect high quality. Every advance in the quality of manufactured products raises customer expectations. The company that is satisfied with the current quality of its products will soon find that its customers are not. At MegaCorp, meeting or exceeding customer expectations is our goal.

Which of the following must be true on the basis of the statements in the advertisement above?

(A) MegaCorp's competitors will succeed in attracting customers only if those competitors adopt MegaCorp's goal as their own.

(B) A company that does not correctly anticipate the expectations of its customers is certain to fail in advancing the quality of its products.

(C) MegaCorp's goal is possible to meet only if continuing advances in product quality are possible.

(D) If a company becomes satisfied with the quality of its products, then the quality of its products is sure to decline.

(E) MegaCorp's customers are currently satisfied with the quality of its products.

S T O P

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DO NOT TURN TO ANY OTHER SECTION IN THE TEST

SECTION 3

Time —25 minutes

20 Questions

Directions: Each of the data sufficiency problems below consists of a question and two statements, labeled (1) and (2), in which certain data are given. You have to decide whether the data given in the statements are <u>sufficient</u> for answering the question. Using the data given in the statements <u>plus</u> your knowledge of mathematics and everyday facts (such as the number of days in July or the meaning of *counterclockwise*), you are to fill in oval

A if statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;

B if statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;

C if BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;

D if EACH statement ALONE is sufficient to answer the question asked;

E if statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

Numbers: All numbers used are real numbers.

Figures: A figure in a data sufficiency problem will conform to the information given in the question, but will not necessarily conform to the additional information given in statements (1) and (2).

You may assume that lines shown as straight are straight and that angle measures are greater than zero.

You may assume that the positions of points, angles, regions, etc., exist in the order shown.
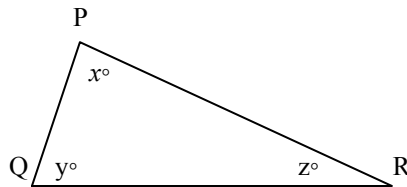
All figures lie in a plane unless otherwise indicated.

Note: In questions that ask for the value of a quantity, the data given in the statements are sufficient only when it is possible to determine exactly one numerical value for the quantity.

Example:

In $\triangle PQR$, what is the value of x?

(1) $PQ = PR$

(2) $y = 40$

Explanation: According to statement (1), $PQ = PR$; therefore, $\triangle PQR$ is isosceles and $y = z$. Since $x + y + z = 180$, it follows that $x + 2y = 180$. Since Statement (1) does not give a value for y, you cannot answer the question using statement (1) alone. According to Statement (2), $y = 40$; therefore, $x + z = 140$. Since statement (2) does not give a value for z, you cannot answer the question using statement (2) alone. Using both statements together, since $x + 2y = 180$ and the value of y is given, you can find the value of x. Therefore, the answer is C.

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A Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
B Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
C BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
D EACH Statement ALONE is sufficient.
E Statements (1) and (2) TOGETHER are NOT sufficient.

$$\bullet\!\!-\!\!-\!\!-\!\!\bullet\!\!-\!\!-\!\!\bullet\!\!-\!\!-\!\!\bullet$$
A   B   C   D
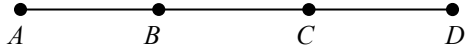
1. In the figure above, is $CD > BC$?

(1) $AD = 20$

(2) $AB = CD$

2. How many more men than women are in the room?

(1) There is a total of 20 women and men in the room.

(2) The number of men in the room equals the square of the number of women in the room.

3. If n is an integer, is $\dfrac{100 - n}{n}$ an integer ?

(1) $n > 4$

(2) $n^2 = 25$

4. Last Friday a certain shop sold $\dfrac{3}{4}$ of the sweaters in its inventory. Each sweater sold for $20. What was the total revenue last Friday from the sale of these sweaters?

(1) When the shop opened last Friday, there were 160 sweaters in its inventory.

(2) All but 40 sweaters in the shop's inventory were sold last Friday.

5.   A jar contains 30 marbles, of which 20 are red and 10 are blue. If 9 of the marbles are removed, how many of the marbles left in the jar are red?

(1) Of the marbles removed, the ratio of the number of red ones to the number of blue ones is 2 : 1.

(2) Of the first 6 marbles removed, 4 are red.
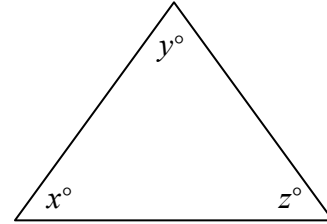
6. Is the triangle above equilateral?

(1) $x = y$

(2) $z = 60$

7. If $w + z = 28$, what is the value of wz ?

(1) w and z are positive integers.

(2) w and z are consecutive odd integers.
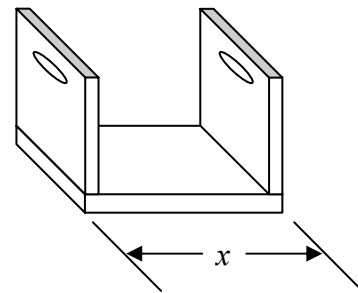
8. Will the first 10 volumes of a 20-volume encyclopedia fit upright in the bookrack shown above?

(1) $x = 50$ centimeters.

(2) Twelve of the volumes have an average (arithmetic mean) thickness of 5 centimeters.

GO ON TO THE NEXT PAGE.

9. Is $ax = 3 - bx$?

    (1) $x(a + b) = 3$

    (2) $a = b = 1.5$ and $x = 1$.

10. What is the value of the integer x ?

    (1) x is a prime number.

    (2) $31 \leq x \leq 37$

11. While on a straight road, car X and car Y are traveling at different constant rates. If car X is now 1 mile ahead of car Y, how many minutes from now will car X be 2 miles ahead of car Y ?

    (1) Car X is traveling at 50 miles per hour and car Y is traveling at 40 miles per hour.

    (2) 3 minutes ago car X was $\frac{1}{2}$ mile ahead of car Y.

12. In what year was Ellen born?

    (1) Ellen's brother Pete, who is $1\frac{1}{2}$ years older than Ellen, was born in 1956.

    (2) In 1975 Ellen turned 18 years old.

13. Is 2^x greater than 100?

    (1) $2\sqrt{x} = 8$

    (2) $\dfrac{1}{2^x} < 0.01$

14. What is the number of female employees in Company X ?

    (1) If Company X were to hire 14 more people and all of these people were females, the ratio of the number of male employees to the number of female employees would then be 16 to 9.

    (2) Company X has 105 more male employees than female employees.

15. Is the integer x divisible by 36?

    (1) x is divisible by 12.

    (2) x is divisible by 9.

16. What is the average (arithmetic mean) of j and k ?

    (1) The average (arithmetic mean) of $j + 2$ and $k + 4$ is 11.

    (2) The average (arithmetic mean) of $j, k,$ and 14 is 10.

17. What is the value of $a - b$?

    (1) $a = b + 4$

    (2) $(a - b)^2 = 16$

18. Is $rst = 1$?

    (1) $rs = 1$

    (2) $st = 1$

19. In a certain office, 50 percent of the employees are college graduates and 60 percent of the employees are over 40 years old. If 30 percent of those over 40 have master's degrees, how many of the employees over forty have master's degrees?

    (1) Exactly 100 of the employees are college graduates.

    (2) Of the employees forty years old or less, 25 percent have master's degrees.

20. Is $xy < 6$?

    (1) $x < 3$ and $y < 2$.

    (2) $\dfrac{1}{2} < x < \dfrac{2}{3}$ and $y^2 < 6$.

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DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

SECTION 4

Time—30 minutes

23 Questions

Directions: Each passage in this group is followed by questions based on its content.
After reading a passage, choose the best answer to each question and fill in the corresponding oval on the answer sheet. Answer all
questions following a passage on the basis of what is stated or implied in that passage.

Two recent publications offer different
assessments of the career of the famous British nurse
Florence Nightingale. A book by Anne Summers
Line seeks to debunk the idealizations and present a reality
(5) at odds with Nightingale's heroic reputation.
According to Summers Nightingale's importance
during the Crimean War has been exaggerated: not
until near the war's end did she become supervisor of
the female nurses. Additionally, Summers writes that
the contribution of the nurses to the relief of the
(10) wounded was at best marginal. The prevailing
problems of military medicine were caused by army
organizational practices, and the addition of a few
nurses to the medical staff could be no more than
symbolic. Nightingale's place in the national
(15) pantheon, Summers asserts, is largely due to the
propagandistic efforts of contemporary newspaper
reporters.

By contrast, the editors of a new volume of
Nightingale's letters view Nightingale as a person
(20) who significantly influenced not only her own age
but also subsequent generations. They highlight her
ongoing efforts to reform sanitary conditions after the
war. For example, when she learned that peacetime
living conditions in British barracks were so horrible
that the death rate of enlisted men far exceeded that
(25) of neighboring civilian populations, she succeeded in
persuading the government to establish a Royal
Commission on the Health of the Army. She used
sums raised through public contributions to found a
nurses' training hospital in London. Even in
administrative matters, the editors assert her practical
(30) intelligence was formidable: as recently as 1947 the
British Army's medical services were still using the
cost-accounting system she had devised in the 1860's.

I believe that the evidence of her letters supports
continued respect for Nightingale's brilliance and
(35) creativity. When counseling a village schoolmaster to
encourage children to use their faculties of
observation she sounds like a modern educator. Her
insistence on classifying the problems of the needy in
order to devise appropriate treatments is similar to
(40) the approach of modern social workers. In sum,
although Nightingale may not have achieved all other
goals during the Crimean War, her breadth of vision
and ability to realize ambitious projects have earned
her an eminent place among the ranks of social
pioneers.

1. The passage is primarily concerned with evaluating

    (A) the importance of Florence Nightingale's
        innovations in the field of nursing

    (B) contrasting approaches to the writing of historical
        biography

    (C) contradictory accounts of Florence Nightingale's
        historical significance

    (D) the quality of health care in nineteenth-century
        England

    (E) the effect of the Crimean War on developments in
        the field of health care

2. According to the passage, the editors of Nightingale's
    letters credit her with contributing to which of the
    following?

    (A) Improvement of the survival rate for soldiers in

    British Army hospitals during the Crimean War

    (B) The development of a nurses' training curriculum
        that was far in advance of its day

    (C) The increase in the number of women doctors
        practicing in British Army hospitals

    (D) Establishment of the first facility for training
        nurses at a major British university

    (E) The creation of an organization for monitoring
        the peacetime living conditions of British soldiers

GO ON TO THE NEXT PAGE.

3.　The passage suggests which of the following about Nightingale's relationship with the British public of her day?

　(A) She was highly respected, her projects receiving popular and governmental support.

　(B) She encountered resistance both from the army establishment and the general public.

　(C) She was supported by the working classes and opposed by the wealthier classes.

　(D) She was supported by the military establishment but had to fight the governmental bureaucracy.

　(E) After initially being received with enthusiasm, she was quickly forgotten.

4.　The passage suggests which of the following about sanitary conditions in Britain after the Crimean War?

　(A) While not ideal, they were superior to those in other parts of the world.

　(B) Compared with conditions before the war, they had deteriorated.

　(C) They were more advanced in rural areas than in the urban centers.

　(D) They were worse in military camps than in the neighboring civilian populations.

　(E) They were uniformly crude and unsatisfactory throughout England.

5.　With which of the following statements regarding the differing interpretations of Nightingale's importance would the author most likely agree?

　(A) Summers misunderstood both the importance of Nightingale's achievements during the Crimean War and her subsequent influence on British policy.

　(B) The editors of Nightingale's letters made some valid points about her practical achievements but they still exaggerated her influence on subsequent generations.

　(C) Although Summers' account of Nightingale's role in the Crimean War may be accurate, she ignored evidence of Nightingale's subsequent achievement that suggests that her reputation as an eminent social reformer is well deserved.

　(D) The editors of Nightingale's letters mistakenly propagated the outdated idealization of Nightingale that only impedes attempts to arrive at a balanced assessment of her true role.

　(E) The evidence of Nightingale's letters supports Summers' conclusions both about Nightingale's activities and about her influence.

6.　Which of the following is an assumption underlying the author's assessment of Nightingale's creativity?

　(A) Educational philosophy in Nightingale's day did not normally emphasize developing children's ability to observe.

　(B) Nightingale was the first to notice the poor living conditions in British military barracks in peacetime.

　(C) No educator before Nightingale had thought to enlist the help of village schoolmasters in introducing new teaching techniques.

　(D) Until Nightingale began her work, there was no concept of organized help for the needy in nineteenth-century Britain.

　(E) The British army's medical services had no cost-accounting system until Nightingale devised one in the 1860's.

7.　In the last paragraph, the author is primarily concerned with
　(A) summarizing the arguments about Nightingale presented in the first two paragraphs

　(B) refuting the view of Nightingale's career presented in the preceding paragraph

　(C) analyzing the weaknesses of the evidence presented elsewhere in the passage

　(D) citing evidence to support a view of Nightingale's career

　(E) correcting a factual error occurring in one of the works under review

GO ON TO THE NEXT PAGE.

A meteor stream is composed of dust particles that have been ejected from a parent comet at a variety of velocities. These particles follow the same orbit as the parent comet, but due to their differing velocities they slowly gain on or fall behind the disintegrating comet until a shroud of dust surrounds the entire cometary orbit. Astronomers have hypothesized that a meteor stream should broaden with time as the dust particles' individual orbits are perturbed by planetary gravitational fields. A recent computer-modeling experiment tested this hypothesis by tracking the influence of planetary gravitation over a projected 5,000-year period on the positions of a group of hypothetical dust particles. In the model, the particles were randomly distributed throughout a computer simulation of the orbit of an actual meteor stream, the Geminid. The researcher found, as expected, that the computer-model stream broadened with time. Conventional theories, however, predicted that the distribution of particles would be increasingly dense toward the center of a meteor stream. Surprisingly, the computer-model meteor stream gradually came to resemble a thick-walled, hollow pipe.

Whenever the Earth passes through a meteor stream, a meteor shower occurs. Moving at a little over 1,500,000 miles per day around its orbit, the Earth would take, on average, just over a day to cross the hollow, computer-model Geminid stream if the stream were 5,000 years old. Two brief periods of peak meteor activity during the shower would be observed, one as the Earth entered the thick-walled "pipe" and one as it exited. There is no reason why the Earth should always pass through the stream's exact center, so the time interval between the two bursts of activity would vary from one year to the next.

Has the predicted twin-peaked activity been observed for the actual yearly Geminid meteor shower? The Geminid data between 1970 and 1979 shows just such a bifurcation, a secondary burst of meteor activity being clearly visible at an average of 19 hours (1,200,000 miles) after the first burst. The time intervals between the bursts suggest the actual Geminid stream is about 3,000 years old.

Line (5)
(10)
(15)
(20)
(25)
(30)
(35)
(40)

8. The primary focus of the passage is on which of the following?

(A) Comparing two scientific theories and contrasting the predictions that each would make concerning a natural phenomenon

(B) Describing a new theoretical model and noting that it explains the nature of observations made of a particular natural phenomenon

(C) Evaluating the results of a particular scientific experiment and suggesting further areas for research

(D) Explaining how two different natural phenomena are related and demonstrating a way to measure them

(E) Analyzing recent data derived from observations of an actual phenomenon and constructing a model to explain the data

9. According to the passage, which of the following is an accurate statement concerning meteor streams?

(A) Meteor streams and comets start out with similar orbits, but only those of meteor streams are perturbed by planetary gravitation.

(B) Meteor streams grow as dust particles are attracted by the gravitational fields of comets.

(C) Meteor streams are composed of dust particles derived from comets.

(D) Comets may be composed of several kinds of materials, while meteor streams consist only of large dust particles.

(E) Once formed, meteor streams hasten the further disintegration of comets.

10. The author states that the research described in the first paragraph was undertaken in order to

(A) determine the age of an actual meteor stream

(B) identify the various structural features of meteor streams

(C) explore the nature of a particularly interesting meteor stream

(D) test the hypothesis that meteor streams become broader as they age

(E) show that a computer model could help in explaining actual astronomical data

GO ON TO THE NEXT PAGE.

11. It can be inferred from the passage that which of the following would most probably be observed during the Earth's passage through a meteor stream if the conventional theories mentioned in line 18 were correct?

(A) Meteor activity would gradually increase to a single, intense peak, and then gradually decline.

(B) Meteor activity would be steady throughout the period of the meteor shower.

(C) Meteor activity would rise to a peak at the beginning and at the end of the meteor shower.

(D) Random bursts of very high meteor activity would be interspersed with periods of very little activity.

(E) In years in which the Earth passed through only the outer areas of a meteor stream, meteor activity would be absent.

12. According to the passage, why do the dust particles in a meteor stream eventually surround a comet's original orbit?

(A) They are ejected by the comet at differing velocities.

(B) Their orbits are uncontrolled by planetary gravitational fields.

(C) They become part of the meteor stream at different times.

(D) Their velocity slows over time.

(E) Their ejection velocity is slower than that of the comet.

13. The passage suggests that which of the following is a prediction concerning meteor streams that can be derived from both the conventional theories mentioned in line 18 and the new computer-derived theory?

(A) Dust particles in a meteor stream will usually be distributed evenly throughout any cross section of the stream.

(B) The orbits of most meteor streams should cross the orbit of the Earth at some point and give rise to a meteor shower.

(C) Over time the distribution of dust in a meteor stream will usually become denser at the outside edges of the stream than at the center.

(D) Meteor showers caused by older meteor streams should be, on average, longer in duration than those caused by very young meteor streams.

(E) The individual dust particles in older meteor streams should be, on average, smaller than those that compose younger meteor streams.

14. It can be inferred from the last paragraph of the passage that which of the following must be true of the Earth as it orbits the Sun?

(A) Most meteor streams it encounters are more than 2,000 years old.

(B) When passing through a meteor stream, it usually passes near to the stream's center.

(C) It crosses the Geminid meteor stream once every year.

(D) It usually takes over a day to cross the actual Geminid meteor stream.

(E) It accounts for most of the gravitational perturbation affecting the Geminid meteor stream.

15. Which of the following is an assumption underlying the last sentence of the passage?

(A) In each of the years between 1970 and 1979, the Earth took exactly 19 hours to cross the Geminid meteor stream.

(B) The comet associated with the Geminid meteor stream has totally disintegrated.

(C) The Geminid meteor stream should continue to exist for at least 5,000 years.

(D) The Geminid meteor stream has not broadened as rapidly as the conventional theories would have predicted.

(E) The computer-model Geminid meteor stream provides an accurate representation of the development of the actual Geminid stream.

GO ON TO THE NEXT PAGE.

Most large corporations in the United States were once run by individual capitalists who owned enough stock to dominate the board of directors and dictate company policy. Because putting such large amounts of stock on the market would only depress its value, they could not sell out for a quick profit and instead had to concentrate on improving the long-term productivity of their companies. Today, with few exceptions, the stock of large United States corporations is held by large institutions—pension funds, for example—and because these institutions are prohibited by antitrust laws from owning a majority of a company's stock and from actively influencing a company's decision-making, they can enhance their wealth only by buying and selling stock in anticipation of fluctuations in its value. A minority shareholder is necessarily a short-term trader. As a result, United States productivity is unlikely to improve unless shareholders and the managers of the companies in which they invest are encouraged to enhance long-term productivity (and hence long-term profitability), rather than simply to maximize short-term profits.

Since the return of the old-style capitalist is unlikely, today's short-term traders must be remade into tomorrow's long-term capitalistic investors. The legal limits that now prevent financial institutions from acquiring a dominant shareholding position in a corporation should be removed, and such institutions encouraged to take a more active role in the operations of the companies in which they invest. In addition, any institution that holds twenty percent or more of a company's stock should be forced to give the public one day's notice of the intent to sell those shares. Unless the announced sale could be explained to the public on grounds other than anticipated future losses, the value of the stock would plummet and, like the old-time capitalists, major investors could cut their losses only by helping to restore their companies' productivity. Such measures would force financial institutions to become capitalists whose success depends not on trading shares at the propitious moment, but on increasing the productivity of the companies in which they invest.

16. In the passage, the author is primarily concerned with doing which of the following?

(A) Comparing two different approaches to a problem

(B) Describing a problem and proposing a solution

(C) Defending an established method

(D) Presenting data and drawing conclusions from the data

(E) Comparing two different analyses of a current situation

17. It can be inferred from the passage that which of the following is true of majority shareholders in a corporation?

(A) They make the corporation's operational management decisions.

(B) They are not allowed to own more than fifty percent of the corporation's stock.

(C) They cannot make quick profits by selling off large amounts of their stock in the corporation.

(D) They are more interested in profits than in productivity.

(E) They cannot sell any of their stock in the corporation without giving the public advance notice.

18. The passage supports which of the following statements?

(A) Antitrust laws prevent any single shareholder from acquiring a majority of the stock in a corporation.

(B) Institutions that intend to sell a large block of stock in a single corporation must give at least twenty-four hours notice of the sale.

(C) In most corporations it is the board of directors rather than the corporate managers who make policy decisions.

(D) The sudden sale of a large amount of stock in any one corporation makes the value of the stock go down.

(E) The way corporations are currently run, it is unlikely that increased productivity would lead to short-term increases in stock values.

19. According to the passage, the purpose of the requirement suggested in lines 30-33 would be which of the following?

(A) To encourage institutional stockholders to sell stock that they believe will decrease in value

(B) To discourage institutional stockholders from intervening in the operation of a company whose stock they own

(C) To discourage short-term profit-taking by institutional stockholders

(D) To encourage a company's employees to take an active role in the ownership of stock in the company

(E) To encourage investors to diversify their stock holdings

GO ON TO THE NEXT PAGE.

20. The author suggests that which of the following is a true statement about people who typify the "old-style capitalist" referred to in line 23?

(A) They now rely on outdated management techniques.

(B) They seldom engaged in short-term trading of the stock they owned.

(C) They did not influence the investment policies of the corporation in which they invested.

(D) They now play a very small role in the stock market as a result of antitrust legislation.

(E) They were primarily concerned with maximizing the short-term profitability of the corporations in which they owned stock.

21. It can be inferred that the author makes which of the following assumptions about the business once controlled by individual capitalists?

(A) These businesses were less profitable than are businesses today.

(B) Improving long-term productivity led to increased profits.

(C) Each business had only a few stockholders.

(D) There was no short-term trading in the stock of these businesses.

(E) Institutions owned no stock in these companies.

22. The author suggests that the role of large institutions as stockholders differs from that of the "old-style capitalist" in part because large institutions

(A) invest in the stock of so many companies that they cannot focus attention on the affairs of any single corporation

(B) are prohibited by law from owning a majority of a corporation's stock

(C) are influenced by brokers who advise against long-term ownership of stocks

(D) are able to put large amounts of stock on the market without depressing the stock's value

(E) are attracted to the stocks of corporations that demonstrate long-term gains in productivity

23. The primary function of the second paragraph of the passage is to

(A) identify problems

(B) warn of consequences

(C) explain effects

(D) evaluate solutions

(E) recommend actions

S T O P

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.

Directions: In this section solve each problem, using any available space on the page for scratchwork. Then indicate the best of the answer choices given.

Numbers: All numbers used are real numbers.

Figures: Figures that accompany problems in this section 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 its figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.

1. On 3 sales John has received commissions of $240, $80, and $110, and he has 1 additional sale pending. If John is to receive an average (arithmetic mean) commission of exactly $150 on the 4 sales, then the 4th commission must be

    (A) $164
    (B) $170
    (C) $175
    (D) $182
    (E) $185

2. $\sqrt{463}$ is between

    (A) 21 and 22
    (B) 22 and 23
    (C) 23 and 24
    (D) 24 and 25
    (E) 25 and 26

3. The annual budget of a certain college is to be shown on a circle graph. If the size of each sector of the graph is to be proportional to the amount of the budget it represents, how many degrees of the circle should be used to represent an item that is 15 percent of the budget?

    (A) 15°
    (B) 36°
    (C) 54°
    (D) 90°
    (E) 150°

4. A company accountant estimates that airfares next year for business trips of a thousand miles or less will increase by 20 percent and airfares for all other business trips will increase by 10 percent. This year total airfares for business trips of a thousand miles or less were $9,900 and airfares for all other business trips were $13,000. According to the accountant's estimate, if the same business trips will be made next year as this year, how much will be spent for airfares next year?

    (A) $22,930
    (B) $26,180
    (C) $26,330
    (D) $26,490
    (E) $29,770

5. What is the value of $2x^2 - 2.4x - 1.7$ for $x = 0.7$?

    (A) – 0.72
    (B) – 1.42
    (C) – 1.98
    (D) – 2.40
    (E) – 2.89

6. If $x*y = xy - 2(x + y)$ for all integers x and y, then $2*(-3) =$

    (A) – 16
    (B) – 11
    (C) – 4
    (D) 4
    (E) 16

GO ON TO THE NEXT PAGE.

7. During a two week period, the price of an ounce of silver increased by 25 percent by the end of the first week and then decreased by 20 percent of this new price by the end of the second week. If the price of silver was x dollars per ounce at the beginning of the two-week period, what was the price, in dollars per ounce, by the end of the period?

(A) $0.8\,x$
(B) $0.95\,x$
(C) x
(D) $1.05\,x$
(E) $1.25\,x$

8. If a cube has a volume of 64, what is its total surface area?

(A) 16
(B) 24
(C) 48
(D) 64
(E) 96

Club	Number of Students
Chess	40
Drama	30
Math	25

9. The table above shows the number of students in three clubs at McAuliffe School. Although no student is in all three clubs, 10 students are in both chess and drama, 5 students are in both chess and math, and 6 students are in both drama and math. How many different students are in the three clubs?

(A) 68
(B) 69
(C) 74
(D) 79
(E) 84

10. If s, u, and v are positive integers and $2^{s} = 2^{u} + 2^{v}$, which of the following must be true?
    I. $s = u$
    II. $u \neq v$
    III. $s > v$

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

11. In a nationwide poll, N people were interviewed. If $\frac{1}{4}$ of them answered "yes" to question 1, and of those, $\frac{1}{3}$ answered "yes" to question 2, which of the following expressions represents the number of people interviewed who did not answer "yes" to both questions?

(A) $\dfrac{N}{7}$

(B) $\dfrac{6N}{7}$

(C) $\dfrac{5N}{12}$

(D) $\dfrac{7N}{12}$

(E) $\dfrac{11N}{12}$

12. In a certain pond, 50 fish were caught, tagged, and returned to the pond. A few days later, 50 fish were caught again, of which 2 were found to have been tagged. If the percent of tagged fish in the second catch approximates the percent of tagged fish in the pond, what is the approximate number of fish in the pond?

(A) 400
(B) 625
(C) 1,250
(D) 2,500
(E) 10,000

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13. The ratio of two quantities is 3 to 4. If each of the quantities is increased by 5, what is the ratio of these two new quantities?

(A) $\dfrac{3}{4}$

(B) $\dfrac{8}{9}$

(C) $\dfrac{18}{19}$

(D) $\dfrac{23}{24}$

(E) It cannot be determined from the information given.

14. In 1986 the book value of a certain car was $\frac{2}{3}$ of the original price, and in 1988 its book value was $\frac{1}{2}$ of the original purchase price. By what percent did the book value for this car decrease from 1986 to 1988?

(A) $16\frac{2}{3}\%$

(B) 25%

(C) $33\frac{1}{3}\%$

(D) 50%

(E) 75%
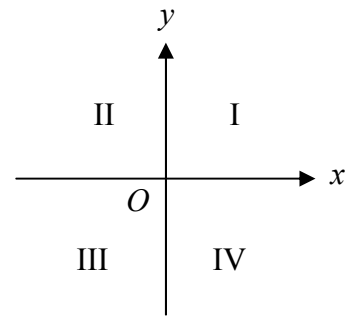
15. In the rectangular coordinate system shown above, which quadrant, if any, contains no point (x, y) that satisfies the inequality $2x - 3y \le -6$?

(A) None
(B) I
(C) II
(D) III
(E) IV

16. A hiker walked for two days. On the second day the hiker walked 2 hours longer and at an average speed 1 mile per hour faster than he walked on the first day. If during the two days he walked a total of 64 miles and spent a total of 18 hours walking, what was his average speed on the first day?

(A) 2 mph
(B) 3 mph
(C) 4 mph
(D) 5 mph
(E) 6 mph

S T O P

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.

Time—25 minutes

22 Questions

Directions: In each of the following sentences, some part of the sentence or the entire sentence is underlined. Beneath each sentence you will find five ways of phrasing the underlined part. The first of these repeats the original; the other four are different. If you think the original is the best of these answer choices, choose answer A; otherwise, choose one of the others. Select the best version and fill in the corresponding oval on your answer sheet.

This is a test of correctness and effectiveness of expression. In choosing answers, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, and sentence construction. Choose the answer that produces the most effective sentence; this answer should be clear and exact, without awkwardness, ambiguity, redundancy, or grammatical error.

1.   A patient accusing a doctor of malpractice will find it difficult to prove damage if there is a lack of some other doctor to testify about proper medical procedures.

   (A) if there is a lack of some other doctor to testify

   (B) unless there will be another doctor to testify

   (C) without another doctor's testimony

   (D) should there be no testimony from some other doctor

   (E) lacking another doctor to testify

2.   Samuel Sewall viewed marriage, as other seventeenth-century colonists, like a property arrangement rather than an emotional bond based on romantic love.

   (A) Samuel Sewall viewed marriage, as other seventeenth-century colonists, like a property arrangement rather than

   (B) As did other seventeenth-century colonists, Samuel Sewall viewed marriage to be a property arrangement rather than viewing it as

   (C) Samuel Sewall viewed marriage to be a property arrangement, like other seventeenth-century colonists, rather than viewing it as

   (D) Marriage to Samuel Sewall, like other seventeenth-century colonists, was viewed as a property arrangement rather than

   (E) Samuel Sewall, like other seventeenth-century colonists, viewed marriage as a property arrangement rather than

3.   Under the Safe Drinking Water Act, the Environmental Protection Agency is required either to approve individual state plans for controlling the discharge of wastes into underground water or that they enforce their own plan for states without adequate regulations.

   (A) that they enforce their

   (B) for enforcing their

   (C) they should enforce their

   (D) it should enforce its

   (E) to enforce its

GO ON TO THE NEXT PAGE.

4. Last year, land values in most parts of the pinelands rose almost <u>so fast, and in some parts even faster than what they did</u> outside the pinelands.

    (A) so fast, and in some parts even faster than what they did

    (B) so fast, and in some parts even faster than, those

    (C) as fast, and in some parts even faster than, those

    (D) as fast as, and in some parts even faster than, those

    (E) as fast as, and in some parts even faster than what they did

5. In the mid-l 960's a newly installed radar warning system mistook the <u>rising of the moon as a massive missile attack by the Soviets</u>.

    (A) rising of the moon as a massive missile attack by the Soviets

    (B) rising of the moon for a massive Soviet missile attack

    (C) moon rising to a massive missile attack by the Soviets

    (D) moon as it was rising for a massive Soviet missile attack

    (E) rise of the moon as a massive Soviet missile attack

6. <u>If Dr. Wade was right, any apparent connection of the eating of</u> highly processed foods and excelling at sports is purely coincidental.

    (A) If Dr. Wade was right, any apparent connection of the eating of

    (B) Should Dr. Wade be right, any apparent connection of eating

    (C) If Dr. Wade is right, any connection that is apparent between eating of

    (D) If Dr. Wade is right, any apparent connection between eating

    (E) Should Dr. Wade have been right, any connection apparent between eating

7. When the technique known as gene-splicing was invented in the early 1970's, it was feared that scientists might inadvertently create an "Andromeda strain," a microbe never before seen on Earth that might escape from the laboratory and <u>it would kill vast numbers of humans who would have no natural defenses against it</u>.

    (A) it would kill vast numbers of humans who would have no natural defenses against it

    (B) it might kill vast numbers of humans with no natural defenses against it

    (C) kill vast numbers of humans who would have no natural defenses against it

    (D) kill vast numbers of humans who have no natural defenses against them

    (E) kill vast numbers of humans with no natural defenses against them

8. <u>A recording system was so secretly installed and operated in the Kennedy Oval Office that</u> even Theodore C. Sorensen, the White House counsel, did not know it existed.

    (A) A recording system was so secretly installed and operated in the Kennedy Oval Office that

    (B) So secret was a recording system installation and operation in the Kennedy Oval Office

    (C) It was so secret that a recording system was installed and operated in the Kennedy Oval Office

    (D) A recording system that was so secretly installed and operated in the Kennedy Oval Office

    (E) Installed and operated so secretly in the Kennedy Oval Office was a recording system that

GO ON TO THE NEXT PAGE.

9. In 1791 Robert Carter III, one of the wealthiest plantation owners in Virginia, stunned his family, friends, and neighbors by filing a deed of emancipation, setting free the more than 500 slaves who were legally considered his property.

(A) setting free the more than 500 slaves who were legally considered

(B) setting free more than the 500 slaves legally considered as

(C) and set free more than 500 slaves, who were legally considered as

(D) and set free more than 500 slaves who were legally considered

(E) and he set free the more than 500 slaves who were legally considered as

10. Federal authorities involved in the investigation have found the local witnesses are difficult to locate, reticent, and are suspicious of strangers.

(A) the local witnesses are difficult to locate, reticent, and are

(B) local witnesses to be difficult to locate, reticent, and are

(C) that local witnesses are difficult to locate, reticent, and

(D) local witnesses are difficult to locate and reticent, and they are

(E) that local witnesses are difficult to locate and reticent, and they are

11. Dirt roads may evoke the bucolic simplicity of another century, but financially strained townships point out that dirt roads cost twice as much as maintaining paved roads.

(A) dirt roads cost twice as much as maintaining paved roads

(B) dirt roads cost twice as much to maintain as paved roads do

(C) maintaining dirt roads cost twice as much as paved roads do

(D) maintaining dirt roads costs twice as much as it does for paved roads

(E) to maintain dirt roads costs twice as much as for paved roads

12. A number of linguists contend that all of the thousands of languages spoken by the world's five billion people can be traced back to a common root language.

(A) that all of the thousands of languages spoken by the world's five billion people can be traced

(B) that the world's five billion people speak thousands of languages of which all can be traced

(C) the world's five billion people speak thousands of languages which are all traceable

(D) all of the thousands of languages spoken by the world's five billion people to be traceable

(E) the ability to trace all of the thousands of languages that are spoken by the world's five billion people

13. <u>With</u> only 5 percent of the world's population, United States citizens consume 28 percent of its nonrenewable resources, drive more than one-third of its automobiles, and use 21 times more water per capita than Europeans do.

    (A) With

    (B) As

    (C) Being

    (D) Despite having

    (E) Although accounting for

14. While depressed property values can hurt some large investors, <u>they are potentially devastating for homeowners, whose</u> equity —in many cases representing a life's savings—can plunge or even disappear.

    (A) they are potentially devastating for homeowners, whose

    (B) they can potentially devastate homeowners in that their

    (C) for homeowners they are potentially devastating, because their

    (D) for homeowners, it is potentially devastating in that their

    (E) it can potentially devastate homeowners, whose

15. While some propose to combat widespread illegal copying of computer programs by attempting to change people's attitudes toward pirating, others <u>by suggesting reducing software prices to decrease the incentive for pirating, and still others by calling</u> for the prosecution of those who copy software illegally.

    (A) by suggesting reducing software prices to decrease the incentive for pirating, and still others by calling

    (B) by suggesting the reduction of software prices to decrease the incentive for pirating, and still others call

    (C) suggest the reduction of software prices for decreasing the incentive for pirating, and still others call

    (D) suggest the reduction of software prices to decrease the incentive for pirating, and still others by calling

    (E) suggest reducing software prices to decrease the incentive for pirating, and still others are calling

GO ON TO THE NEXT PAGE.

16. A wildlife expert predicts that the reintroduction of the caribou into northern Minnesota <u>would fail if the density of the timber wolf population in that region is more numerous than</u> one wolf for every 39 square miles.

(A) would fail if the density of the timber wolf population in that region is more numerous than

(B) would fail provided the density of the timber wolf population in that region is more than

(C) should fail if the timber wolf density in that region was greater than

(D) will fail if the density of the timber wolf population in that region is greater than

(E) will fail if the timber wolf density in that region were more numerous than

17. Concerned at the increase in accident fatalities, Tennessee adopted a child-passenger protection law requiring the <u>parents of children under four years of age to be restrained in a child safety seat</u>.

(A) the parents of children under four years of age to be restrained in a child safety seat

(B) the restraint of parents of children under four years of age in a child safety seat

(C) that parents restrain children under four years of age in a child safety seat.

(D) that children be restrained under four years of age in a child safety seat by their parents

(E) children to be restrained under four years of age by their parents in a child safety seat

18. Found throughout Central and South America, <u>sloths hang from trees by long rubbery limbs and sleep fifteen hours a day, moving infrequently enough</u> that two species of algae grow on its coat and between its toes.

(A) sloths hang from trees by long rubbery limbs and sleep fifteen hours a day, moving infrequently enough

(B) sloths hang from trees by long rubbery limbs, they sleep fifteen hours a day, and with such infrequent movements

(C) sloths use their long rubbery limbs to hang from trees, sleep fifteen hours a day, and move so infrequently

(D) the sloth hangs from trees by its long rubbery limbs, sleeping fifteen hours a day and moving so infrequently

(E) the sloth hangs from trees by its long rubbery limbs, sleeps fifteen hours a day, and it moves infrequently enough

GO ON TO THE NEXT PAGE.

19. The commission proposed that funding for the park's development, which could be open to the public early next year, is obtained through a local bond issue.

(A) that funding for the park's development, which could be open to the public early next year, is

(B) that funding for development of the park, which could be open to the public early next year, be

(C) funding for the development of the park, perhaps open to the public early next year, to be

(D) funds for the park's development, perhaps open to the public early next year, be

(E) development funding for the park, which could be open to the public early next year, is to be

20. At Shiprock, New Mexico, a perennially powerful girls' high school basketball team has become a path to college for some and a source of pride for a community where the household incomes of 49 percent of them are below the poverty level.

(A) where the household incomes of 49 percent of them are

(B) where they have 49 percent of the household incomes

(C) where 49 percent of the household incomes are

(D) which has 49 percent of the household incomes

(E) in which 49 percent of them have household incomes

21. The prime lending rate is a key rate in the economy: not only are the interest rates on most loans to small and medium-sized businesses tied to the prime, but also on a growing number of consumer loans, including home equity loans.

(A) not only are the interest rates on most loans to small and medium-sized businesses tied to the prime, but also on

(B) tied to the prime are the interest rates not only on most loans to small and medium-sized businesses, but also on

(C) the interest rates not only on most loans to small and medium-sized businesses are tied to the prime, but also

(D) not only the interest rates on most loans to small and medium-sized businesses are tied to the prime, but also on

(E) the interest rates are tied to the prime, not only on most loans to small and medium-sized businesses, but also

22. Neanderthals had a vocal tract that resembled those of the apes and so were probably without language, a shortcoming that may explain why they were supplanted by our own species.

(A) Neanderthals had a vocal tract that resembled those of the apes

(B) Neanderthals had a vocal tract resembling an ape's

(C) The vocal tracts of Neanderthals resembled an ape's

(D) The Neanderthal's vocal tracts resembled the apes'

(E) The vocal tracts of the Neanderthals resembled those of the apes

S T O P

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
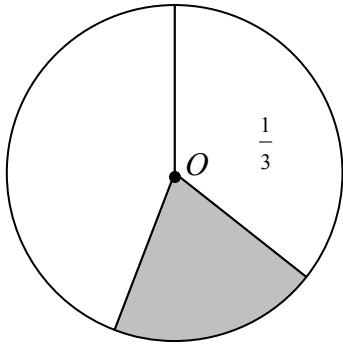
SECTION 7

Time—25 Minutes
16 Questions

Directions: In this section solve each problem, using any available space on the page for scratchwork. Then indicate the best of the answer choices given.

Numbers: All numbers used are real numbers.

Figures: Figures that accompany problems in this section 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 its figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.

1. If a printer can print 2 pages of text per second, then, at this rate, approximately how many minutes will it take to print 5,000 pages of text?

    (A) 4
    (B) 25
    (C) 42
    (D) 250
    (E) 417

2. In the circular region with center O, shown above, the two unshaded sections comprise $\dfrac{3}{7}$ and $\dfrac{1}{3}$ of the area of the circular region. The shaded section comprises what fractional part of the area of the circular region?

    (A) $\dfrac{3}{5}$

    (B) $\dfrac{6}{7}$

    (C) $\dfrac{2}{21}$

    (D) $\dfrac{5}{21}$

    (E) $\dfrac{16}{21}$

3. Envelopes can be purchased for $1.50 per pack of 100, $1.00 per pack of 50, or $0.03 each. What is the greatest number of envelopes that can be purchased for $7.30?

    (A) 426
    (B) 430
    (C) 443
    (D) 460
    (E) 486

4. $\sqrt{16 + 16} =$

    (A) $4\sqrt{2}$
    (B) $8\sqrt{2}$
    (C) $16\sqrt{2}$
    (D) 8
    (E) 16

5. An automobile's gasoline mileage varies, depending on the speed of the automobile, between 18.0 and 22.4 miles per gallon, inclusive. What is the maximum distance, in miles, that the automobile could be driven on 15 gallons of gasoline?

    (A) 336
    (B) 320
    (C) 303
    (D) 284
    (E) 270

GO ON TO THE NEXT PAGE.

6. $\dfrac{(0.3)^5}{(0.3)^3} =$

(A) 0.001
(B) 0.01
(C) 0.09
(D 0.9
(E) 1.0

7. In a horticultural experiment, 200 seeds were planted in plot I and 300 were planted in plot II. If 57 percent of the seeds in plot I germinated and 42 percent of the seeds in plot II germinated, what percent of the total number of planted seeds germinated?

(A) 45.5%
(B) 46.5%
(C) 48.0%
(D) 49.5%
(E) 51.0%

8. The organizers of a fair projected a 25 percent increase in attendance this year over that of last year, but attendance this year actually decreased by 20 percent. What percent of the projected attendance was the actual attendance?

(A) 45%
(B) 56%
(C) 64%
(D) 75%
(E) 80%

9. An optometrist charges $150 per pair for soft contact lenses and $85 per pair for hard contact lenses. Last week she sold 5 more pairs of soft lenses than hard lenses. If her total sales for pairs of contact lenses last week were $1,690, what was the total number of pairs of contact lenses that she sold?

(A) 11
(B) 13
(C) 15
(D) 17
(E) 19

10. What is the ratio of $\dfrac{3}{4}$ to the product $4\left(\dfrac{3}{4}\right)$?

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

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

(C) $\dfrac{4}{9}$

(D) $\dfrac{9}{4}$

(E) 4

11. The cost to rent a small bus for a trip is x dollars, which is to be shared equally among the people taking the trip. If 10 people take the trip rather than 16, how many more dollars, in terms of x, will it cost per person?

(A) $\dfrac{x}{6}$

(B) $\dfrac{x}{10}$

(C) $\dfrac{x}{16}$

(D) $\dfrac{3x}{40}$

(E) $\dfrac{3x}{80}$

12. If x is an integer and $y = 3x + 2$, which of the following CANNOT be a divisor of y ?

(A) 4
(B) 5
(C) 6
(D) 7
(E) 8

GO ON TO THE NEXT PAGE.

13. The size of a television screen is given as the length of the screen's diagonal. If the screens were flat, then the area of a square 21-inch screen would be how many square inches greater than the area of a square 19-inch screen?

(A) 2
(B) 4
(C) 16
(D) 38
(E) 40

14. If the average (arithmetic mean) of x and y is 60 and the average (arithmetic mean) of y and z is 80, what is the value of $z - x$?

(A) 70
(B) 40
(C) 20
(D) 10
(E) It cannot be determined from the information given.

15. If 3 and 8 are the lengths of two sides of a triangular region, which of the following can be the length of the third side?

I.   5
II. 8
III. 11

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

16. One night a certain motel rented $\frac{3}{4}$ of its rooms, including $\frac{2}{3}$ of its air-conditioned rooms. If $\frac{3}{5}$ of its rooms were air-conditioned, what percent of the rooms that were <u>not</u> rented were air-conditioned?

(A) 20%
(B) $33\frac{1}{3}$%
(C) 35%
(D) 40%
(E) 80%

S T O P

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

ANSWER KEY – Test Code 14

Section 1	Section 3	Section 4	Section 5	Section 6	Section 7
1. B	1. E	1. C	1. B	1. C	1. C
2. B	2. C	2. E	2. A	2. E	2. D
3. E	3. B	3. A	3. C	3. E	3. D
4. C	4. D	4. D	4. B	4. D	4. A
5. D	5. A	5. C	5. D	5. B	5. A
6. A	6. C	6. A	6. C	6. D	6. C
7. B	7. B	7. D	7. C	7. C	7. C
8 .A	8. E	8. B	8. E	8. A	8. C
9. E	9. D	9. C	9. C	9. A	9. B
10. C	10. E	10. D	10. D	10. C	10. A
11. E	11. D	11. A	11. E	11. B	11.E
12. D	12. B	12. A	12. C	12. A	12. C
13. D	13. D	13. D	13. E	13. E	13. E
14. D	14. C	14. C	14. B	14. A	14. B
15. C	15.C	15. E	15. E	15. E	15. A
16. C	16. D	16. B	16. B	16. D	16. E
	17. A	17. C		17. C	
	18. E	18. D		18. D	
	19. A	19.C		19.B	
	20. B	20.B		20. C	
		21. B		21. B	
		22. B		22. B	
		23. E			

CONVERSION TABLE FOR VERBAL AND QUANTITATIVE SCORES

Graduate Management Admission Test, Code 14

Corrected Raw Score	Scaled Score		Corrected Raw Score	Scaled Score		Corrected Raw Score	Scaled Score	
	Verbal Score	Quantitative Score		Verbal Score	Quantitative Score		Verbal Score	Quantitative Score
61	51		36	32	39	11	15	20
60	50		35	32	38	10	14	20
59	50		34	31	37	9	13	19
58	49		33	30	37	8	12	18
57	48		32	30	36	7	12	17
56	48		31	29	35	6	11	17
55	47		30	28	34	5	10	16
54	46		29	27	34	4	10	15
53	45		28	27	33	3	9	15
52	44	51	27	26	32	2	8	14
51	43	50	26	25	31	1	7	13
50	42	50	25	25	31	0	6	12
49	42	49	24	24	30			
48	41	48	23	23	29			
47	40	47	22	22	28			
46	40	46	21	22	28			
45	39	45	20	21	27			
44	38	45	19	20	26			
43	37	44	18	20	26			
42	37	43	17	19	25			
41	36	42	16	18	24			
40	35	42	15	17	23			
39	35	41	14	17	23			
38	34	40	13	16	22			
37	33	40	12	15	21			

CONVERSION TABLE FOR TOTAL SCORES

Graduate Management Admission Test, Code 14

Corrected Raw Score	Total Scaled Score	Corrected Raw Score	Total Scaled Score	Corrected Raw Score	Total Scaled Score	Corrected Raw Score	Total Scaled Score
113	800	83	640	53	490	23	340
112	790	82	640	52	490	22	330
111	790	81	630	51	480	21	330
110	780	80	630	50	480	20	320
109	780	79	620	49	470	19	320
108	770	78	620	48	470	18	310
107	770	77	610	47	460	17	310
106	760	76	610	46	460	16	300
105	760	75	600	45	450	15	300
104	750	74	600	44	450	14	290
103	750	73	590	43	440	13	290
102	740	72	590	42	440	12	280
101	740	71	580	41	430	11	280
100	730	70	580	40	430	10	270
99	730	69	570	39	420	9	270
98	720	68	570	38	420	8	260
97	720	67	560	37	410	7	260
96	710	66	560	36	410	6	250
95	710	65	550	35	400	5	250
94	700	64	550	34	400	4	240
93	700	63	540	33	390	3	240
92	690	62	540	32	380	2	230
91	690	61	530	31	380	1	220
90	680	60	530	30	370	0	210
89	670	59	520	29	370		
88	670	58	520	28	360		
87	660	57	510	27	360		
86	660	56	510	26	350		
85	650	55	500	25	350		
84	650	54	500	24	340		

SCORING INFORMATION

Calculating and Verifying Your Multiple-Choice Scores

Proceed with the following steps.

1. As you match the responses on your answer sheet with the answer key on page 33, use marks to indicate whether each answer is correct or incorrect. Cross out any questions you omitted, or for which you marked more than one answer, because they are not counted in the scoring. The number of questions crossed out should equal the "raw score total omit" figure on your score report. The number of questions crossed out in the three sections that contributed to your verbal score and the similar number for the three sections that contributed to the quantitative score should match the "raw score verbal omit" and "raw score quantitative omit" figures on your score report.
2. Count the total number of questions you answered correctly in the three sections that contributed to the verbal score. This number should match the "raw score verbal right" figure on your score report.
3. Then count the total number of questions you answered incorrectly in these three sections. This number should match the "raw score verbal wrong" figure on your score report.
4. Divide the number answered incorrectly from Step 3 by four.
5. Subtract the result in Step 4 from the number answered correctly in Step 2. This is the correction for guessing.
6. Round the resulting number to the nearest whole number by adding .5 and then dropping all digits to the right of the decimal point. This number should equal the "verbal corrected raw score" figure on your score report.

The table below shows three examples of corrected raw score calculations based on 40 questions (total number of omitted or multiple-marked questions, number correct, and number wrong):

	Example 1	Example 2	Example 3
Step 1- Number omitted or multiple-marked……..	8	0	5
Step 2- Number correct…	20	25	30
Step 3- Number wrong….	12	15	5
Step 4- Number wrong in step 3 divided by 4……..	3	3.75	1.25
Step 5- Number in step 2 minus number in step 4	17	21.25	28.75
Step 6- Rounding- Add .5 to the number in step 5	17.5	21.75	29.25
Final raw score corrected for guessing: Drop all digits to the right of the decimal in step 6………...	17	21	29

Repeat these steps using the three sections contributing to the quantitative score to calculate your quantitative corrected raw score and all six sections contributing to the total score to obtain your total corrected raw score. The figures you calculate should match the respective figures on your score report. The sum of your verbal and quantitative corrected raw scores may be one point higher or lower than the total corrected raw score due to the rounding procedure for each score.

Conversion of Corrected Raw Scores to Scaled Scores

Use the score conversion tables on pages 34 and 35 to find the scaled score associated with each of your corrected raw scores. The equivalent scaled scores should match those on your score report.

Your Analytical Writing Scores

Analytical Writing Assessments are offered in this test preparation product for practice purposes only. When calculating the GMAT® equivalent score on GMAT Paper Tests, the essay portion should be ignored. When taking the GMAT®, the Analytical Writing Assessment results are reported on your official score report to schools.

Essay Insight (SM), available through www.mba.com, lets you write two practice essays on actual AWA topics and has them scored automatically by the same technology used to score the GMAT. Your scores are objective and accurate, so you can practice to improve.

Rescoring Service

If there are any discrepancies between your self-scoring results and those on your score report, you may request that ETS rescore your answer sheet by submitting the appropriate fee and the form for this purpose you're your *GMAT Examinee Score Interpretation Guide*. But first check your answer sheet from incomplete erasures or light or partial marking, and check your calculations to be sure that they are accurate.

Caveats Regarding Raw Score Interpretation

1. The GMAT is designed to yield only the reported verbal, quantitative, and total scaled scores. One should not calculate raw scores or individual test sections and infer specific strengths or weaknesses from a comparison of the raw scores results by section. There are two reasons for this. First, different sections have different numbers of questions, and, even if the number were the same of if percentages were used to make the numbers comparable, the sections might not be equally difficult. For illustrative purposes only, suppose that one section had 20 items and another had 25. Furthermore, suppose you received corrected raw scores of 10 on the first and 10 on the second. It would be inappropriate to conclude that you had equal ability in the two sections because the corrected raw scores were equal, as you really obtained 50 percent for the first section and only 40 percent for the second. It would be equally inappropriate, however, to conclude from the percentages that you did better on the first section than on the second. Suppose the first section was relatively easy for most examinees (say, an average corrected raw score percentage across examines of 55 percent) and the second was relatively difficult (an average raw score percentage of 35 percent). Now you might conclude that you did less well than average on the first section and better than average on the second.

    Differences in difficulty level between editions are accounted for in the procedure for converting the verbal, quantitative, and total corrected raw scores to scaled scores. Since the corrected raw scores for individual sections are not converted to produce scales scores by section, performance on individual sections of the test cannot be compared.

    Second, corrected raw scores by section ate not converted to scaled scores by section because the GMAT is not designed to reliably measure specific strengths and weaknesses beyond the general verbal and quantitative abilities for which separate scaled scores are reported. Reliability is dependent, in part, on the number of questions in the test- the more questions, the higher the reliability. The relatively few questions in each section, taken alone, are not sufficient to produce a reliable result for each section (see "Accuracy of the Scores" in the *GMAT Examinee Score Interpretation Guide.*) Only the reported

verbal, quantitative, and total scaled scores (which are based on questions from several sections) have sufficient reliability to permit their use in counseling and predicting graduate school performance.

2.   It is possible, if you repeat the test, that your second raw scores corrected for guessing could be high than on the first test, but your scaled scores could be lower and vice versa. This is a result of the slight differences in difficulty level between editions of the test, which are taken into account when corrected raw scores are converted to the GMAT scaled scores. That is, for a given scaled score, a more difficult edition requires a lower corrected raw score and an easier edition requires a high corrected raw score.

Additional Information

If you have questions about any of the information in this booklet, please write to:

Graduate Management Admission Test

Educational Testing Service

P.O. Box 6102

Princeton, NJ 08541-6102

If you have questions about specific test questions, please indicate that test code and the number(s) of the question(s) as well as your query or comment.