

# GRE Model Question Paper 3

Time Allowed : 1 Hour 58 Minutes    Maximum Marks : 340

## General Instructions

Read the following instructions very carefully and strictly follow them:

1. There is no penalty for incorrect answers on the Verbal Reasoning and Quantitative Reasoning sections. This means you should always answer every question, even if you have to guess.
2. Within any section of the test, you can mark questions you want to review and change your answers as long as the time for that section has not expired.
3. The Analytical Writing section is always presented first. The Verbal Reasoning and Quantitative Reasoning sections may appear in any order after the essay.
4. The test is taken on a computer, and test-takers are provided with scratch paper or a small whiteboard for notes.
5. The Quantitative Reasoning section includes an on-screen calculator.
6. There are no breaks during the test. Leaving your seat at any point will not stop the timer for the current section.

## SECTION 1

Time: 30 Minutes

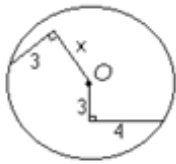
38 Questions

- 
1.      **Column A**    **Column B**  
       $2(8 - 7)$        $2(7 - 8)$

- 
2.     $x + y = 2$ .  
      **Column A**    **Column B**  
       $x$                  $y$

- 
3.      **Column A**    **Column B**  
       $\frac{3}{7} + \frac{2}{7}$       1

- 
- 4.



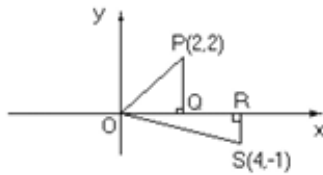
O is the center of the circle

Column A	Column B
$x$	5

5. On Elm Street, there are 6 houses on one side of the street and 4 houses on the other. Each pair of houses on Elm Street is connected by exactly one telephone line.

Column A	Column B
The total number of such lines that connect houses on opposite sides of Elm Street	12

6.



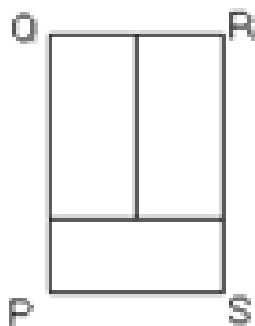
Column A	Column B
The area of triangular region OPQ	The area of triangular region ORS

7.	Column A	Column B
	$(0.01)(0.07)(70)$	0.49

8.  $x < y < z$

Column A	Column B
$\frac{x+y+z}{3}$	$z$

9.



The three small rectangles have the same dimensions

Column A	Column B
$\frac{PS}{RS}$	$\frac{1}{2}$

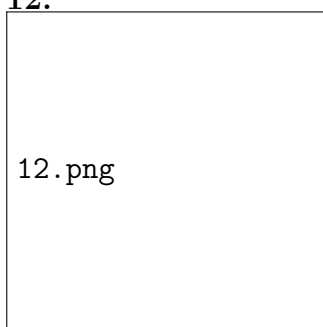
10. In a certain city,  $20^{\circ}\text{F}$  was the average (arithmetic mean) of the low temperatures of  $x^{\circ}\text{F}$ ,  $25^{\circ}\text{F}$ , and  $37^{\circ}\text{F}$  on three consecutive days.

Column A	Column B
$x$	0

11.  $m = 4x + 4y$ ,  $x \neq -y$

Column A	Column B
$\frac{2m}{x+y}$	8

12.



ABCD is a rectangle with diagonals AC and DB.

Column A	Column B
$r + u + v$	$r + u + w$

13.  $n$  is a positive integer.

Column A	Column B
$n^{100}$	$100^n$

---

14.  $f(t) = kt$  for all  $t$ , where  $k$  is a constant, and  $f(3) = \frac{1}{2}$ .

Column A	Column B
$k$	$f(1)$

---

15.  $100x < y$

$1000x < 2y$

Column A	Column B
$1, 100x$	$y$

---

16. Mr. Gifford wishes to put 372 eggs into cartons that can hold 12 eggs each. If he has 50 empty cartons and completely fills as many of them as possible with the 327 eggs, how many of the cartons will remain empty?

- (A) 12
  - (B) 15
  - (C) 19
  - (D) 28
  - (E) 31
- 

17. Which of the following numbers is greatest?

- (A) -0.225
  - (B) -0.0225
  - (C) -0.323
  - (D) -0.0325
  - (E) -0.3205
- 

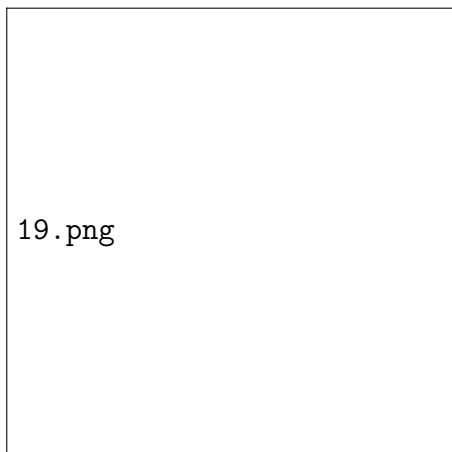
18. If a certain automobile gets between 20 and 24 miles per gallon of gasoline, inclusive, what would be the maximum amount of gasoline, in gallons, this automobile would consume on a trip of 360 miles?

- (A) 20.0
- (B) 18.0

- (C) 16.4
- (D) 16.0
- (E) 15.0

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19. If  $y - x = 2$  and  $y - z = 3$ , which of the following best represents the relative positions of  $x$ ,  $y$ , and  $z$  on the number line? (Note: The figures are drawn to scale.)



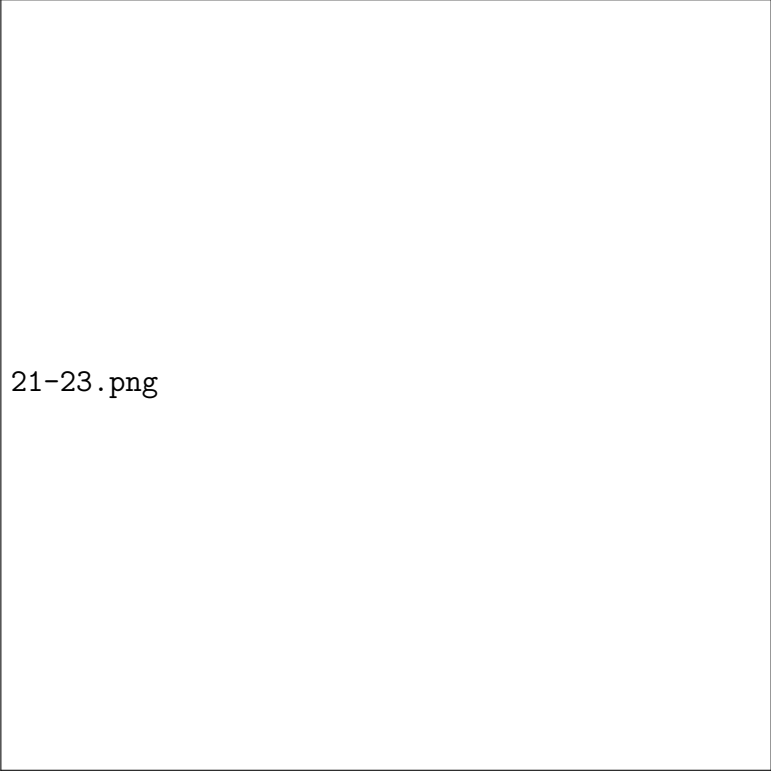
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20. Two beads are to be independently and randomly selected, one from each of two bags. If  $\frac{2}{7}$  of the beads in one bag and  $\frac{3}{7}$  of the beads in the other bag are yellow, what is the probability that both beads selected will be yellow?

- (A)  $\frac{2}{3}$
- (B)  $\frac{5}{7}$
- (C)  $\frac{6}{7}$
- (D)  $\frac{5}{49}$
- (E)  $\frac{6}{49}$

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Questions 21-23 refer to the graph below.



21-23.png

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**21.** By what percent did the number of personal computers sold by Compaq increase from 1992 to 1993?

- (A) 50%
- (B) 65%
- (C) 75%
- (D) 100%
- (E) 110%

---

**22.** In 1992, Packard Bell accounted for what percent of the computers sold by the four companies listed?

- (A) 6%
- (B) 9%
- (C) 10%
- (D) 12%
- (E) 14%

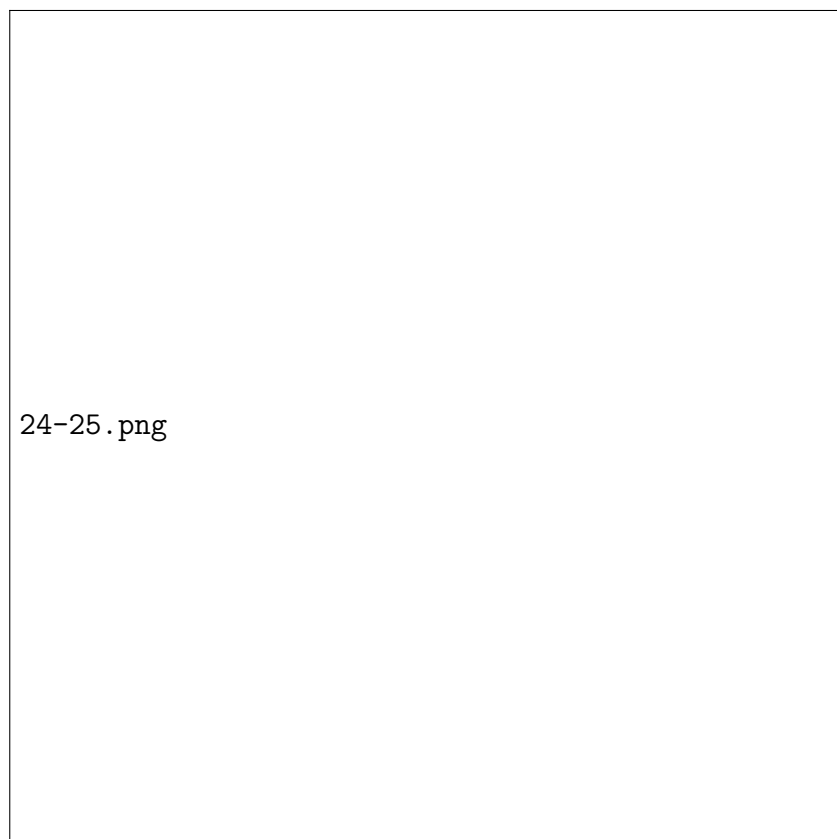
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**23.** If the ratio of the number of personal computers sold by IBM, Compaq, and Tandy (not shown) in 1993 was 6 to 4 to 1, respectively, approximately how many personal computers were sold by Tandy in 1993?

- (A) 350,000
- (B) 400,000
- (C) 450,000
- (D) 500,000
- (E) 550,000

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Questions 24-25 refer to the following table.



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**24.** For the categories given, which category accounts for approximately  $\frac{1}{4}$  of the total number of graduates expected for each of the years shown?

- (A) High school diploma
- (B) Associate degree
- (C) Bachelor's degree
- (D) Master's degree
- (E) Doctoral degree

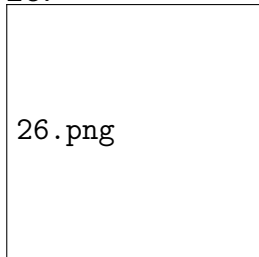
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**25.** The number of associate degrees expected to be granted in 2001 is most nearly what percent greater than the number of associate degrees expected to be granted in 1995?

- (A) 2%
- (B) 3%
- (C) 5%
- (D) 7%
- (E) 9%

---

**26.**



If the area of the shaded region of the square above is 20, what is the perimeter of the square?

- (A)  $4\sqrt{5}$
- (B)  $8\sqrt{5}$
- (C)  $16\sqrt{5}$
- (D) 80
- (E) 400

---

**27.** If  $x = \frac{1}{y}$  and  $y = \frac{1}{1-x}$ , then  $y =$

- (A) 2
- (B)  $\frac{1}{2}$
- (C)  $-\frac{1}{2}$
- (D) -1
- (E) -2

---

**28.** If 720 is the product of the consecutive integers beginning with 2 and ending with  $n$ , what is the value of  $n-1$ ?

- (A) 5
  - (B) 6
  - (C) 8
  - (D) 11
  - (E) 23
-



29. When it was found that 150 more tickets for the school play were sold than the seating capacity of the auditorium. It was decided to have two performances. if the total number of tickets sold was equal to the total number who attended and if the auditorium was  $\frac{2}{3}$  full for each of the two performances, what is the seating capacity of the auditorium?

- (A) 100
- (B) 200
- (C) 225
- (D) 300
- (E) 450

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30. If  $n = pqr$ , where  $p$ ,  $q$ , and  $r$  are three different positive prime numbers, how many different positive divisors does  $n$  have, including 1 and  $n$ ?

- (A) 3
- (B) 5
- (C) 6
- (D) 7
- (E) 8

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## SECTION 2

Time: 30 Minutes

38 Questions

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1. Though — to some degree, telling a small lie sometimes enables one to avoid — another's feelings.

- (A) necessary.. mollifying
- (B) regrettable.. harming
- (C) unfortunate.. exaggerating
- (D) attractive.. considering
- (E) difficult.. resisting

---

2. Perhaps because scientists have been so intrigued by dogs' superior senses of smell and hearing, researchers have long — their eyesight, assuming that they inhabit a drab, black-and-white world, devoid of color.

- (A) studied
- (B) coveted
- (C) appreciated

- (D) resented
  - (E) underestimated
- 

**3. Despite a string of dismal earnings reports, the two-year-old strategy to return the company to profitability is beginning to —.**

- (A) falter
  - (B) disappoint
  - (C) compete
  - (D) work
  - (E) circulate
- 

**4. The President reached a decision only after lengthy —, painstakingly weighing the — opinions expressed by cabinet members.**

- (A) deliberation.. divergent
  - (B) confrontation.. unanimous
  - (C) relegation.. consistent
  - (D) speculation.. conciliatory
  - (E) canvassing.. arbitrary
- 

**5. Although just barely — as a writer of lucid prose, Jones was an extremely — editor who worked superbly with other writers in helping them improve the clarity of their writing.**

- (A) deficient.. muddling
  - (B) proficient.. contentious
  - (C) adequate.. capable
  - (D) appalling.. competent
  - (E) engaging.. inept
- 

**6. The accusations we bring against others should be — ourselves; they should not — complacency and easy judgments on our part concerning our own moral conduct.**

- (A) definitions of.. produce
  - (B) instructions to.. equate
  - (C) denigrations of.. exclude
  - (D) warnings to.. justify
  - (E) parodies of.. satirize
-

**7. Although the meanings of words may necessarily be liable to change, it does not follow that the lexicographer is therefore unable to render spelling, in a great measure, —.**

- (A) arbitrary
  - (B) superfluous
  - (C) interesting
  - (D) flexible
  - (E) constant
- 

**8. ELEGIAC: SORROW::**

- (A) polemical: resolution
  - (B) fictional: humor
  - (C) devotional: reverence
  - (D) didactic: inspiration
  - (E) literary: emotion
- 

**9. ROSTRUM: ORATOR::**

- (A) stage: audience
  - (B) bench: judge
  - (C) shelf: clerk
  - (D) municipality: citizen
  - (E) crosswalk: pedestrian
- 

**10. MISUNDERSTOOD: CLARIFY::**

- (A) fanatical: espouse
  - (B) popular: renounce
  - (C) fantastic: shock
  - (D) erroneous: retract
  - (E) conspicuous: flaunt
- 

**11. REFINERY: PETROLEUM::**

- (A) mill: grain
- (B) mine: ore
- (C) warehouse: merchandise
- (D) generator: electricity
- (E) forest: lumber

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**12. TEDIOUS: ENERGY::**

- (A) avaricious: satisfaction
- (B) fractious: irritation
- (C) disturbing: composure
- (D) improbable: ambition
- (E) informed: intelligence

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**13. GRACEFUL: MOVEMENT::**

- (A) euphonious: sound
- (B) forbidding: countenance
- (C) ephemeral: duration
- (D) melodramatic: emotion
- (E) vibrant: color

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**14. BRAVURA: PERFORMANCE::**

- (A) extravagant: expenditure
- (B) elaborate: oration
- (C) foreseeable: outcome
- (D) thorough: analysis
- (E) resplendent: appearance

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**15. BADGER: BOTHER::**

- (A) persecute: injure
- (B) haunt: remember
- (C) belabor: mention
- (D) quibble: argue
- (E) censure: evaluate

---

**16. CONGRUENT: DIMENSIONS::**

- (A) convenient: time
- (B) coordinate: axis
- (C) conglomerate: parts
- (D) coincident: chance
- (E) coeval: age

---

Questions 17-20 refer to the passage below.

It is possible for students to obtain advanced degrees in English while knowing little or nothing about traditional scholarly methods. The consequences of this neglect of traditional scholarship are particularly unfortunate for the study of women writers. If the canon—the list of authors whose works are most widely taught—is ever to include more women, scholars must be well trained in historical scholarship and textual editing. Scholars who do not know how to read early manuscripts, locate rare books, establish a sequence of editions, and so on are bereft of crucial tools for revising the canon.

To address such concerns, an experimental version of the traditional scholarly methods course was designed to raise students' consciousness about the usefulness of traditional learning for any modern critic or theorist. To minimize the artificial aspects of the conventional course, the usual procedure of assigning a large number of small problems drawn from the entire range of historical periods was abandoned, though this procedure has the obvious advantage of at least superficially familiarizing students with a wide range of reference sources. Instead students were engaged in a collective effort to do original work on a neglected eighteenth-century writer, Elizabeth Griffith, to give them an authentic experience of literary scholarship and to inspire them to take responsibility for the quality of their own work.

Griffith's work presented a number of advantages for this particular pedagogical purpose. First, the body of extant scholarship on Griffith was so tiny that it could all be read in a day; thus students spent little time and effort mastering the literature and had a clear field for their own discoveries. Griffith's play *The Platonic Wife* exists in three versions, enough to provide illustrations of editorial issues but not too many for beginning students to manage. In addition, because Griffith was successful in the eighteenth century, as her continued productivity and favorable reviews demonstrate, her exclusion from the canon and virtual disappearance from literary history also helped raise issues concerning the current canon.

The range of Griffith's work meant that each student could become the world's leading authority on a particular Griffith text. For example, a student studying Griffith's *Wife in the Right* obtained a first edition of the play and studied it for some weeks. This student was suitably shocked and outraged to find its title transformed into *A Wife in the Night* in Watt's *Bibliotheca Britannica*. Such experiences, inevitable and common in working on a writer to whom so little attention has been paid, serve to vaccinate the student—I hope for a lifetime—against credulous use of reference sources.

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17. The author of the passage is primarily concerned with

(A) revealing a commonly ignored deficiency

- (B) proposing a return to traditional terminology
  - (C) describing an attempt to correct a shortcoming
  - (D) assessing the success of a new pedagogical approach
  - (E) predicting a change in a traditional teaching strategy
- 

**18. It can be inferred that the author of the passage expects that the experience of the student mentioned as having studied *Wife in the Right* would have which of the following effects?**

- (A) It would lead the student to disregard information found in the *Bibliotheca Britannica*.
  - (B) It would teach the student to question the accuracy of certain kinds of information sources when studying neglected authors.
  - (C) It would teach the student to avoid the use of reference sources in studying neglected authors.
  - (D) It would help the student to understand the importance of first editions in establishing the authorship of plays.
  - (E) It would enhance the student's appreciation of the works of authors not included in the canon.
- 

**19. The author of the passage suggests that which of the following is a disadvantage of the strategy employed in the experimental scholarly methods course?**

- (A) Students were not given an opportunity to study women writers outside the canon.
  - (B) Students' original work would not be appreciated by recognized scholars.
  - (C) Little scholarly work has been done on the work of Elizabeth Griffith.
  - (D) Most of the students in the course had had little opportunity to study eighteenth-century literature.
  - (E) Students were not given an opportunity to encounter certain sources of information that could prove useful in their future studies.
- 

**20. Which of the following best states the "particular pedagogical purpose" mentioned in line 28?**

- (A) To assist scholars in revising the canon of authors
  - (B) To minimize the trivial aspects of the traditional scholarly methods course
  - (C) To provide students with information about Griffith's work
  - (D) To encourage scholarly rigor in students' own research
  - (E) To reestablish Griffith's reputation as an author
- 

**21. Which of the following best describes the function of the last paragraph in relation to the passage as a whole?**

- (A) It summarizes the benefits that students can derive from the experimental scholarly methods course.
  - (B) It provides additional reasons why Griffith's work raises issues having to do with the canon of authors.
  - (C) It provides an illustration of the immediate nature of the experiences students can derive from the experimental scholarly methods course.
  - (D) It contrasts the experience of a student in the experimental scholarly methods course with the experience of a student in the traditional course
  - (E) It provides information that emphasizes the suitability of Griffith's work for inclusion in the canon of authors.
- 

**22. It can be inferred that which of the following is most likely to be among the "issues" mentioned in line 38?**

- (A) Why has the work of Griffith, a woman writer who was popular in her own century, been excluded from the canon?
  - (B) In what ways did Griffith's work reflect the political climate of the eighteenth century?
  - (C) How was Griffith's work received by literary critics during the eighteenth century?
  - (D) How did the error in the title of Griffith's play come to be made?
  - (E) How did critical reception of Griffith's work affect the quantity and quality of that work?
- 

**23. It can be inferred that the author of the passage considers traditional scholarly methods courses to be**

- (A) irrelevant to the work of most students
  - (B) inconsequential because of their narrow focus
  - (C) unconcerned about the accuracy of reference sources
  - (D) too superficial to establish important facts about authors
  - (E) too wide-ranging to approximate genuine scholarly activity
- 

**Questions 24-27 refer to the passage below.**

Experiments show that insects can function as pollinators of cycads, rare, palm-like tropical plants. Furthermore, cycads removed from their native habitats—and therefore from insects native to those habitats—are usually infertile. Nevertheless, anecdotal reports of wind pollination in cycads cannot be ignored. The structure of cycads male cones is quite consistent with the wind dispersal of pollen, clouds of which are released from some of the larger cones. The male cone of *Cycas circinalis*, for example, sheds almost 100 cubic centimeters of pollen, most of which is probably dispersed by wind. Still, many male cycad cones are comparatively small and thus produce far less pollen. Furthermore, the structure of most female cycad cones seems inconsistent with direct pollination by wind. Only in the *Cycas* genus are the females' ovules accessible to airborne pollen, since only in this

genus are the ovules surrounded by a loose aggregation of megasporophylls rather than by a tight cone.

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**24. According to the passage, the size of a male cycad cone directly influences which of the following?**

- (A) The arrangement of the male cone's structural elements
  - (B) The mechanism by which pollen is released from the male cone.
  - (C) The degree to which the ovules of female cycads are accessible to airborne pollen
  - (D) The male cone's attractiveness to potential insect pollinators
  - (E) The amount of pollen produced by the male cone
- 

**25. The passage suggests that which of the following is true of the structure of cycad cones?**

- (A) The structure of cycad cones provides conclusive evidence in favor of one particular explanation of cycad pollination.
  - (B) The structure of cycad cones provides evidence concerning what triggers the first step in the pollination process.
  - (C) An irresolvable discrepancy exists between what the structure of most male cycad cones suggests about cycad pollination and what the structure of most female cones suggests about that process.
  - (D) The structure of male cycad cones rules out a possible mechanism for cycad pollination that is suggested by the structure of most female cycad cones.
  - (E) The structure of male cycad cones is consistent with a certain means of cycad pollination, but that means is inconsistent with the structure of most female cycad cones.
- 

**26. The evidence in favor of insect pollination of cycads presented in lines 2-4 would be more convincing if which of the following were also true?**

- (A) Only a small variety of cycad species can be successfully transplanted.
  - (B) Cycads can sometimes be pollinated by means other than wind or insects.
  - (C) Insects indigenous to regions to which cycads are transplanted sometimes feed on cycads.
  - (D) Winds in the areas to which cycads are usually transplanted are similar to winds in cycads' native habitats.
  - (E) The transplantation of cycads from one region to another usually involves the accidental removal and introduction of insects as well.
- 

**27. The passage suggests that which of the following is true of scientific investigations of cycad pollination?**



- (A) They have not yet produced any systematic evidence of wind pollination in cycads.
  - (B) They have so far confirmed anecdotal reports concerning the wind pollination of cycads.
  - (C) They have, until recently, produced little evidence in favor of insect pollination in cycads.
  - (D) They have primarily been carried out using cycads transplanted from their native habitats.
  - (E) They have usually concentrated on describing the physical characteristics of the cycad reproductive system.
- 

**28. PROCRASTINATION:**

- (A) diligence
  - (B) complacency
  - (C) reasonableness
  - (D) allegiance
  - (E) rehabilitation
- 

**29. CIRCUITY:**

- (A) straightforwardness
  - (B) inventiveness
  - (C) authenticity
  - (D) insightfulness
  - (E) practicality
- 

**30. CONCLUDE:**

- (A) foster
  - (B) frequent
  - (C) emanate from
  - (D) empower to
  - (E) embark on
- 

**31. RITE:**

- (A) coherent interpretation
  - (B) improvised act
  - (C) deductive approach
  - (D) casual observation
  - (E) unnecessary addition
-

**32. BLATANT:**

- (A) indecisive
  - (B) perceptive
  - (C) unobtrusive
  - (D) involuntary
  - (E) spontaneous
- 

**33. PONTIFICATE:**

- (A) request rudely
  - (B) glance furtively
  - (C) behave predictably
  - (D) work efficiently
  - (E) speak modestly
- 

**34. POSIT:**

- (A) deceive
  - (B) begrudge
  - (C) deny
  - (D) consent
  - (E) reinforce
- 

**35. FETTER:**

- (A) justify
  - (B) comfort
  - (C) intrude
  - (D) liberate
  - (E) optimize
- 

**36. SYNERGIC:**

- (A) natural in origin
  - (B) fragile in structure
  - (C) untainted
  - (D) inessential
  - (E) antagonistic
-

**37. DEPRIVATION:**

- (A) sanity
  - (B) awareness
  - (C) surfeit
  - (D) fecundity
  - (E) health
- 

**38. CORPOREAL:**

- (A) unreliable
  - (B) unscientific
  - (C) indistinguishable
  - (D) inanimate
  - (E) immaterial
- 

**SECTION 3**

Time: 30 Minutes

25 Questions

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**1. Armtech, a temporary-employment agency, previously gave its employees 2.5 paid vacation days after each 700 hours worked. Armtech's new policy is to give its employees 5.0 paid vacation days after each 1,200 hours worked. Therefore, this new policy is more generous to Armtech employees in giving them more vacation days per hour worked than the old policy did.**

**Which of the following is an assumption on which the argument depends?**

- (A) Most current Armtech employees approve of the company's new vacation policy.
  - (B) A few Armtech employees leave the company before having worked 700 hours.
  - (C) Most Armtech employees were not aware that the company planned to change its vacation policy until after it had already done so.
  - (D) A significant portion of Armtech employees stay with the company long enough to work for 1,200 hours.
  - (E) Armtech's new vacation policy closely matches the vacation policies of competing temporary employment agencies.
- 

**2. The global population of frogs has declined in recent years while the amount of ultraviolet radiation reaching the Earth has increased. Since the genetic material in frog eggs is harmed when exposed to ultraviolet radiation, and since the eggs themselves are not protected by shells or leathery coverings but are gelatinous, the frog population decline is probably due, at least in part, to the ultraviolet radiation increase.**

**Which of the following, if true, provides the strongest support for the argument?**

- (A) Even in those regions where there has been no significant increase in ultraviolet radiation, only a small proportion of the frog eggs that are laid ever hatch.
- (B) In areas where there has been the least decline in frog populations, populations of species of insects that frogs eat have decreased.
- (C) The eggs of frog species whose populations are declining tend to have higher concentrations of damaging pesticides than do the eggs of frog species whose populations have not declined.
- (D) In many places where turtles, which lay eggs with tough, leathery coverings, share habitats with frogs, turtle populations are also in decline.
- (E) Populations of frog species that hide their eggs beneath rocks or under sand have declined considerably less than have populations of frog species that do not cover their eggs.

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### Questions 3-8

A doctor is scheduling one appointment each with five patients— J, K, L, M, and N. The five appointments will be consecutive and are numbered 1 through 5, from earliest to latest. The doctor must schedule at least four of the patients for appointments preferred by those patients and cannot schedule any patient for an appointment unacceptable to that patient. The following is a complete list of what the patients prefer and, if they do not receive their preferences, will accept

J prefers an appointment earlier than appointment 3, but will accept any appointment.

K prefers appointment 2, but will accept any appointment except appointment 1.

L prefers appointment 1, but will accept appointment 5.

M prefers and will accept only an appointment later than appointment 3.

N prefers and will accept only appointment 3.

---

**3. Which of the following lists the patients in an order in which their scheduled appointments can occur, from appointment 1 through appointment 5 ?**

- (A) J, K, N, L, M
- (B) J, M, N, K, L
- (C) K, J, N, M, L
- (D) L, J, K, N, M
- (E) L, J, N, M, K

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**4. If J is scheduled for appointment 2, which of the following can be true?**

- (A) K is scheduled for appointment 3.
- (B) K is scheduled for appointment 4.

- (C) L is scheduled for appointment 4.
  - (D) L is scheduled for appointment 5.
  - (E) M is scheduled for appointment 1.
- 

**5. If L is scheduled for appointment 5, which of the following must be true?**

- (A) J is scheduled for appointment 1.
  - (B) J is scheduled for appointment 2.
  - (C) J is scheduled for appointment 4.
  - (D) K is scheduled for appointment 4.
  - (E) N is scheduled for appointment 5.
- 

**6. Which of the following is a complete and accurate list of patients any one of whom can be the patient scheduled for appointment 2?**

- (A) K
  - (B) J, K
  - (C) J, M
  - (D) J, K, L
  - (E) K, L, M
- 

**7. If M is scheduled for appointment 5, which of the following can be true of the scheduling?**

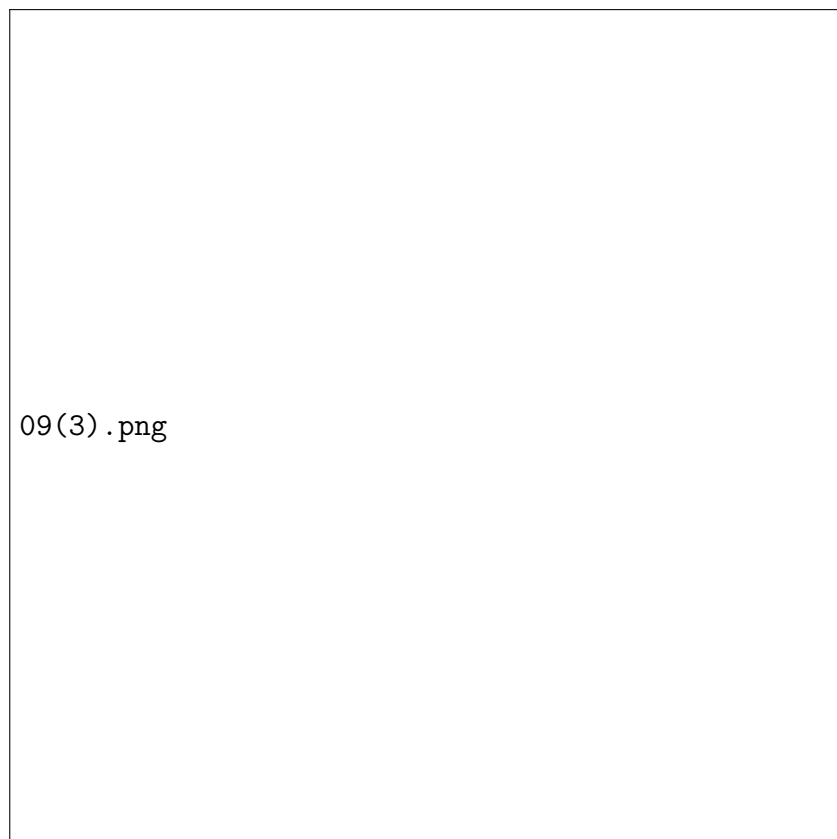
- (A) J's appointment is appointment 1.
  - (B) N's appointment is appointment 1.
  - (C) J's appointment is earlier than K's appointment.
  - (D) K's appointment is earlier than L's appointment.
  - (E) N's appointment is earlier than L's appointment.
- 

**8. If K's appointment is scheduled for a time later than N's appointment, which of the following must be true?**

- (A) J is scheduled for appointment 4.
  - (B) K is scheduled for appointment 5.
  - (C) L is scheduled for appointment 1.
  - (D) M is scheduled for appointment 4.
  - (E) N is scheduled for appointment 2.
-

**Questions 9-10 are based on the following graph.**

In January of 1990 a certain country enacted a strict new law to deter people from drunken driving. The law imposes mandatory jail sentences for anyone convicted of drunken driving.



---

**9. Which of the following, if true about the years 1990 through 1992, most helps to explain the data illustrated in the graph?**

- (A) Most of the people arrested for and convicted of drunken driving were repeat offenders.
- (B) Many of the people arrested for and convicted of drunken driving participated in alcohol-education programs in order to reduce their jail sentences.
- (C) Juries in drunken driving cases became increasingly reluctant to convict people on whom mandatory jail sentences would be imposed.
- (D) Since the law was enacted, the number of deaths attributed to drunken driving has declined significantly.
- (E) The majority of the residents of the country supported the strict law to deter people from drunken driving.

---

**10. Which of the following, if true, strengthens the claim that the changes in the ratio of arrests to convictions since the beginning of 1990 are due to an increase in the number of people arrested for drunken driving who were not drunk?**

- (A) Before 1990 only people driving erratically were stopped by the police on suspicion of

drunken driving, but since the beginning of 1990 police have been allowed to stop drivers randomly and to arrest any driver whom they suspect of having drunk any alcohol.

(B) Since the beginning of 1990 new technology has enabled police who stop a driver to establish immediately whether the driver is drunk, whereas before 1990 police had to rely on observations of a driver's behavior to make a judgment about that driver's drunkenness.

(C) After 1990 the number of police officers assigned to patrol for drunken drivers increased only very slightly compared to the number of police officers assigned to patrol for drunken drivers in the years 1985 through 1989.

(D) In 1990 a greater number of drivers were ignorant of the laws concerning drunken driving than were ignorant of the drunken driving laws in 1989.

(E) After 1990 teenagers and young adults constituted a greater proportion of those arrested for drunken driving than in the years 1985 through 1989.

---

**11. To improve productivity, manufacturing companies have recently begun restructuring work to produce more goods with fewer assembly-line workers, and the companies have laid off many workers as a consequence. The workers laid off have been those with the least seniority (time on the job), generally the younger workers.**

**The statements above, if true, most strongly support which of the following as a conclusion?**

(A) The products manufactured by the companies are not undergoing design changes while the manufacturing jobs are being restructured.

(B) When assembly-line workers have made suggestions for improvements in manufacturing processes, some suggestions have been implemented, but many have not.

(C) Assembly-line workers now need increased reading and mathematical skills to do their jobs.

(D) Some of the innovations in assembly-line processes and procedures that were made to increase productivity have instead proved to be counterproductive.

(E) The manufacturing companies are increasing the average age of their assembly-line workforce while still seeking to increase production.

---

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(A) The products manufactured by the companies are not undergoing design changes while the manufacturing jobs are being restructured.

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(D) Some of the innovations in assembly-line processes and procedures that were made to increase productivity have instead proved to be counterproductive.

(E) The manufacturing companies are increasing the average age of their assembly-line workforce while still seeking to increase production.

**12. During the nineteenth century, Britain's urban population increased as its rural population diminished. A historian theorizes that, rather than industrialization's**

being the cause, this change resulted from a series of migrations to urban areas, each occasioned by a depression in the agrarian economy. To test this hypothesis, the historian will compare economic data with population census data.

The historian's hypothesis would be most strongly supported if which of the following were found to be true?

- (A) The periods of greatest growth in the industrial economy were associated with a relatively rapid decline in the rural population.
  - (B) The periods of greatest weakness in the agrarian economy were associated with relatively slow growth in the population as a whole.
  - (C) Periods when the agrarian economy was comparatively strong and the industrial economy comparatively weak were associated with a particularly rapid decline in the rural population.
  - (D) Periods when the agrarian and industrial economies were both strong were associated with particularly rapid growth in the urban population.
  - (E) The periods of greatest strength in the agrarian economy were associated with relatively slow growth in the urban population.
- 

### Questions 13-16

On each of the three consecutive days Monday through Wednesday, exactly two employees are to staff a company's information booth. The three available employees — Feng, Gómez, and Hull— will staff the booth in accordance with the following conditions

Gómez and Hull must each staff the booth on at least one of the days, but Feng must staff it on at least two the days.

The booth cannot be staffed by the same two employees on any two consecutive days. If Hull staffs the booth on Monday, Gómez must be the other employee staffing the booth on Monday.

---

**13. Which of the following can be the schedule of employees staffing the booth on the three days?**

**Monday — Tuesday — Wednesday**

- (A) Feng,Gómez — Feng,Gómez — Feng,Hull
  - (B) Feng,Gómez — Feng,Hull — Gómez,Hull
  - (C) Feng,Hull — Feng,Gómez — Gómez,Hull
  - (D) Gómez,Hull — Feng,Gómez — Gómez,Hull
  - (E) Gómez,Hull — Feng,Gómez — Feng,Hull
- 

**14. If Gómez staffs the booth on Monday and Tuesday, which of the following must be true?**

- (A) Feng staffs the booth on Monday.
- (B) Feng staffs the booth on Tuesday.
- (C) Feng staffs the booth on Wednesday.



- (D) Hull staffs the booth on Monday.
- (E) Hull staffs the booth on Tuesday.

---

**15. If Hull staffs the booth on Monday and Wednesday, which of the following must be true?**

- (A) Feng and Gómez staff the booth on Tuesday.
- (B) Feng and Hull staff the booth on Monday.
- (C) Feng and Hull staff the booth on Tuesday.
- (D) Gómez and Hull staff the booth on Tuesday.
- (E) Gómez and Hull staff the booth on Wednesday.

---

**16. If Hull staffs the booth on only one of the days, which of the following can be true?**

- (A) Feng and Hull staff the booth on Monday.
- (B) Feng and Hull staff the booth on Wednesday.
- (C) Gómez and Hull staff the booth on Monday.
- (D) Gómez and Hull staff the booth on Tuesday.
- (E) Gómez and Hull staff the booth on Wednesday.

---

**Questions 17-22**

A science teacher is selecting projects for each of two classes from a group of exactly seven projects— R, S, T, V, X, Y, and Z. The teacher will assign projects to Class 1 and Class 2 according to the following conditions

Each project must be assigned to exactly one class.

Four of the projects must be assigned to Class 1 and three to Class 2.

R must be assigned to Class 2.

The class to which V is assigned cannot be the same class as the one to which Y is assigned.

If V is assigned to Class 1, X must be assigned to Class 1.

If Z is assigned to Class 2, Y must be assigned to Class 1.

---

**17. Which of the following could be the projects assigned to the two classes?**

**Class 1    Class 2**

- (A) R, V, X, Y    S, T, Z
- (B) S, T, V, Z    R, X, Y
- (C) S, T, X, Y    R, V, Z

- (D) S, T, X, Z R, V, Y
  - (E) S, V, X, Y R, T, Z
- 

**18. If X is assigned to Class 2, which of the following must be true?**

- (A) R is assigned to Class 1.
  - (B) S is assigned to Class 2.
  - (C) T is assigned to Class 2.
  - (D) Y is assigned to Class 1.
  - (E) Z is assigned to Class 2.
- 

**19. If Z is assigned to Class 2, which of the following must be true?**

- (A) S is assigned to Class 2.
  - (B) T is assigned to Class 2.
  - (C) V is assigned to Class 1.
  - (D) X is assigned to Class 1.
  - (E) Y is assigned to Class 2.
- 

**20. If Y is assigned to Class 2, any of the following could be assigned together to one of the classes EXCEPT**

- (A) R and T
  - (B) S and T
  - (C) S and Y
  - (D) T and Z
  - (E) X and Z
- 

**21. If T is assigned to the same class as V, which of the following must be assigned to the same class as each other?**

- (A) R and T
  - (B) S and X
  - (C) S and Y
  - (D) X and Y
  - (E) Y and Z
- 

**22. If V is assigned to a different class from Z, which of the following must be true?**

- (A) S is assigned to Class 1.
  - (B) S is assigned to Class 2.
  - (C) T is assigned to Class 2.
  - (D) V is assigned to Class 2.
  - (E) X is assigned to Class 1.
- 

**23. Politician:** Each year, small businesses create more jobs than do large established businesses. Therefore, in order to reduce unemployment in the long term, we should provide incentives for starting small businesses rather than for expanding established large businesses.

**Which of the following, if true, casts the most doubt on the politician's argument?**

- (A) In general, people employed by small businesses report higher job satisfaction than do people employed by large businesses.
  - (B) Among the currently unemployed are many people with sufficient job skills to perform the jobs that small businesses would create.
  - (C) Providing an effective incentive for starting a business generally costs significantly less than providing an effective incentive for expanding a large business.
  - (D) A high proportion of small businesses fail within three years of starting because of their owners' inexperience.
  - (E) The average large business contributes more money to politicians' campaign funds than the average small business does.
- 

**24. In the workplace, influenza is typically spread by infected individuals to others with whom they work in close quarters. A new medication that suppresses the symptoms of influenza therefore will actually increase the number of influenza cases, because this medication will allow people who would otherwise be home in bed to return to work while infected.**

**Which of the following, if true, most seriously challenges the prediction?**

- (A) Coughing, a symptom of influenza that the new medication suppresses, is a primary mechanism in the spread of this illness.
  - (B) Some medications that are used to suppress symptoms of influenza are also used by many people to treat symptoms that are caused not by influenza but by other illnesses.
  - (C) Many workers who now remain at home when infected with influenza do so because the symptoms of influenza prevent them from performing their jobs effectively.
  - (D) Most adults who are immunized against influenza in order to avoid being infected are over 65 years old and retired and thus do not work outside the home.
  - (E) Symptoms of an illness are often the body's means of curing itself of the illness, and therefore suppression of symptoms can prolong the illness that causes them.
- 

**25. Editorial:** Critics of nuclear power complain about the allegedly serious harm that might result from continued operation of existing nuclear power plants. But

such concerns do not justify closing these plants; after all, their operation has caused no more harm than that caused by pollution generated by coal-and oil-burning power plants, the most important other sources of energy.

Which of the following is an assumption on which the argument depends?

- (A) Existing nuclear power plants should be closed only if it can be conclusively demonstrated that their continued operation is likely to cause harm more serious than the harm their operation has already caused.
- (B) Closing existing nuclear power plants would require greatly increased reliance on coal-and oil-burning power plants.
- (C) The harm that has resulted from operation of existing coal-and oil-burning power plants has been significant.
- (D) The harm that a nuclear power plant is likely to cause as it continues to operate can be reliably predicted from the past history of nuclear power plants.
- (E) The only harm that has resulted from operation of existing coal-and oil-burning power plants has resulted from the pollution generated by these plants.

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## SECTION 4

Time: 30 Minutes

30 Questions

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### Questions 1-7

A museum will display seven statues— P, Q, R, S, T, U, and W— in two of its galleries, gallery 1 and gallery 2. Exactly four of the statues will be displayed in gallery 1 and exactly three of the statues will be displayed in gallery 2. The statues will be displayed according to the following conditions:

U cannot be displayed in a gallery with W Neither S nor T can be displayed in a gallery with R.

---

**1. If U is displayed in gallery 2, which of the following must be true?**

- (A) P is displayed in gallery 1.
  - (B) R is displayed in gallery 2.
  - (C) S is displayed in gallery 1.
  - (D) T is displayed in gallery 2.
  - (E) W is displayed in gallery 1.
- 

**2. If S is displayed in gallery 2, the other two statues displayed in gallery 2 can be**

- (A) P and Q
- (B) P and T
- (C) Q and T
- (D) T and W

(E) U and W

---

**3. If P is displayed in gallery 1 and W is displayed in gallery 2, then the display in gallery 1 can include any of the following pairs of statues EXCEPT**

- (A) Q and R
  - (B) Q and T
  - (C) Q and U
  - (D) R and U
  - (E) S and T
- 

**4. If P and Q are displayed in gallery 1, which of the following is a statue that must also be displayed in gallery 1?**

- (A) R
  - (B) S
  - (C) T
  - (D) U
  - (E) W
- 

**5. If S is displayed in gallery 1, which of the following must be true?**

- (A) P is displayed in gallery 1.
  - (B) Q is displayed in gallery 1.
  - (C) R and U are displayed in the same gallery as each other.
  - (D) P and Q are not displayed in the same gallery as each other.
  - (E) Q and R are not displayed in the same gallery as each other.
- 

**6. If T is displayed in gallery 2, which of the following is a pair of statues that CANNOT be displayed in the same gallery as each other?**

- (A) P and S
  - (B) Q and R
  - (C) Q and W
  - (D) R and U
  - (E) T and W
- 

**7. If Q is displayed in the same gallery as S. Which of the following must be true?**

- (A) P is displayed in gallery 1.
  - (B) R is displayed in gallery 2.
  - (C) Q and S are displayed in gallery 2.
  - (D) P is displayed in the same gallery as W.
  - (E) R is displayed in the same gallery as U.
- 

**8. Drug manufacturer:** Although our company requires that patients who use our new drug also purchase from us nonreusable kits for weekly blood testing, the expense of those kits is an entirely necessary one: weekly blood testing must be done to monitor the drug's potential side effects, which can be very dangerous.

**Which of the following, if true, most seriously weakens the manufacturer's argument?**

- (A) The expense of purchasing the blood-test kits has not prevented any patients from obtaining them or the drug.
  - (B) Medical laboratories can perform the blood testing at a lower cost to patients or their insurers than the price the manufacturer charges for the kits.
  - (C) A one-year supply of the drug and the weekly blood-test kits can cost patients or their insurers over \$10,000.
  - (D) Most government and other health insurance programs will not reimburse patients for the full cost of both the drug and the blood-test kits.
  - (E) Patients who suffer one or more of the dangerous side effects of the drug can incur heavy expenses for the treatment of those side effects.
- 

**9. Virginia and her brother William disagree over when their father was born: Virginia claims it was in 1935 and William claims it was in 1933. The hospital where their father was born has no records for 1933 but has complete records for 1935—records that do not include a birth record for their father. Therefore, he must have been born in 1933.**

**The argument depends on which of the following assumptions?**

- (A) Either Virginia's claim or William's claim is correct.
  - (B) The records of the hospital where their father was born date back to 1933.
  - (C) Virginia and William know the day and the month of their father's birth.
  - (D) There are urgent practical reasons why Virginia and William must know the date of their father's birth.
  - (E) None of their other relatives knows the year in which Virginia and William's father was born.
- 

## **10. RESULTS OF TWO SURVEYS OF OPINIONS REGARDING THE EFFECTS OF SCIENCE ON HUMAN SOCIETY**

**A table shows survey responses for August 1991 and August 1992.**

**- Mostly beneficial: 25% (1991) → 81% (1992)**

- Equally harmful and beneficial: 37% (1991) → 9% (1992)
- Mostly harmful: 20% (1991) → 7% (1992)
- No opinion: 18% (1991) → 3% (1992)

**Which of the following, if true, contributes most to explaining the shift in opinions about the effects of science on human society?**

- (A) The surveys questioned people who regularly watch prime-time television, and an innovative weekly prime-time television series called "Wonders of Science" had been steadily winning viewers since its widely seen premiere in January 1992.
- (B) The surveys questioned college-educated adults, and a report called "The State of the Nation's Schools," published in June 1992, noted an increase in students' interest in science courses since 1982.
- (C) The surveys were conducted in a suburban shopping area near a company that ceased operation in April 1992 as a result of lawsuits arising from unexpected toxic effects of the company's products.
- (D) Both survey forms were mailed to equally large samples of the population; after returning the 1991 survey forms, respondents were sent discount coupons for food products, and after returning the 1992 survey forms, respondents were sent a pamphlet on recycling.
- (E) The surveys questioned first-year college students across the country, and the people who did the questioning were all research scientists.

### Questions 11-17

A science reporter will make a trip to visit exactly six archaeological sites—Quin, Ram, Sud, Tunin, Vara, and Xilat. The reporter must visit the sites one at a time in accordance with the following conditions:

- The reporter visits each site exactly once.
- The reporter's trip begins at Quin or else at Xilat.
- The reporter's trip ends at Vara or else at Xilat.
- The reporter visits Vara immediately after visiting Sud.
- The reporter visits Sud at some time after visiting Ram.

**11. Which of the following is a list of the sites in an order in which the reporter can visit them, from the first site visited to the last site visited?**

- (A) Quin, Ram, Sud, Vara, Xilat, Tunin
- (B) Quin, Sud, Vara, Tunin, Ram, Xilat
- (C) Ram, Sud, Vara, Tunin, Quin, Xilat
- (D) Xilat, Ram, Sud, Tunin, Quin, Vara
- (E) Xilat, Tunin, Ram, Quin, Sud, Vara

**12. If Sud is visited immediately after Quin is visited, which of the following can**

be the second site visited?

- (A) Quin
- (B) Sud
- (C) Tunin
- (D) Vara
- (E) Xilat

---

**13. If Tunin is visited as late in the trip as possible, which of the following must be the third site visited?**

- (A) Quin
- (B) Ram
- (C) Sud
- (D) Vara
- (E) Xilat

---

**14. If Tunin is visited before Xilat is visited and if exactly one site is visited between the visit to Tunin and the visit to Xilat, which of the following must be true?**

- (A) Quin is visited second.
- (B) Ram is visited third.
- (C) Sud is visited fourth.
- (D) Vara is visited fifth.
- (E) Xilat is visited sixth.

---

**15. If Xilat is visited immediately after Ram is visited. Which of the following must be true?**

- (A) Quin is visited at some time after Tunin is visited.
- (B) Ram is visited at some time after Quin is visited.
- (C) Tunin is visited at some time after Ram is visited.
- (D) Tunin is visited at some time after Sud is visited.
- (E) Xilat is visited at some time after Sud is visited.

---

**16. If Ram is the fourth site visited, which of the following must be true?**

- (A) Quin is the first site visited.
- (B) Tunin is the second site visited.
- (C) Tunin is the third site visited.
- (D) Vara is the sixth site visited.
- (E) Xilat is the sixth site visited.



---

**17. Which of the following can be true?**

- (A) Quin is the fifth site visited.
- (B) Ram is the fifth site visited.
- (C) Sud is the second site visited.
- (D) Xilat is the second site visited.
- (E) Xilat is the fifth site visited.

---

**Questions 18-22**

Eight representatives—Gold, Herrera, Jones, Karami, Lowell, Nakamura, Orson, and Porter—will be scheduled to present information at four project meetings: W, X, Y and Z. Each representative will be scheduled for exactly one meeting, and at least one representative will be scheduled for each meeting. The meetings will be held one at a time, one after another. The order of the meetings and the schedule of representatives for the meetings must meet the following conditions:

Meeting W is held first, and exactly three representatives are scheduled for it.

Meeting X is held at some time before meeting Y.

Gold and Herrera are both scheduled for meeting X.

Karami is scheduled for meeting Z.

Orson is scheduled for the same meeting as Porter.

---

**18. If the meetings are scheduled in the order W, X, Y, Z, which of the following can be the schedule of representatives for the meetings?**

- (A) W=G,H,J, X=L,N, Y=O,P, Z=K
- (B) W=J,L, X=G,H, Y=O,P, Z=K,N
- (C) W=J,L,N, X=G,H,O, Y=P, Z=K
- (D) W=J,L,N, X=G,H, Y=O,P, Z=K
- (E) W=J,L, X=G,H, Y=O,P, Z=K,N

---

**19. If Orson is scheduled for meeting Y, which of the following can be true?**

- (A) Gold is scheduled for the same meeting as Jones.
  - (B) Herrera is scheduled for the same meeting as Lowell.
  - (C) Jones is scheduled for the second meeting.
  - (D) Karami is scheduled for the third meeting.
  - (E) Lowell is scheduled for the fourth meeting.
-

**20. If Gold and Jones are both scheduled for the third meeting, which of the following must be true?**

- (A) Herrera is scheduled for the first meeting.
  - (B) Lowell is scheduled for the first meeting.
  - (C) Porter is scheduled for the first meeting.
  - (D) Karami is scheduled for the same meeting as Nakamura.
  - (E) Lowell is scheduled for the same meeting as Nakamura.
- 

**21. If Nakamura is scheduled for the third meeting and Karami is scheduled for the fourth meeting, which of the following must be true?**

- (A) Herrera is scheduled for the second meeting.
  - (B) Jones is scheduled for the second meeting.
  - (C) Lowell is scheduled for meeting Y.
  - (D) Nakamura is scheduled for meeting Z.
  - (E) Porter is scheduled for meeting Y.
- 

**22. If no other representative is scheduled for the meeting for which Jones is scheduled, any of the following can be true EXCEPT:**

- (A) Jones is scheduled for the third meeting.
  - (B) Lowell is scheduled for the second meeting.
  - (C) Nakamura is scheduled for the fourth meeting.
  - (D) Lowell is scheduled for meeting Z.
  - (E) Nakamura is scheduled for meeting Y.
- 

**23. The town of San Leonardo has recently enacted a law banning smoking in all restaurants within town limits. Since many smokers who normally dine in San Leonardo's restaurants will not want to refrain from smoking during their meals, San Leonardo's restaurants will undoubtedly lose many patrons and considerable income.**

**Which of the following, if true, most helps to strengthen the argument above?**

- (A) Most residents of San Leonardo who eat in restaurants are not smokers.
- (B) Most smokers who dine in the company of non-smokers are willing to refrain from smoking during their meals.
- (C) If the law banning smoking in restaurants had not been enacted, it is likely that a more stringent law banning smoking in all public places in San Leonardo would have been enacted instead.
- (D) Prior to the enactment of the law banning smoking in San Leonardo's restaurant, the town had a law that required most restaurants to have nonsmoking sections.

(E) None of the other communities adjacent to San Leonardo, which have restaurants comparable to those of San Leonardo, has enacted and enforces any antismoking legislation.

---

**24. Children whose biological parents both have Tic Syndrome Z (TSZ), which is characterized by the involuntary contraction of certain muscles, are about four times more likely to develop such contractions than are children whose biological parents do not have TSZ. It is likely, therefore, that predisposition to TSZ is an inherited trait.**

**Which of the following, if true, would most strengthen the conclusion above?**

- (A) Children whose parents have TSZ are more likely to develop TSZ if they are under unusual stress at school or at home than if they are not under such stress.
  - (B) Children whose biological parents do not have TSZ are more likely to develop TSZ if they are raised by adoptive parents with TSZ than if they are raised by their biological parents.
  - (C) Children whose biological parents have TSZ are as likely to develop TSZ if they are raised by adoptive parents who do not have TSZ as if they are raised by their biological parents.
  - (D) Children whose biological parents have TSZ and who develop TSZ usually avoid developing a severe form of the syndrome if they seek treatment for TSZ shortly after developing the first signs of it.
  - (E) Children with TSZ whose biological parents do not have TSZ are less likely to have the syndrome diagnosed when symptoms first appear than are children with TSZ whose biological parents have TSZ.
- 

**25. Playing eighteenth-century music on the instruments of that period provides valuable information about how the music originally sounded. Eighteenth-century instruments cannot be played without being restored, however, and restoring such an instrument destroys all of the information that researchers could obtain from it about eighteenth-century instrument-making techniques.**

**If the statements above are true, which of the following must be true on the basis of them?**

- (A) Eighteenth-century instruments cannot be used to provide information about the original techniques used in playing such instruments if they have been restored.
  - (B) Eighteenth-century instruments that have been restored can provide information only about how eighteenth-century music originally sounded.
  - (C) Eighteenth-century instruments are the only source of information about the instrument-making techniques of that period.
  - (D) An eighteenth-century instrument that has not been restored can provide more information than can one that has been restored.
  - (E) An eighteenth-century instrument cannot serve as a source of new information about eighteenth-century instrument-making techniques once it can be played.
- 

## SECTION 5

Time: 30 Minutes

30 Questions

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1. To the nearest hundredth,  $\pi = 3.14$  and  $\sqrt{10} = 3.16$

Column A	Column B
$\pi^2$	10

---

2. A marble is to be drawn at random from a bag that contains 2 yellow marbles, 4 blue marbles, 6 green marbles, and no other marbles.

Column A	Column B
The probability that the marble drawn will be green	The probability that the marble drawn will be yellow or blue

---

3. 

Column A	Column B
$250 - \frac{1}{3}$	$250 - \frac{1}{2}$
- 

4.  $x + y + n = 15$

$$x + y + k = 9$$

Column A	Column B
$n - k$	6

---

5. In the rectangular coordinate system, line  $k$  passes through the points (0,0) and (4,8); line  $m$  passes through the points (0,1) and (4,9).

Column A	Column B
The slope of line $k$	The slope of line $m$

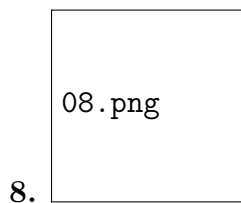
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6. The vertices of an equilateral triangle are on a circle.

Column A	Column B
The length of a side of the triangle	The diameter of the circle

---

- |    |                            |                  |
|----|----------------------------|------------------|
| 7. | Column A<br>$\frac{1}{11}$ | Column B<br>0.09 |
|----|----------------------------|------------------|



$\triangle XQY$  and  $\triangle ZYR$  are equilateral triangles, and the ratio of ZR to PR is 1 to 4.

- |  |   |
|--|---|
| Column A<br>The perimeter of $\triangle XQY$ | Column B<br>The perimeter of parallelogram PXYZ |
|--|---|

- 
- |    |                     |                        |
|----|---------------------|------------------------|
| 9. | Column A<br>$x + y$ | Column B<br>$2(x + y)$ |
|----|---------------------|------------------------|

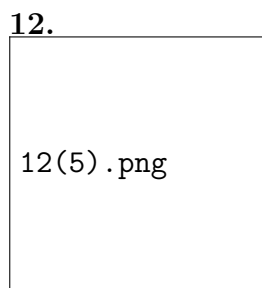
---

10. In a certain store, computer X costs 30 percent more than computer Y, and computer Y costs 30 percent more than computer Z.

- |  |  |
|--|--|
| Column A<br>The cost of computer X minus the cost of computer Y. | Column B<br>The cost of computer Y minus the cost of computer Z. |
|--|--|

- 
11.  $x^2y < 0$

- |                  |               |
|------------------|---------------|
| Column A<br>$xy$ | Column B<br>0 |
|------------------|---------------|



Column A	Column B
$y$	$4x$

---

13.  $m$  is a positive integer less than 4.

Column A	Column B
$(m + 2)^m$	$m^{m+2}$

---

14.  $\frac{1-x}{x-1} = \frac{1}{x}$   
 $x \neq 1$

Column A	Column B
$x$	$-\frac{1}{2}$

---

15. The median of 10, 15,  $x$  and  $y$  is 18.5, and  $x < y$ .

Column A	Column B
$x$	22

---

16. The cost, in dollars, for an appliance repair at a certain company is  $1.2p + 20h$ , where  $p$  is the wholesale price of the parts, in dollars, and  $h$  is the number of hours it takes to repair the appliance. What is the cost of repairing an appliance if the wholesale price of the parts is \$15 and it takes 2 hours to repair it?

- (A) \$12
- (B) \$18
- (C) \$20
- (D) \$40
- (E) \$58

---

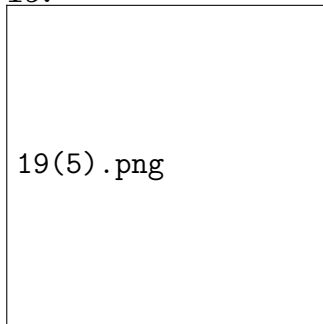
17. For what value of  $x$  will  $8 + (x - 3)^2$  have the least value?

- (A) -3
  - (B) 0
  - (C) 3
  - (D) 5
  - (E) 8
-

18. How many integers from 3 to 30, inclusive, are odd?

- (A) 13
  - (B) 14
  - (C) 15
  - (D) 16
  - (E) 17
- 

19.



In the figure above, ABCE is a square. What are the coordinates of point B?

- (A) (-4,2)
  - (B) (-2,4)
  - (C) (-2,6)
  - (D) (4,-6)
  - (E) (6,-2)
- 

20.  $3.7(10^7) =$

- (A) 370,000
  - (B) 3,700,000
  - (C) 37,000,000
  - (D) 370,000,000
  - (E) 3,700,000,000
- 

Questions 21-25 refer to the following graph.

21-25.png

---

**21. For how many of the years shown after 1950 was there a decrease from the previous year in the number of registered cars?**

- (A) Nine
- (B) Eight
- (C) Seven
- (D) Six
- (E) Five

---

**22. The ratio of the population per registered car in 1985 to that in 1975 was most nearly**

- (A) 0.55
- (B) 0.65
- (C) 0.75
- (D) 0.85
- (E) 0.95

---

**23. From 1972 to 1985, the percent increase in the number of registered cars was most nearly**

- (A) 60%
  - (B) 50%
  - (C) 45%
  - (D) 35%
  - (E) 15%
-



24. From 1950 to 1985, the population of Country X increased by approximately how many million people?

- (A) 45
  - (B) 80
  - (C) 165
  - (D) 200
  - (E) It cannot be determined from the information given.
- 

25. If the number of registered cars were to increase yearly through the year 2000 at the same average annual rate shown for the period 1981-1985, for which of the following years would the number of registered cars be closest to 76 million?

- (A) 1995
  - (B) 1996
  - (C) 1997
  - (D) 1998
  - (E) 1999
- 

26. A rectangular field is 400 feet long and 300 feet wide. If a square field has the same perimeter as the rectangular field, what is the length, in feet, of each side of the square field?

- (A) 175
  - (B) 350
  - (C)  $200\sqrt{2}$
  - (D)  $350\sqrt{2}$
  - (E)  $100\sqrt{3}$
- 

27. The expressions in the table above give the distance of each of two trains from Centerville at  $t$  hours after 12:00 noon. At what time will the trains be equidistant from Centerville?

**Freight Train:**  $-10t + 115$

**Passenger Train:**  $-20t + 150$

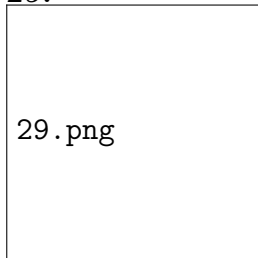
- (A) 1:30 p.m.
  - (B) 3:30 p.m.
  - (C) 5:10 p.m.
  - (D) 8:50 p.m.
  - (E) 11:30 p.m.
-

28. In 1982, if the 1.8 billion dollars collected as child support payments was only 10 percent of the total court-ordered payments due, approximately how many billion dollars of court-ordered payments for child support were not collected?

- (A) 1.6
- (B) 14.4
- (C) 16.2
- (D) 17.2
- (E) 18.0

---

29.



If each shaded circular region in the figure above has radius 5, then the total area of the shaded regions is what fraction of the area of the square region?

- (A)  $\frac{\pi}{12}$
- (B)  $\frac{\pi}{36}$
- (C)  $\frac{\pi}{60}$
- (D)  $\frac{1}{6}$
- (E)  $\frac{1}{3}$

---

30. If  $\frac{1}{4x} + \frac{1}{y} = \frac{1}{3}(\frac{1}{x} + \frac{1}{y})$ , what is the ratio of x to y?

**Note:** The OCR from the scanned image is ambiguous. This solution assumes the most likely intended equation is with plus signs, as this leads to one of the answer choices.

- (A) 3 to 4
- (B) 2 to 3
- (C) 1 to 2
- (D) 1 to 8
- (E) 1 to 9

---

## SECTION 6

Time: 30 Minutes

38 Questions

---

**1. Some activists believe that because the health-care system has become increasingly — to those it serves, individuals must — bureaucratic impediments in order to develop and promote new therapies.**

- (A) attuned.. avoid
  - (B) inimical.. utilize
  - (C) unresponsive.. circumvent
  - (D) indifferent.. supplement
  - (E) sensitized.. forsake
- 

**2. The acts of vandalism that these pranksters had actually — were insignificant compared with those they had — but had not attempted.**

- (A) hidden.. renounced
  - (B) advocated.. meditated
  - (C) inflicted.. dismissed
  - (D) committed.. effected
  - (E) perpetrated.. contemplated
- 

**3. Though one cannot say that Michelangelo was an impractical designer, he was, of all nonprofessional architects known, the most — in that he was the least constrained by tradition or precedent.**

- (A) pragmatic
  - (B) adventurous
  - (C) empirical
  - (D) skilled
  - (E) learned
- 

**4. Before adapting to changes in values, many prefer to —, to — the universally agreed-on principles that have been upheld for centuries.**

- (A) innovate.. protect
  - (B) resist.. defend
  - (C) ponder.. subvert
  - (D) vacillate.. publicize
  - (E) revert.. ignore
- 

**5. Although the records of colonial New England are — in comparison with those available in France or England, the records of other English colonies in America are even more —.**

- (A) sporadic.. irrefutable
  - (B) sparse.. incontrovertible
  - (C) ambiguous.. authoritative
  - (D) sketchy.. fragmentary
  - (E) puzzling.. unquestionable
- 

**6. High software prices are frequently said to —- widespread illegal copying, although the opposite —- that high prices are the cause of the copying – is equally plausible.**

- (A) contribute to
  - (B) result from
  - (C) correlate with
  - (D) explain
  - (E) precede
- 

**7. Because early United States writers thought that the mark of great literature was grandiosity and elegance not to be found in common speech, they —- the vernacular.**

- (A) dissected
  - (B) avoided
  - (C) misunderstood
  - (D) investigated
  - (E) exploited
- 

**8. OBSTRUCT: PROGRESS::**

- (A) reveal: information
  - (B) polish: illumination
  - (C) implicate: guilt
  - (D) inspire: artistry
  - (E) stunt: growth
- 

**9. INTERVIEW: APPLICANT::**

- (A) recital: pianist
- (B) exercise: athlete
- (C) audition: actor
- (D) manuscript: writer
- (E) flight plan: pilot

---

**10. COMBUSTIBLE: IGNITE::**

- (A) impermeable: saturate
- (B) impenetrable: pierce
- (C) malleable: shape
- (D) rigid: stretch
- (E) sterile: extract

---

**11. SLACKEN: TENSION::**

- (A) rarefy: expansion
- (B) blunt: sharpness
- (C) obscure: cloudiness
- (D) quicken: animation
- (E) oscillate: rotation

---

**12. BIGOT: TOLERANCE::**

- (A) scoundrel: misdeed
- (B) liar: honesty
- (C) brat: annoyance
- (D) outcast: respect
- (E) snitch: information

---

**13. IMPROVEMENTS: MASTERY::**

- (A) efforts: exertion
- (B) savings: wealth
- (C) performance: talent
- (D) practice: intention
- (E) diversification: proficiency

---

**14. DILETTANTE: SUPERFICIALITY::**

- (A) partisan: bias
- (B) crusader: passivity
- (C) libertarian: authority
- (D) champion: restlessness
- (E) sage: argumentativeness

---

**15. WINNOW: CHAFF::**

- (A) ferment: alcohol
- (B) skim: cream
- (C) pare: fruit
- (D) refine: oil
- (E) filter: impurities

---

**16. STANZA: LINE::**

- (A) essay: theme
- (B) scene: monologue
- (C) play: vignette
- (D) volume: issue
- (E) concert: program

---

Questions 17-23 refer to the passage below.

(This passage is adapted from an article published in 1981.)

The term "remote sensing" refers to the techniques of measurement and interpretation of phenomena from a distance. Prior to the mid-1960's the interpretation of film images was the primary means for remote sensing of the Earth's geologic features. With the development of the optomechanical scanner, scientists began to construct digital multispectral images using data beyond the sensitivity range of visible light photography. These images are constructed by mechanically aligning pictorial representations of such phenomena as the reflection of light waves outside the visible spectrum, the refraction of radio waves, and the daily changes in temperature in areas on the Earth's surface. Digital multispectral imaging has now become the basic tool in geologic remote sensing from satellites.

The advantage of digital over photographic imaging is evident: the resulting numerical data are precisely known, and digital data are not subject to the vagaries of difficult-to-control chemical processing. With digital processing, it is possible to combine a large number of spectral images. The acquisition of the first multispectral digital data set from the multispectral scanner (MSS) aboard the satellite Landsat in 1972 consequently attracted the attention of the entire geologic community. Landsat MSS data are now being applied to a variety of geologic problems that are difficult to solve by conventional methods alone. These include specific problems in mineral and energy resource exploration and the charting of glaciers and shallow seas.

A more fundamental application of remote sensing is to augment conventional methods for geologic mapping of large areas. Regional maps present compositional, structural, and chronological information for reconstructing geologic evolution. Such reconstructions have important practical applications because the conditions under which rock units and other structural features are formed influence the occurrence of ore and petroleum deposits and affect the thickness and integrity of the geologic media in which the deposits are found.

Geologic maps incorporate a large, varied body of specific field and laboratory measurements, but the maps must be interpretative because field measurements are always limited by rock exposure, accessibility and labor resources. With remote-sensing techniques it is possible to obtain much geologic information more efficiently than it can be obtained on the ground. These techniques also facilitate overall interpretation. Since detailed geologic mapping is generally conducted in small areas, the continuity of regional features that have intermittent and variable expressions is often not recognized, but in the comprehensive views of Landsat images these continuities are apparent. However, some critical information cannot be obtained through remote sensing, and several characteristics of the Landsat MSS impose limitations on the acquisition of diagnostic data. Some of these limitations can be overcome by designing satellite systems specifically for geologic purposes; but, to be most effective, remote-sensing data must still be combined with data from field surveys and laboratory tests, the techniques of the earlier twentieth century.

---

17. By using the word "interpretative" in line 40, the author is indicating which of the following?

- (A) Some maps are based more on data from aerial photography than on data from field operations.
- (B) Some maps are based almost exclusively on laboratory measurements.
- (C) Some maps are based on incomplete data from field observations.
- (D) Some maps show only large geologic features.
- (E) Some maps can be three-dimensional.

---

18. With which of the following statements about geologic mapping would the author be most likely to agree?

- (A) Geologic mapping is basically an art and not a science.
- (B) Geologic mapping has not changed significantly since the early 1960's.
- (C) Geologic mapping will have limited practical applications until remote-sensing systems are perfected.
- (D) A developmental milestone in geologic mapping was reached in 1972.
- (E) Without the present variety of remote-sensing techniques, geologic mapping could not be done.

---

**19. According to the passage, measurements of which of the following can be provided by the optomechanical scanner but not by visible-light photography?**

- (A) The amount of visible light reflected from oceans
- (B) The density of foliage in remote areas on the Earth's surface
- (C) Daily temperature changes of areas on the Earth's surface
- (D) The degree of radioactivity emitted by exposed rocks on the Earth's surface
- (E) Atmospheric conditions over large landmasses

---

**20. It can be inferred from the passage that a major disadvantage of photographic imaging in geologic mapping is that such photography**

- (A) cannot be used at night
- (B) cannot focus on the details of a geologic area
- (C) must be chemically processed
- (D) is always enhanced by digital reconstruction
- (E) cannot reflect changes over extended periods of time

---

**Questions 24-25 refer to the passage below.**

Although the development of new infrastructure (such public facilities as power plants, schools, and bridges) is usually determined by governmental planning, sometimes this development can be planned more flexibly and realistically by private investors who anticipate profit from the collection of user fees. Such profits can contribute to the financing of more infrastructure if demand proves great enough, whereas the reluctance of developers to invest in such projects can signal that additional infrastructure is not needed. During the economic boom of the 1980's, for example, the state of Virginia authorized private developers to build a \$300 million toll road. These developers obtained the needed right-of-way from property owners, but by 1993 they still had not raised the necessary financing. The unwillingness of investors to finance this project does not negate the viability of privately financed roads; rather, it illustrates a virtue of private financing. If a road appears unlikely to attract enough future traffic to pay for the road, then it should not be built.

---

**24. The primary purpose of the passage is to**

- (A) build a case for increasing the development of new infrastructure
  - (B) advocate an alternative to government financing of infrastructure
  - (C) explain the failure of a privately financed venture
  - (D) suggest the types of infrastructure most appropriate for private financing
  - (E) argue against government restrictions on developing new infrastructure
-



**25. The passage implies that the "governmental planning" mentioned in line 3 may lead to which of the following problems?**

- (A) Improper use of profits derived from user fees
  - (B) Unduly slow development of necessary new infrastructure
  - (C) Unrealistic decisions about developing new infrastructure
  - (D) Incorrect predictions about profits to be gained from user fees
  - (E) Obstruction of private financing for the development of new infrastructure
- 

**Questions 26-27 refer to the passage below.**

The passage advocates for the private financing of public infrastructure, arguing that it can be more flexible and realistic than government planning. The core idea is that private investors, driven by the anticipation of profit from user fees, provide a natural market test for new projects. If investors are willing to finance a project (like a toll road), it suggests there is sufficient demand. Conversely, if they are reluctant, it signals that the project may not be needed. The passage uses the example of a privately authorized toll road in Virginia during the 1980s that failed to secure financing by 1993. The author presents this failure not as a weakness of private financing, but as a "virtue": it prevented a road from being built that was unlikely to attract enough traffic to be profitable.

---

**26. According to the passage, which of the following is true of the toll road mentioned in line 12?**

- (A) After it was built, it attracted too little traffic to pay for its construction.
  - (B) It was partially financed by the state of Virginia.
  - (C) Its development was authorized during an economic boom.
  - (D) Its construction was controversial among local residents.
  - (E) Its developers were discouraged by governmental restrictions on acquiring the necessary land.
- 

**27. The passage suggests that which of the following would occur if a privately financed bridge that proved to be profitable failed after a number of years to meet the demands of traffic?**

- (A) Private developers who financed the bridge would rely on governmental authorities to develop new infrastructure.
- (B) User fees would be increased so that usage would become more costly.
- (C) Governmental authorities would be reluctant to rely on private contractors to develop a new bridge.
- (D) The success of the project would be jeopardized by public dissatisfaction with the project's adequacy.
- (E) Profits generated by user fees would be used to help finance the construction of new infrastructure to alleviate the traffic problem.

---

**28. EVOKE:**

- (A) try to hinder
- (B) fail to elicit
- (C) refuse to implore
- (D) pretend to agree
- (E) attempt to calm

---

**29. OSTENTATION:**

- (A) austerity
- (B) wisdom
- (C) illumination
- (D) superficiality
- (E) agitation

---

**30. BRISTLE:**

- (A) cower
- (B) feint
- (C) equivocate
- (D) coerce
- (E) apprise

---

**31. AGGRANDIZE:**

- (A) conciliate
- (B) undermine
- (C) relegate
- (D) remain unapologetic
- (E) remain inexplicit

---

**32. ENDEMIC:**

- (A) undeniable
- (B) intermittent
- (C) anomalous
- (D) foreign
- (E) unexpected

---

**33. BELLICOSE:**

- (A) enervated
- (B) disloyal
- (C) honest
- (D) likely to be generous
- (E) inclined to make peace

---

**34. ABJURE:**

- (A) affirm
- (B) cajole
- (C) insist
- (D) pronounce
- (E) shout

---

**35. SALUTARY:**

- (A) unexpected
- (B) transitory
- (C) unhealthy
- (D) disoriented
- (E) dilapidated

---

**36. LUGUBRIOUSNESS:**

- (A) orderliness
- (B) shallowness
- (C) believability
- (D) cheerfulness
- (E) dedication

---

**37. PRESCIENCE:**

- (A) acuity
- (B) myopia
- (C) vacillation
- (D) tardiness
- (E) inhibition

---

**38. INVETERATE:**

- (A) arbitrary
  - (B) occasional
  - (C) obvious
  - (D) progressive
  - (E) compelling
-