

## SECTION 1

Time –30 minutes

18 Questions

1. While many Russian composers of the nineteenth century contributed to an emerging national style, other composers did not---- idiomatic Russian musical elements, ---- instead the traditional musical vocabulary of Western European Romanticism.
- (A) utilize ..rejecting  
 (B) incorporate.. preferring  
 (C) exclude.. avoiding  
 (D) repudiate.. expanding  
 (E) esteem.. disdaining
2. Because the painter Albert Pinkham Ryder was obsessed with his ----perfection, he was rarely ----a painting, creating endless variations of a scene on one canvas, one on top of another.
- (A) quest for.. satisfied with  
 (B) insistence on .. displeased with  
 (C) contempt for.. disconcerted by  
 (D) alienation from.. immersed in  
 (E) need for.. concerned with
3. Objectively set standards can serve as a ----for physicians, providing them ----unjustified malpractice claims.
- (A) trial.. evidence of  
 (B) model.. experience with  
 (C) criterion.. reasons for  
 (D) test.. questions about  
 (E) safeguard.. protection from
4. In spite of ----reviews in the press, the production of her play was ----almost certain oblivion by enthusiastic audiences whose acumen was greater than that of the critics.
- (A) lukewarm.. condemned to  
 (B) scathing.. exposed to  
 (C) lackluster.. rescued from  
 (D) sensitive.. reduced to  
 (E) admiring.. insured against
5. The passions of love and pride are often found in the same individual, but having little in common, they mutually ----, not to say destroy, each other.
- (A) reinforce  
 (B) annihilate  
 (C) enhance  
 (D) weaken  
 (E) embrace
6. The necessity of establishing discrete categories for observations frequently leads to attempts to make absolute ----when there are in reality only----.
- (A) analyses.. hypotheses  
 (B) correlations.. digressions  
 (C) distinctions.. gradations  
 (D) complications.. ambiguities  
 (E) conjectures.. approximations
7. A unique clay disk found at the Minoan site of Phaistos is often ----as the earliest example of printing by scholars who have defended its claim to this status despite equivalent claims put forward for other printing artifacts.
- (A) questioned  
 (B) overlooked  
 (C) adduced  
 (D) conceded  
 (E) dismissed
8. EXEMPT: LIABILITY::
- (A) flout: authority  
 (B) bestow: reward  
 (C) permit: request  
 (D) restrain: disorder  
 (E) pardon: penalty
9. FULL-BODIED: FLAVOR::
- (A) penetrating: vision  
 (B) humorous: character  
 (C) salacious: language  
 (D) nostalgic: feeling  
 (E) resonant: sound

## 10. LEGACY: PREDECESSOR::

- (A) gift: donor
- (B) gratuity: service
- (C) contribution: charity
- (D) receipt: customer
- (E) loan: collector

## 11. HERO: ADMIRABLE::

- (A) critic: capricious
- (B) braggart: surly
- (C) eccentric: unconventional
- (D) anarchist: powerful
- (E) enemy: immoral

## 12. GALVANIZE: STIMULATE::

- (A) agitate: occlude
- (B) incubate: humidify
- (C) sterilize: separate
- (D) irrigate: flush
- (E) purify: amalgamate

## 13. MANIFEST: PERCEIVE::

- (A) porous: tear
- (B) renovated: improve
- (C) doubtful: assess
- (D) brittle: break
- (E) elite: qualify

## 14. LOOSE: CONFINEMENT::

- (A) forgive: injury
- (B) promulgate: rule
- (C) disabuse: misconception
- (D) redress: allegation
- (E) disengage: independence

## 15. BLANDISHMENT: COAX::

- (A) prevarication: deceive
- (B) reverie: dream
- (C) persuasion: coerce
- (D) enticement: impoverish
- (E) explanation: mislead

## 16. CONVULSION: CONTRACTION::

- (A) aggression: attack
- (B) sulkiness: punishment

(C) persistence: acquiescence

(D) frenzy: emotion

(E) indifference: greeting

Much of the research on hallucinogenic drugs such as LSD has focused on the neurotransmitter serotonin, a chemical that when released from a presynaptic serotonin-secreting neuron causes the transmission of

- (5) a nerve impulse across a synapse to an adjacent postsynaptic, or target, neuron. There are two major reasons for this emphasis. First, it was discovered early on that many of the major hallucinogens have a molecular structure similar to that of serotonin. In (10) addition, animal studies of brain neurochemistry following administration of hallucinogens invariably reported changes in serotonin levels.

- Early investigators correctly reasoned that the structural similarity to the serotonin molecule might (15) imply that LSD's effects are brought about by an action on the neurotransmission of serotonin in the brain. Unfortunately, the level of technical expertise in the field of brain research was such that this hypothesis had to be tested on peripheral tissue (20) (tissue outside the brain). Two different groups of scientists reported that LSD powerfully blocked serotonin's action. Their conclusions were quickly challenged, however. We now know that the action of a drug at one site in the body does not necessarily (25) correspond to the drug's action at another site, especially when one site is in the brain and the other is not.

- By the 1960's, technical advances permitted the direct testing of the hypothesis that LSD and related (30) hallucinogens act by directly suppressing the activity of serotonin-secreting neurons themselves—the so-called presynaptic hypothesis. Researchers reasoned that if the hallucinogenic drugs act by suppressing the activity of serotonin-secreting neurons, then drugs (35) administered after these neurons had been destroyed should have no effect on behavior, because the system would already be maximally suppressed. Contrary to their expectations, neuron destruction enhanced the effect of LSD and related hallucinogens (40) on behavior. Thus, hallucinogenic drugs apparently do not act directly on serotonin-secreting neurons.

However, these and other available data do support an alternative hypothesis, that LSD and related drugs act directly at receptor sites on serotonin target (45) neurons (the postsynaptic hypothesis). The fact that LSD elicits “serotonin syndrome”—that is, causes the same kinds of behaviors as does the administration of serotonin—in animals whose brains are depleted of serotonin indicates that LSD acts directly (50) on serotonin receptors, rather than indirectly through the release of stores of serotonin. The enhanced effect of LSD reported after serotonin depletion could be due to a proliferation of serotonin receptor sites on serotonin target neurons. This phenomenon often (55) follows neuron destruction or neurotransmitter depletion; the increase in the number of receptor sites appears to be a compensatory response to decreased input. Significantly, this hypothesis is supported by data from a number of different laboratories.

17. According to the passage, which of the following is one of the primary factors that led researchers studying hallucinogenic drugs to focus on serotonin?
- (A) The suppression of the activity of serotonin-secreting neurons by the administration of hallucinogens
- (B) The observed similarities in the chemical structures of serotonin and hallucinogens
- (C) The effects the administration of hallucinogens has on serotonin production in the human brain
- (D) Serotonin-induced changes in the effects of hallucinogens on behavior
- (E) Hallucinogen-induced changes in the effects of serotonin on behavior
18. It can be inferred that researchers abandoned the presynaptic hypothesis because
- (A) a new and more attractive hypothesis was suggested
- (B) no research was reported that supported the hypothesis
- (C) research results provided evidence to counter the hypothesis
- (D) the hypothesis was supported only by

studies of animals and not by studies of human beings

- (E) the level of technical expertise in the field of brain research did not permit adequate testing of the hypothesis
19. Which of the following best expresses the main idea of the passage?
- (A) Research has suggested that the neurotransmitter serotonin is responsible for the effects of hallucinogenic drugs on the brain and on behavior.
- (B) Researchers have spent an inadequate amount of time developing theories concerning the way in which the effects of hallucinogenic drugs occur.
- (C) Research results strongly suggest that hallucinogenic drugs create their effects by acting on the serotonin receptor sites located on target neurons in the brain.
- (D) Researchers have recently made valuable discoveries concerning the effects of depleting the amount of serotonin in the brain.
- (E) Researchers have concluded that hallucinogenic drugs suppress the activity of serotonin-secreting neurons.
20. The research described in the passage is primarily concerned with answering which of the following questions?
- (A) How can researchers control the effects that LSD has on behavior?
- (B) How are animals’ reactions to LSD different from those of human beings?
- (C) What triggers the effects that LSD has on human behavior?
- (D) What technical advances would permit researchers to predict more accurately the effects of LSD on behavior?
- (E) What relationship does the suppression of neuron activity have to the occurrence of “serotonin syndrome”?

21. Which of the following best defines “serotonin syndrome” (line 46) as the term is used in the passage?
- (A) The series of behaviors, usually associated with the administration of serotonin, that also occurs when LSD is administered to animals whose brains are depleted of serotonin
- (B) The series of behaviors, usually associated with the administration of LSD, that also occurs when the amount of serotonin in the brain is reduced
- (C) The maximal suppression of neuron activity that results from the destruction of serotonin-secreting neurons
- (D) The release of stores of serotonin from serotonin-secreting neurons in the brain
- (E) The proliferation of serotonin receptor sites that follows depletion of serotonin supplies in the brain
22. Which of the following best describes the organization of the argument that the author of the passage presents in the last two paragraphs?
- (A) Two approaches to testing a hypothesis are described, and the greater merits of one approach are indicated.
- (B) The assumptions underlying two hypotheses are outlined, and evidence for and against each hypothesis is discussed.
- (C) A phenomenon is described, and hypotheses concerning its occurrence are considered and rejected.
- (D) The reasoning behind a hypothesis is summarized, evidence supporting the hypothesis is presented, and research that counters the supporting evidence is described.
- (E) A hypothesis is discussed, evidence undermining the hypothesis is revealed, and a further hypothesis based on the undermining evidence is explained
23. The author’s attitude toward early researchers’ reasoning concerning the implications of similarities in the structures of serotonin and

- LSD molecules can best be described as one of
- (A) complete agreement
- (B) reluctant support
- (C) subtle condescension
- (D) irreverent dismissal
- (E) strong opposition

- When literary periods are defined on the basis of men’s writing, women’s writing must be forcibly assimilated into an irrelevant grid: a Renaissance that is not a renaissance for women, a Romantic period in
- (5) which women played very little part, a modernism with which women conflict. Simultaneously, the history of women’s writing has been suppressed, leaving large, mysterious gaps in accounts of the development of various genres. Feminist criticism is
- (10) beginning to correct this situation. Margaret Anne Doody, for example, suggests that during “the period between the death of Richardson and the appearance of the novels of Scott and Austen,” which has “been regarded as a dead period.” Late-eighteenth-century
- (15) women writers actually developed “the paradigm for women’s fiction of the nineteenth century—something hardly less than the paradigm of the nineteenth-century novel itself.” Feminist critics have also pointed out that the twentieth-century writer
- (20) Virginia Woolf belonged to a tradition other than modernism and that this tradition surfaces in her work precisely where criticism has hitherto found obscurities, evasions, implausibilities, and imperfections.
24. It can be inferred from the passage that the author views the division of literature into periods based on men’s writing as an approach that
- (A) makes distinctions among literary periods ambiguous
- (B) is appropriate for evaluating only premodern literature
- (C) was misunderstood until the advent of feminist criticism
- (D) provides a valuable basis from which feminist criticism has evolved
- (E) obscures women’s contributions to literature

25. The passage suggests which of the following about Virginia Woolf's work?

- . Nonfeminist criticism of it has been flawed.
- . Critics have treated it as part of modernism.
- . It is based on the work of late-eighteenth-century women writers.

- (A) only
- (B) only
- (C) and only
- (D) and only
- (E) , and

26. The author quotes Doody most probably in order to illustrate

- (A) a contribution that feminist criticism can make to literary criticism
- (B) a modernist approach that conflicts with women's writing
- (C) writing by a woman which had previously been ignored
- (D) the hitherto overlooked significance of Scott's and Austen's novels
- (E) a standard system of defining literary periods

27. The passage provides information that answers which of the following questions?

- (A) In what tradition do feminist critics usually place Virginia Woolf?
- (B) What are the main themes of women's fiction of the nineteenth century?
- (C) What events motivated the feminist reinterpretation of literary history?
- (D) How has the period between Richardson's death and Scott's and Ansten's novels traditionally been regarded by critics?
- (E) How was the development of the nineteenth-century novel affected by women's fiction in the same century?

28. GROUNDED:

- (A) attendant
- (B) flawless
- (C) effective
- (D) aloft
- (E) noteworthy

29. DISCHARGE:

- (A) retreat
- (B) hire
- (C) insist
- (D) circulate
- (E) pause

30. INTERMITTENT:

- (A) compatible
- (B) constant
- (C) neutral
- (D) unadulterated
- (E) indispensable

31. APT:

- (A) exceptionally ornate
- (B) patently absurd
- (C) singularly destructive
- (D) extremely inappropriate
- (E) fundamentally insensitive

32. JUSTIFY:

- (A) misjudge
- (B) ponder
- (C) terminate
- (D) argue against
- (E) select from

33. TEDIOUS:

- (A) intricate
- (B) straightforward
- (C) conspicuous
- (D) entertaining
- (E) prominent

34. INTEGRAL:

- (A) profuse
- (B) superfluous
- (C) meritorious
- (D) neutral
- (E) displaced

35. COWED:

- (A) unencumbered
- (B) untired

- (C) unversed
- (D) unworried
- (E) undaunted

36. CONCORD:

- (A) continuance
- (B) severance
- (C) dissension
- (D) complex relationship
- (E) unrealistic hypothesis

37. FRIABLE :

- (A) substantial
- (B) inflexible
- (C) easily contained
- (D) slow to accelerate
- (E) not easily crumbled

38. DERACINATE:

- (A) illuminate
- (B) quench
- (C) amplify
- (D) polish
- (E) plant

**SECTION 2**

Time –30 minutes

25 Questions

Questions 1-7

A developer is assigning six rectangular building lots in an industrial park to six companies—Handicorp, Instantype, Kleentek, Linostyle, Messagex, and Nanoware. Each company will be assigned a different one of the six lots, which are arranged in two blocks—block 700 and block 800. Each block includes three lots, numbered consecutively lot 1 through lot 3. Within each block, lot 1 is adjacent to lot 2 and lot 2 is adjacent to lot 3; no other lots are adjacent to each other. In assigning lots, the developer will obey the following restrictions:

Instantype's lot cannot be in the same block as

Linostyle's lot.

Linostyle's lot must be adjacent to Messagex' lot.

Messagex' lot cannot be lot 2 of either block.

Nanoware's lot cannot be adjacent to

Handicorp's lot.

1. Which of the following is an acceptable assignment of companies to block 700, listed from lot 1 through lot 3?

- (A) Instantype, Handicorp, Nanoware
- (B) Instantype, Linostyle, Messagex
- (C) Linostyle, Messagex, Kleentek
- (D) Messagex, Linostyle, Nanoware
- (E) Nanoware, Instantype, Messagex

2. If Messagex is assigned a lot in block 800, which of the following must be assigned a lot in block 700?

- (A) Handicorp
- (B) Instantype
- (C) Kleentek
- (D) Linostyle
- (E) Nanoware

3. If Handicorp and Nanoware are each assigned a lot in block 700, which of the following must be true?

- (A) Instantype is assigned lot 2 in block 700.  
 (B) Instantype is assigned lot 3 in block 700.  
 (C) Kleentek is assigned lot 1 in block 800.  
 (D) Linostyle is assigned lot 3 in block 800.  
 (E) Messagex is assigned lot 1 in block 800.
4. If Nanoware is assigned lot 2 in block 700, which of the following is a pair of companies that must be assigned lots that are adjacent to each other?  
 (A) Handicorp and Instantype  
 (B) Handicorp and Messagex  
 (C) Instantype and Kleentek  
 (D) Kleentek and Nanoware  
 (E) Messagex and Nanoware
5. If Kleentek is assigned lot 2 in block 800, which of the following can be true?  
 (A) Handicorp is assigned a lot that is adjacent to the lot assigned to Instantype.  
 (B) Messagex is assigned a lot that is adjacent to the lot assigned to Nanoware.  
 (C) Instantype is assigned a lot on block 700.  
 (D) Linostyle is assigned lot 1 on block 800.  
 (E) Messagex is assigned lot 1 on block 700.
6. If Instantype and Handicorp are assigned lots 1 and 2, respectively, in block 700, which of the following must be true?  
 (A) Kleentek is assigned lot 3 on block 700.  
 (B) Linostyle is assigned lot 3 on block 700.  
 (C) Messagex is assigned lot 1 on block 800.  
 (D) Nanoware is assigned lot 3 on block 700.  
 (E) Nanoware is assigned lot 1 on block 800.
7. If Linostyle and Kleentek are assigned lots that are on the same block as each other, which of the following must be true?  
 (A) Handicorp is assigned lot 2 of one of the blocks.  
 (B) Instantype is assigned lot 2 of one of the blocks.  
 (C) Kleentek is assigned lot 1 of one of the blocks.  
 (D) Linostyle is assigned lot 1 of one of the blocks.  
 (E) Messagex is assigned lot 3 of one of the blocks.
8. Auditor from Acme Industries: Last week at Acme Bakery, about six percent of the pastries baked during the night shift were found to be imperfect, but no imperfect pastries were found among those baked during the day shift. Pastries are inspected during the same shift in which they are baked, so clearly the night-shift quality control inspectors were more alert, despite their nighttime work hours, than the dayshift quality control inspectors.
- The argument depends on the assumption that  
 (A) at least some imperfect pastries were baked during the day shift at Acme Bakery last week  
 (B) not all of the pastries that the night-shift quality control inspectors judged to be imperfect were in fact imperfect  
 (C) the night-shift quality control inspectors received more training in quality control procedures than did the day-shift quality control inspectors  
 (D) in a normal week, fewer than six percent of the pastries baked during the night shift at Acme Bakery are found to be imperfect  
 (E) there are only two shifts per day at Acme Bakery, a day shift and a night shift
9. Spiders of many species change color to match the pigmentation of the flowers they sit on. The insects preyed on by those spiders, unlike human beings, possess color discrimination so acute that they can readily see the spiders despite the seeming camouflage. Clearly, then, it must be in evading their own predators that the spiders' color changes are useful to them.
- Which of the following, if true, most strengthens the argument?  
 (A) Among the animals that feed on color-changing spiders are a few species of bat, which find their prey through sound echoes.  
 (B) Certain animals that feed on color-changing spiders do so only sparingly in order to keep from ingesting harmful amounts of spider venom.  
 (C) Color-changing spiders possess color

discrimination that is more acute than that of spiders that lack the ability to change color.

- (D) Color-changing spiders spin webs that are readily seen by the predators of those spiders.  
 (E) The color discrimination of certain birds that feed on color-changing spiders is no more acute than that of human beings.

10. Which of the following most logically completes the argument below?

Each year every employee of SAI Corporation must enroll in one of the two health insurance plans offered by SAI. One plan requires a sizable monetary contribution from employees; the other plan is paid for entirely by SAI. Many SAI employees enroll in the plan requiring employee contributions. This fact does not show that they feel that this plan's benefits are superior to those provided by the plan requiring no employee contribution since----

- (A) the plan that requires an employee contribution costs and enrolled employee significantly less per year than do typical health insurance plans offered by corporations other than SAI  
 (B) only SAI employees who have worked for SAI for at least fifteen years are eligible to enroll in the plan paid for entirely by SAI  
 (C) the two health insurance plans currently offered by SAI are substantially the same plans SAI has offered for the past ten years  
 (D) most of the SAI employees enrolled in the plan paid for entirely by SAI are under 50 years old  
 (E) both plans offered by SAI provide benefits not only for employees of SAI but also for children and spouses of enrolled employees

#### Questions 11-17

Frank, Greg, Julia, Laura, Magda, and Nick will be the speakers at an all-day meeting of a local astronomy club. Each speaker will speak once, for one hour, with no other speakers in that hour. Three speakers will be scheduled to speak before lunch

and three will be scheduled to speak after lunch.

The following conditions must be observed in planning the schedule for the meeting:

Greg must speak before lunch.

There must be exactly one speaker scheduled to speak between Magda and Nick, whether or not Magda is earlier in the order of speakers than Nick, and whether or not lunch intervenes between Magda's and Nick's speeches.

Frank must speak either first or third.

11. Which of the following is an acceptable order of the speakers from first to last?

1    2    3    4    5    6

- (A) Frank    Greg    Magda    Nick    Julia    Laura  
 (B) Frank    Julia    Greg    Nick    Magda    Laura  
 (C) GregJulia    Frank    Nick    Laura    Magda  
 (D) Julia    Laura    Frank    Magda    Greg    Nick  
 (E) Nick    Julia    Greg    Frank    Magda    Laura

12. If Julia is the first speaker, which of the following must be the second speaker?

- (A) Frank  
 (B) Greg  
 (C) Laura  
 (D) Magda  
 (E) Nick

13. If Julia speaks fourth, the third speaker must be either

- (A) Frank or Greg  
 (B) Frank or Magda  
 (C) Greg or Laura  
 (D) Laura or Nick  
 (E) Magda or Nick

14. If Laura speaks in the morning and Magda is not the sixth speaker, which of the following must be the next speaker after Magda?

- (A) Frank  
 (B) Greg  
 (C) Julia  
 (D) Laura  
 (E) Nick

15. If lunch intervenes between Magda's and Nick's speeches, which of the following lists all the speakers who can be the speaker scheduled between Magda and Nick?
- (A) Frank, Greg  
 (B) Greg, Julia  
 (C) Julia, Laura  
 (D) Frank, Greg, Julia  
 (E) Frank, Greg, Julia, Laura
16. If Julia is scheduled to speak at some time before Frank, in which of the following positions in the order of speakers can Nick be scheduled to speak?
- (A) First  
 (B) Second  
 (C) Third  
 (D) Fourth  
 (E) Fifth
17. If Laura is scheduled to be the next speaker after Julia, how many speakers in total must be scheduled to speak before Laura?
- (A) One  
 (B) Two  
 (C) Three  
 (D) Four  
 (E) Five

Questions 18-22

A kennel worker must both walk and groom each of three dogs—Lucky, Muffin, and Rover. The worker is scheduling these activities into exactly six time slots—slot 1 through slot 6. During each time slot, the worker will be scheduled to perform only one activity, either walking or grooming, with only one dog. The following conditions also apply to the schedule:

Neither Lucky nor Muffin can be walked until both of them have been groomed.

Rover must be walked at some time before being groomed.

The worker cannot perform the same activity, either walking or grooming, for more than two consecutive time slots.

18. Which of the following is an acceptable schedule for the first four time slots?

	<u>Slot 1</u>	<u>Slot 2</u>	<u>Slot 3</u>	<u>Slot 4</u>
(A)	Grooming Lucky	Grooming Muffin	Walking Lucky	Grooming Rover
(B)	Grooming Lucky	Walking Muffin	Walking Lucky	Grooming Muffin
(C)	Grooming Muffin	Walking Rover	Grooming Lucky	Walking Rover
(D)	Grooming Muffin	Walking Rover	Grooming Lucky	Walking Muffin
(E)	Walking Rover	Grooming Muffin	Grooming Rover	Grooming Lucky

19. The earliest time slot for which Muffin can be scheduled for walking is slot
- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6
20. If Rover is scheduled for walking in the time slot immediately before the time slot for which Muffin is scheduled for walking, then which of the following must be scheduled for slot 5?
- (A) Grooming Lucky  
 (B) Grooming Rover  
 (C) Walking Lucky  
 (D) Walking Muffin  
 (E) Walking Rover
21. If Lucky is scheduled for walking in the time slot immediately before the time slot for which Rover is scheduled for walking, then which of the following must be true?
- (A) Grooming is scheduled for slot 3.  
 (B) Walking is scheduled for slot 2.  
 (C) Walking is scheduled for slot 6.  
 (D) Lucky is scheduled for grooming in slot 1.  
 (E) Muffin is scheduled for walking in slot 4.
22. If Rover is scheduled for walking in slot 1,

- which of the following must be true?
- (A) Grooming is scheduled for slot 5.
  - (B) Walking is scheduled for slot 2.
  - (C) Walking is scheduled for slot 4.
  - (D) Muffin is scheduled for grooming in slot 3.
  - (E) Rover is scheduled for grooming in slot 6.

23. V-shaped walled structures in central Asia were used by prehistoric hunters who drove hoofed animals into an enclosure at the point of the V. The central Asians who built these structures probably learned this hunting technique from invaders from southwest Asia, because the arrival of invaders from a region in southwest Asia where similar structures had long been used coincides roughly with the building of the earliest of such structures in central Asia.

Which of the following, if true, most strengthens the argument?

- (A) Excavations in the central Asian region do not indicate whether invaders from southwest Asia settled permanently in central Asia.
- (B) The V-shaped structures in central Asia were roughly 70 meters long, whereas the similar structures in southwest Asia were usually over 300 meters long.
- (C) The walls of the structures in central Asia were made from earth, whereas the walls of the structures in southwest Asia were made of rock.
- (D) The earliest examples of V-shaped walled structures in central Asia were of an advanced design.
- (E) Some of the walled structures used for hunting in southwest Asia were built well after the earliest such structures were built in central Asia.

24. Which of the following most logically completes the argument?

Virtually all respondents to a recent voter

survey reported allegiance to one of the two major political parties. But over a third of the voters from each party reported being so disenchanted with the governing philosophies of both parties that they might join a third major party if one were formed. Even if this poll reflects general voter sentiment, however, there is no chance that a new party could attract a third of all voters, since----

- (A) the current level of disenchantment with the governing philosophies of the two major parties is unprecedented
- (B) the disenchanted members of the two major parties are attracted to very different governing philosophies
- (C) most respondents overestimated the proportion of voters disenchanted with both parties, saving that the proportion was more than 50 percent
- (D) nearly half of all respondents reported that they would be more likely to cease voting altogether than to switch their party affiliation
- (E) any new party would be likely to inspire citizens who have not voted before to join and to become regular voters

25. When amphibians first appeared on Earth millions of years ago, the amount of ultraviolet radiation penetrating Earth's atmosphere was much greater than it is today. Therefore, current dramatic decreases in amphibian populations cannot be the result of recent increases in ultraviolet radiation penetrating Earth's atmosphere.

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

- (A) The eggs of modern amphibians are not significantly more vulnerable to ultraviolet radiation than the eggs of the first amphibians were.
- (B) Modern amphibians are not as likely as the first amphibians were to live in habitats that shield them from ultraviolet radiation.
- (C) Populations of modern amphibians are not able to adapt to changing levels of radiation as readily as populations of early amphibians

were.

- (D) The skin of amphibians is generally more sensitive to ultraviolet radiation than the skin of other animals is.
- (E) The skin of amphibians is less sensitive to ultraviolet radiation than to other types of radiation.

## SECTION 3

Time—30 minutes

30 Questions

The rent for each room at Hotel X was \$ 120 before it was increased 10 percent.

1. The rent for each room at Hotel X immediately after the increase

\$132

2.  $\frac{1}{22.03 - 1.03}$   $\frac{1}{2}$

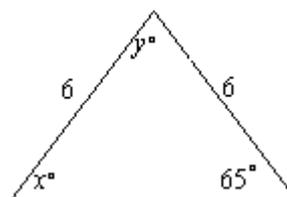
Train X traveled away from station A, and train Y traveled toward station A. The trains traveled toward each other on parallel tracks and passed each other at 10:30 A.M.

3. The number of minutes before 10:30 A.M. that train X traveled after leaving station A
- The number of minutes after 10:30 A.M. that train Y traveled before arriving at station A

4. The length of the hypotenuse of a right triangle with legs of lengths 3 and 4
- The length of the hypotenuse of a right triangle with legs of lengths 2 and 5

The average (arithmetic mean) of the numbers 1, 2, 3, 4, and  $n$  is equal to 2.

5.  $n$   $2$



6.  $x$   $y$

7.  $\frac{1}{m} + \frac{1}{n}$   $\frac{m+n}{mn}$

Points  $P$ ,  $Q$ , and  $R$  have rectangular coordinates  $(0,8)$ ,  $(4, 0)$ , and  $(0, -3)$ , respectively.

8. The perimeter of  $PQR$  \_\_\_\_\_ 25

The result of multiplying  $z$  by  $\frac{4}{5}$  is  $\frac{6}{7}$

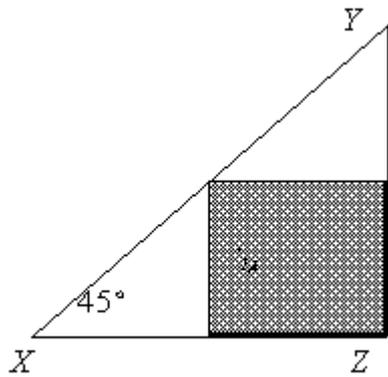
9.  $z$  \_\_\_\_\_ 1

$$xyz < 0$$

$$yz > 0$$

10.  $x$  \_\_\_\_\_  $y$

11.  $(0.01)^5$  \_\_\_\_\_  $\frac{1}{10^{10}}$



The shaded region is rectangular.

12. The perimeter of the shaded region \_\_\_\_\_  $XZ+YZ$

13.  $3^5$  \_\_\_\_\_ 0

The sum of  $x$  and  $y$  is less than the product of  $x$  and  $y$ .

$$y = \frac{1}{2}$$

14.  $x$  \_\_\_\_\_ 0

15.  $\frac{10^7 - 10^6}{9}$  \_\_\_\_\_  $100^3$

16. If the range of the six measurements 140, 125, 180, 110, 165, and  $x$  is 80, which of the following could be the value of  $x$ ?

- (A) 60
- (B) 85
- (C) 190
- (D) 220
- (E) 245

$k$	$a_k$	$p_k$
1	100	0.10
2	200	0.25
3	300	0.20
4	400	0.25
5	500	0.20

17. If in an experiment the probabilities of obtaining the values  $a_1, a_2, a_3, a_4,$  and  $a_5$  are

$p_1, p_2, p_3, p_4,$  and  $p_5$ , respectively, then the expected value is defined as

$a_1p_1 + a_2p_2 + a_3p_3 + a_4p_4 + a_5p_5$ . For the values

and their corresponding probabilities in the table above, what is the expected value?

- (A) 350
- (B) 320
- (C) 300
- (D) 270
- (E) 250

18. If  $m$  is an integer, for what value of  $m$  is

$$3^m < 100 < 3^{m+1}?$$

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

19. A certain club is collecting money for a charity. A local company has agreed to contribute \$ 1 to the charity for every \$3

collected by the club. How much money must the club collect in order for the total amount for the charity, including the company contribution, to equal \$24,000?

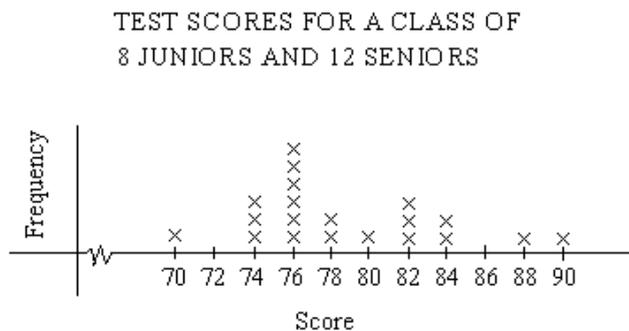
- (A) \$18,000
- (B) \$16,000
- (C) \$15,000
- (D) \$12,000
- (E) \$10,000

20. A corner of a square tile is cut off, leaving the piece shown above. What is the area of this piece?

- (A) 90 sq in
- (B) 85 sq in
- (C) 80 sq in
- (D) 75 sq in
- (E) 70 sq in

Questions 21-25 refer to the following distribution.

TEST SCORES FOR A CLASS OF  
8 JUNIORS AND 12 SENIORS



21. If 5 seniors have scores of 82 or above, how many juniors have scores below 82?

- (A) 7
- (B) 6
- (C) 5
- (D) 4
- (E) 3

22. If 76 is the lowest passing score, what percent of the class did not get a passing score?

- (A) 8%

- (B) 10%
- (C) 12%
- (D) 20%
- (E) 25%

23. The median score for the class is

- (A) 76
- (B) 77
- (C) 78
- (D) 79
- (E) 80

24. If 5 points were added to each score, which of the following would NOT be affected?

- (A) The highest score
- (B) The mean for all scores
- (C) The median for the seniors' scores
- (D) The mode for the juniors' scores
- (E) The standard deviation for all scores

25. If the mean score for the juniors were known, which of the following could be calculated from the information given?

- .The range of the scores for the seniors
- .The median score for the juniors
- .The mean score for the seniors

- (A) None
- (B) only
- (C) only
- (D) and
- (E) and

26. A membership list of 620 people shows that 31 of them have first and last names that begin with the same letter. If a person is selected at random from the list, what is the probability that the person's first and last names do not begin with the same letter?

- (A) 0.05
- (B) 0.25
- (C) 0.50
- (D) 0.75
- (E) 0.95

27. If  $p$  and  $r$  are prime numbers, which of the following must also be prime?

- (A)  $pr$

- (B)  $p + r$   
 (C)  $pr + 1$   
 (D)  $p^2 + r^2$   
 (E) None of the above

28. For what ordered pair  $(x, y)$  on the graph of

$y = \frac{1}{2}x - 1$  does the  $x$ -coordinate equal the  $y$ -coordinate?

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

29. David and Michael charged Mr. Jimenez \$3,000 to remodel his basement. To complete the project, David worked 4 days alone, Michael worked 1 day alone, and they worked 10 days together. If they each received the same amount of money for each day that they worked, how much of the \$3,000 did David receive?

- (A) \$1,800  
 (B) \$1,750  
 (C) \$1,680  
 (D) \$1,575  
 (E) \$1,200

30. If  $x$  is positive and  $6 - x^2 = \frac{15}{16}$ , then  $\sqrt{x} =$

- (A)  $\frac{81}{16}$   
 (B)  $\frac{9}{10}$   
 (C)  $\frac{\sqrt{3}}{2}$   
 (D)  $\frac{2}{3}$   
 (E)  $\frac{3}{2}$

## SECTION 4

Time – 30 minutes

38 Questions

1. Punishment for violating moral rules is much more common than reward for following them; thus, ----- the rules goes almost ----- in society.  
 (A) association with .. undefended  
 (B) adherence to .. unnoticed  
 (C) affiliation of .. uncorrected  
 (D) opposition to .. unchecked  
 (E) ignorance of .. unresolved
2. Compassion is a great respecter of justice: we pity those who suffer -----.  
 (A) shamelessly  
 (B) unwittingly  
 (C) vicariously  
 (D) intensively  
 (E) undeservedly
3. No work illustrated his disdain for a systematic approach to research better than his dissertation, which was rejected primarily because his bibliography constituted, at best, ----- survey of the major texts in his field.  
 (A) an unimaginative  
 (B) an orthodox  
 (C) a meticulous  
 (D) a comprehensive  
 (E) a haphazard
4. In contrast to the----- with which the acquisition of language by young children was once regarded, the process by which such learning occurs has now become the object of ----- .  
 (A) intensity .. fascination  
 (B) incuriosity .. scrutiny  
 (C) anxiety .. criticism  
 (D) reverence .. admiration  
 (E) impatience .. training
5. The senator's remark that she is ambivalent about running for a second term is -----given

the extremely ----- fund-raising activities of her campaign committee.

- (A) disingenuous .. reluctant
- (B) futile .. clandestine
- (C) sincere .. visible
- (D) persuasive .. apathetic
- (E) straightforward .. energetic

6. Until quite recently research on diabetes had, as a kind of holding action, attempted to refine the -----of the disease, primarily because no preventive strategy seemed at all likely to be ----- .

- (A) definition .. necessary
- (B) anticipation .. acceptable
- (C) understanding .. costly
- (D) treatment .. practicable
- (E) symptoms .. feasible

7. Most plant species exhibit ----- in their geographical distribution: often, a given species is found over a large geographical area, but individual populations within that range are widely ----- .

- (A) discontinuity .. separated
- (B) density .. dispersed
- (C) symmetry .. observed
- (D) uniformity .. scattered
- (E) concentration .. adaptable

Directions: In each of the following questions, a related pair of words or phrases is followed by five lettered pairs of words or phrases. Select the lettered pair that best expresses a relationship similar to that expressed in the original pair.

8. FATIGUE: REST::

- (A) gravity: weight
- (B) friction: heat
- (C) dehydration: water
- (D) dizziness: vertigo
- (E) radiation: light

9. RECYCLE: DISPOSAL::

- (A) recommend: insistence
- (B) reciprocate: treatment
- (C) rehabilitate: demolition
- (D) attach: conquest
- (E) offer: sale

10. DICTIONARY: ALPHABETICAL::

- (A) map: contoured
- (B) diary: anecdotal
- (C) outline: detailed
- (D) narrative: prosaic
- (E) annals: chronological

11. ATTENUATE: THICKNESS::

- (A) separate: substance
- (B) ventilate: circulation
- (C) vaccinate: immunity
- (D) relocate: site
- (E) debilitate: strength

12. SATIRE: RIDICULE::

- (A) oration: enmity
- (B) lullaby: dream
- (C) parody: praise
- (D) elegy: sorrow
- (E) sonnet: remembrance

13. STOIC: PERTURB::

- (A) perplexed: enlighten
- (B) nondescript: neglect
- (C) tranquil: pacify
- (D) avaricious: satisfy
- (E) daunting: bewilder

14. EXCULPATORY: ABSOLVE::

- (A) motivational: stir
- (B) conventional: resist
- (C) rhetorical: speak
- (D) pedantic: learn
- (E) ponderous: choose

15. MODERATE: INTENSITY::

- (A) extenuate: seriousness
- (B) separate: distance
- (C) indulge: chaos

- (D) commemorate: memorial  
(E) disparage: animosity

16. JOLT: MOVE::

- (A) possess: acquire  
(B) arrive: remain  
(C) check: stop  
(D) spiral: turn  
(E) rattle: hear

The origin of the theory that major geologic events may occur at regular intervals can be traced back not to a study of volcanism or plate tectonics but to an investigation of marine extinctions. In the early 1980's,

- (5) scientists began to look closely at the question of how these extinctions occur. Two paleontologists, Raup and Sepkoski, compiled a master list of marine species that died out during the past 268 million years and noted that there were brief periods during which (10) many species disappeared at once. These mass extinctions occurred at surprisingly regular intervals.

Later studies revealed that extinctions of terrestrial reptiles and mammals also occurred periodically.

- These findings, combined with the research of Raup (15) and Sepkoski, led scientists to hypothesize the existence of some kind of cyclically recurring force powerful enough to affect living things profoundly. Speculation that so powerful a force might affect geologic events as well led geologists to search for (20) evidence of periodicity in episodes of volcanism, seafloor spreading, and plate movement.

17. According to the passage, Raup and Sepkoski's research was concerned with

- (A) learning more about the habitats of marine species  
(B) studying plate tectonics and the occurrence of volcanism over the past 268 million years  
(C) examining extinctions of marine species over the past 268 million years  
(D) finding out whether a rhythmically recurring geologic force exists  
(E) confirming previous evidence suggesting that extinction of terrestrial species occurred regularly

18. The author of the passage would most likely describe the findings of Raup and Sepkoski as  
(A) plausible, because the findings supported the theories of previous researchers  
(B) significant, because the findings were an impetus for subsequent research  
(C) controversial, because the findings contradicted the theories of previous researchers  
(D) questionable, because the authors were not working in their field of expertise  
(E) definitive, because the findings confirmed the existence of a rhythmically recurring force

19. The author of the passage is primarily concerned with

- (A) determining the dates of various geologic events  
(B) defending the conclusions reached by Raup and Sepkoski  
(C) establishing a link between the disciplines of paleontology and geology  
(D) proving that mass extinctions of marine animals occur periodically  
(E) explaining how a theory concerning geologic events was formulated

20. The passage suggests which of the following about the "force" mentioned in lines 16 and 18 ?

- (A) It is responsible for most of the major geologic events that have occurred.  
(B) It is responsible for most of the marine extinctions that have occurred.  
(C) Its recurrence is unlikely to be able to be predicted by scientists.  
(D) Its existence was not seriously considered by scientists before Raup and Sepkoski did their research.  
(E) Its existence was confirmed by the research of Raup and Sepkoski.

A recent history of the Chicago meat-packing industry and its workers examines how the industry grew from its appearance in the 1830's through the

early 1890's. Meat-packers, the author argues, had  
 (5) good wages, working conditions, and prospects for advancement within the packinghouses, and did not cooperate with labor agitators since labor relations were so harmonious. Because the history maintains that conditions were above standard for the era, the  
 (10) frequency of labor disputes, especially in the mid-1880's, is not accounted for. The work ignores the fact that the 1880's were crucial years in American labor history, and that the packinghouse workers' efforts were part of the national movement for labor  
 (15) reform.

In fact, other historical sources for the late nineteenth century record deteriorating housing and high disease and infant mortality rates in the industrial community, due to low wages and unhealthy working  
 (20) conditions. Additional data from the University of Chicago suggest that the packinghouses were dangerous places to work. The government investigation commissioned by President Theodore Roosevelt which eventually led to the adoption of the 1906  
 (25) Meat Inspection Act found the packinghouses unsanitary, while social workers observed that most of the workers were poorly paid and overworked. The history may be too optimistic because most of its data date from the 1880's at the latest, and the infor-  
 (30) mation provided from that decade is insufficiently analyzed. Conditions actually declined in the 1880's, and continued to decline after the 1880's, due to a reorganization of the packing process and a massive influx of unskilled workers. The deterioration in  
 (35) worker status, partly a result of the new availability of unskilled and hence cheap labor, is not discussed. Though a detailed account of work in the packinghouses is attempted, the author fails to distinguish between the wages and conditions for skilled workers  
 (40) and for those unskilled laborers who comprised the majority of the industry's workers from the 1880's on. While conditions for the former were arguably tolerable due to the strategic importance of skilled workers in the complicated slaughtering, cutting, and  
 (45) packing process (though worker complaints about the rate and conditions of work were frequent), pay and conditions for the latter were wretched.

The author's misinterpretation of the origins of the

feelings the meat-packers had for their industrial  
 (50) neighborhood may account for the history's faulty generalizations. The pride and contentment the author remarks upon were, arguably, less the products of the industrial world of the packers ---- the giant yards and the intricate plants ---- than of the unity and vibrance  
 (55) of the ethnic cultures that formed a viable community on Chicago's South Side. Indeed, the strength of this community succeeded in generating a social movement that effectively confronted the problems of the industry that provided its livelihood.

21. The passage is primarily concerned with discussing

- (A) how historians ought to explain the origins of the conditions in the Chicago meat-packing industry
- (B) why it is difficult to determine the actual nature of the conditions in the Chicago meat-packing industry
- (C) why a particular account of the conditions in the Chicago meat-packing industry is inaccurate
- (D) what ought to be included in any account of the Chicago meat-packers' role in the national labor movement
- (E) what data are most relevant for an accurate account of the relations between Chicago meat-packers and local labor agitators

22. The author of the passage mentions all of the following as describing negative conditions in the meat-packing industry EXCEPT

- (A) data from the University of Chicago
- (B) a recent history of the meat-packing industry
- (C) social workers
- (D) historical sources for the late nineteenth century
- (E) government records

23. The author of the passage mentions the "social movement" (line 57) generated by Chicago's South Side community primarily in order to

- (A) inform the reader of events that occurred in the meat-packing industry after the period

- of time covered by the history
- (B) suggest the history's limitations by pointing out a situation that the history failed to explain adequately
- (C) salvage the history's point of view by suggesting that there were positive developments in the meat-packing industry due to worker unity
- (D) introduce a new issue designed to elaborate on the good relationship between the meat-packers and Chicago's ethnic communities
- (E) suggest that the history should have focused more on the general issue of the relationship between labor movements and healthy industrial communities
24. According to the passage, the working conditions of skilled workers in the meat-packing industry during the 1880's were influenced by
- (A) the workers' determined complaints about the rate and conditions of their work
- (B) the efforts of social workers to improve sanitation in the packinghouses
- (C) the workers' ability to perform the industry's complex tasks
- (D) improvements in the industry's packing process that occurred in the 1880's
- (E) opportunities for job advancement due to the filling of less desirable positions by increasing numbers of unskilled workers
25. The author of the passage uses the second paragraph to
- (A) summarize the main point of the history discussed in the passage
- (B) explain why the history discussed in the passage has been disparaged by critics
- (C) evaluate the findings of recent studies that undermine the premises of the history discussed in the passage
- (D) introduce a hypothesis that will be discussed in detail later in the passage
- (E) present evidence that is intended to refute the argument of the history discussed in the passage
26. The tone of the author of the passage in discussing the meat-packer community on Chicago's South Side can best be described as one of
- (A) appreciation of the community's ability to cope with difficult conditions
- (B) admiration for the community's refusal to cooperate with labor agitators
- (C) indignation at the kinds of social conditions the community faced
- (D) annoyance at the community's inability to abolish discrimination in the meat-packing industry
- (E) concern that the meat-packers' feelings for their community have not been documented
27. The information in the passage suggests that the author of the history discussed in the passage made which of the following errors?
- (A) Failing to recognize the effect of the diversity of the South Side community on the meat-packers' efforts to reform the industry
- (B) Attributing good working conditions in the meat-packing industry to the efforts of labor agitators
- (C) Overemphasizing the importance of the availability of unskilled labor as an influence on conditions in the meat packing industry
- (D) Interpreting the meat-packers' feelings for their community as appreciation of their industry
- (E) Failing to observe the pride and contentment felt by the meat-packers
28. CELEBRITY:
- (A) eccentricity
- (B) informality
- (C) obscurity
- (D) aloofness
- (E) nonchalance
29. CHRONIC:
- (A) imminent
- (B) asynchronous
- (C) sequential

- (D) sporadic  
(E) spontaneous
30. ACCUMULATION:  
(A) severance  
(B) dissipation  
(C) reciprocity  
(D) absolution  
(E) remuneration
31. CALCIFICATION:  
(A) forgetfulness  
(B) abundance  
(C) streamlining  
(D) clairvoyance  
(E) flexibility
32. MIGRATORY:  
(A) speculative  
(B) transitory  
(C) sedentary  
(D) kinetic  
(E) convergent
33. CIVILITY:  
(A) impassivity  
(B) rudeness  
(C) indiscretion  
(D) dubiety  
(E) indolence
34. VARIANCE:  
(A) contingency  
(B) congruity  
(C) encumbrance  
(D) usefulness  
(E) distinctness
35. GENIAL:  
(A) dyspeptic  
(B) ceremonious  
(C) wistful  
(D) ravishing  
(E) variable
36. DIURNAL:  
(A) predictable  
(B) ephemeral  
(C) primitive  
(D) nocturnal  
(E) vestigial
37. APOLOGIST:  
(A) accompanist  
(B) protagonist  
(C) supplicant  
(D) critic  
(E) conspirator
38. VIRULENT:  
(A) auspicious  
(B) polite  
(C) salubrious  
(D) vanquished  
(E) intermittent

## SECTION 5

Time – 30 minutes

25 Questions

1. Chris: Hundreds of traffic accidents annually are attributable to the poor condition of our city's streets. The streets must therefore be repaired to save lives.

Leslie: For less than the cost of those repairs, the city could improve its mass transit system and thus dramatically reduce traffic congestion, which contributes significantly to those traffic accidents. The city cannot afford to do both, so it should improve mass transit, because reduced traffic congestion has additional advantages.

Which of the following best describes the point at issue between Chris and Leslie?

- (A) Whether a certain problem in fact exists  
 (B) How a certain problem came into being  
 (C) Who is responsible for addressing a certain problem  
 (D) Whether the city has sufficient financial resources to address a certain problem  
 (E) How the city can best address a certain problem
2. According to ancient records, the first tax that the government of Selea imposed on a basic commodity was a tax of two centima coins on every jar of cooking oil sold in Selea. Tax records show that despite a stable population and strict enforcement of tax laws, revenues from the oil tax declined steeply over the first two years that the tax was in effect.

Which of the following, if true, most helps to explain the decline in Selean oil-tax revenues?

- (A) During the decade following the implementation of the tax, the average household income in Selea rose steadily.  
 (B) Two years after implementing the tax on cooking oil, the Selean government began to implement taxes on numerous other

basic commodities.

- (C) Jars of cooking oil were traditionally bought as wedding gifts in Selea at the time the tax went into effect, and gifts of cooking oil increased after the implementation of the tax.  
 (D) After the tax was imposed., Selean merchants began selling cooking oil in larger jars than before.  
 (E) Few Selean households began to produce their own cooking oil after the tax was imposed.

Questions 3-8

A small ski resort's ski patrol has exactly six members ---- *F, G, J, K, M, and O* ---- who communicate with each other by means of one-way and two-way radios. Each patrol member has a oneway radio capable of transmitting signals to exactly one other patrol member: *F* signals *G*, *G* signals *J*, *J* signals *K*, *K* signals *M*, *M* signals *O*, and *O* signals *F*. In addition, *F* and *K* have two-way radios enabling each to signal the other, and *J* and *O* have two-way radios enabling each to signal the other.

No other transmissions of signals between ski patrol members are possible.

No patrol member can transmit a particular message more than once.

Transmission of a message ceases once the intended recipient receives the message.

3. Which of the following patrol members can signal *M* directly?  
 (A) *F*  
 (B) *G*  
 (C) *J*  
 (D) *K*  
 (E) *O*
4. If *O* wishes to send a communication to *G* using the fewest possible intermediaries, the person *O* signals directly must be  
 (A) *F*  
 (B) *G*

- (C) J  
(D) K  
(E) M
5. Which of the following communications would require a minimum of two intermediaries?
- (A) From F to K  
(B) From G to K  
(C) From J to F  
(D) From K to G  
(E) From M to K
6. If a communication is to be sent from K to G via the fewest possible intermediaries, that communication must be sent
- (A) from K to F to G  
(B) from K to J to G  
(C) from K to O to G  
(D) from K to O to J to G  
(E) from K to M to O to F to G
7. A message could be sent by either of two different routes, each using the same number of intermediaries, from
- (A) F to O  
(B) G to M  
(C) G to K  
(D) J to O  
(E) M to G
8. A message could be sent by any of three different routes from
- (A) F to M  
(B) G to F  
(C) G to O  
(D) J to K  
(E) K to G
9. Housing construction materials give off distinctive sounds when exposed to high temperatures. Acoustic sensors accurately detect such sounds and fire alarms incorporating acoustic sensors can provide an early warning of house fires, allowing inhabitants to escape before being overcome by smoke. Since smoke inhalation is the most common cause of fatalities in house fires, mandating acoustic-sensor-based alarms instead of smoke detectors will eliminate house fire as a major cause of death.
- Which of the following, if true, most weakens the argument given?
- (A) The present high cost of acoustic-sensor-based alarm systems will decline if their use becomes widespread.  
(B) When fully ignited, many materials used in housing construction give off sounds that are audible even from several hundred yards away.  
(C) Many fires begin in cushions or in mattresses, producing large amounts of smoke without giving off any sounds.  
(D) Two or more acoustic-sensor-based alarms would be needed to provide adequate protection in some larger houses.  
(E) Smoke detectors have been responsible for saving many lives since their use became widespread.
10. In December 1992 Tideville Shopping Mall repaired and improved the lighting in the mall's parking lots, and in 1993 car thefts and attempted car thefts from those lots decreased by 76 percent from the previous year. Since potential car thieves are generally deterred by good lighting, the decrease can be attributed to these improvements.
- Which of the following, if true, most helps to strengthen the argument above?
- (A) Both in 1992 and in 1993, most of the cars stolen from the mall's parking lots were relatively new and expensive luxury models.  
(B) Most of the cars that were stolen from the mall in 1992 were stolen between 11 A. M. and 4 P.M.  
(C) Tideville Shopping Mall is one of only three shopping malls in the Tideville area.  
(D) In the town of Tideville, where the mall is located, the number of car thefts was about the same in 1993 as in 1992.  
(E) In 1993 the number of security officers patrolling the mall's parking lots at night was doubled.

11. Legislator: We should not waste any more of the taxpayers' money on the government's job-creation program. The unemployment rate in this country has actually risen since the program was begun, so the program has clearly been a failure.

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

- (A) The budget of the job-creation program has typically increased every year.
- (B) The unemployment rate would not have risen even more than it has if the job-creation program had not been in existence.
- (C) The unemployment rate is higher now than at any time before the inception of the job-creation program.
- (D) If the job-creation program had been run more efficiently, it could have better served its purpose.
- (E) Other government programs are no more effective in reducing unemployment than is the job-creation program.

12. Which of the following most logically completes the argument?

Each year a consumer agency ranks all domestic airlines for on-time performance during the previous year, using as its sole criterion the percentage of each airline's flights that left no more than fifteen minutes late. The agency does not count delays due to mechanical reasons, but the fact that the percentage of delayed flights that were delayed for mechanical reasons was approximately the same for all domestic airlines last year means that ---- .

- (A) including delays for mechanical reasons in calculating the airline rankings for on-time performance would have had little, if any, effect on last year's rankings
- (B) airlines would work harder to reduce delays if delays for mechanical reasons were included in the determination of on-time performance rankings
- (C) the agency's rankings do not give consumers an accurate idea of how a given

airline compares to other airlines with respect to the percentage of flights delayed last year

- (D) those airlines with the best on-time performance record last year also had the greatest number of delays for mechanical reasons
- (E) on-time performance was approximately the same for all domestic airlines last year

#### Questions 13-18

Four types of vines – *F*, *G*, *H*, and *I* – are indigenous to an area that contains a small forest. The forest has three habitats – 1, 2, and 3 – which are located so that 1 is adjacent to 2 and 2 is adjacent to 3, but 1 is not adjacent to 3. In the forest, the nature of the habitats and of the vines causes the growth of the vines to conform to the following conditions:

Each habitat has either *F* vines or *H* vines or both.

*G* vines do not grow in habitat 2.

If *F* vines grow in a habitat, then *G* vines also grow in that habitat.

If *H* vines grow in a habitat, then *I* vines do not grow in any adjacent habitat.

If *I* vines grow in a habitat, then *F* vines grow in at least one adjacent habitat.

13. Which of the following can be a distribution of vine types in habitats?

	<u>Habitat 1</u>	<u>Habitat 2</u>	<u>Habitat 3</u>
(A)	<i>F</i> , <i>G</i>	<i>F</i> , <i>H</i>	<i>F</i> , <i>G</i> , <i>H</i>
(B)	<i>F</i> , <i>G</i>	<i>G</i> , <i>H</i>	<i>G</i> , <i>H</i>
(C)	<i>F</i> , <i>G</i> , <i>I</i>	<i>H</i> , <i>I</i>	<i>F</i> , <i>G</i>
(D)	<i>G</i> , <i>H</i> , <i>I</i>	<i>H</i>	<i>F</i> , <i>G</i> , <i>H</i>
(E)	<i>H</i>	<i>H</i>	<i>F</i> , <i>G</i> , <i>H</i>

14. Which of the following CANNOT be true?

- (A) *F* vines grow in habitat 2.
- (B) *F* vines grow in habitat 3.
- (C) *G* vines grow in habitat 1.
- (D) *G* vines grow in habitat 3.
- (E) *I* vines grow in habitat 2.

15. Which of the following must be true?

- (A) F vines grow in habitat 1.
- (B) F vines grow in habitat 3.
- (C) H vines grow in habitat 1.
- (D) H vines grow in habitat 2.
- (E) H vines grow in habitat 3.

16. Which of the following is a complete and accurate list of the habitats in which I vines can grow?

- (A) 2
- (B) 3
- (C) 1,2
- (D) 2,3
- (E) 1,2,3

17. If I vines grow in habitat 2, which of the following must be true?

- (A) F vines grow in 1.
- (B) F vines grow in 2.
- (C) H vines grow in 1.
- (D) H vines grow in 3.
- (E) I vines grow in 1.

18. If F vines do not grow in any of the habitats, which of the following must be true?

- (A) G vines grow in habitat 1.
- (B) G vines grow in habitat 3.
- (C) H vines grow in habitat 1.
- (D) H vines do not grow in any habitat.
- (E) I vines grow in exactly one of the habitats.

#### Questions 19-22

A team consisting of seven members – Fran, Irma, Jean, Karen, Lois, Maria, and Ruth – is scheduled to hold a special practice session in which four team members are to be assigned as players, one as the umpire, and two as spectators. The assignments will hold throughout the session and are to be made in accordance with the following conditions:

- If Fran is a player, Irma must be a player.
- Karen and Lois cannot both be players.
- Neither Jean nor Lois nor Ruth can be the

umpire.

Jean and Karen cannot both be spectators.

19. If Karen is a spectator, which of the following must be true?

- (A) Irma is a player.
- (B) Jean is a player.
- (C) Lois is a player.
- (D) Maria is the umpire.
- (E) Ruth is a spectator.

20. If Karen is among the players, the two spectators can be

- (A) Fran and Irma
- (B) Fran and Jean
- (C) Irma and Jean
- (D) Irma and Lois
- (E) Maria and Ruth

21. Which of the following can be assigned as the group of players?

- (A) Fran, Irma, Karen, and Lois
- (B) Fran, Irma, Karen, and Maria
- (C) Fran, Jean, Lois, and Maria
- (D) Jean, Karen, Lois, and Ruth
- (E) Jean, Karen, Maria, and Ruth

22. If Maria is the umpire, the spectators can be

- (A) Fran and Irma
- (B) Fran and Jean
- (C) Irma and Karen
- (D) Jean and Ruth
- (E) Karen and Lois

23. No one can be licensed as an electrician in Parker County without first completing a certain course in electrical safety procedures. All students majoring in computer technology at Parker County Technical College must complete that course before graduating. Therefore, any of the college's graduates in computer technology can be licensed as an electrician in Parker County.

The answer to which of the following would be most helpful in evaluating the argument?

- (A) Is a college degree a requirement for being

- licensed as an electrician in Parker County?
- (B) Do all students majoring in computer technology who complete the course in electrical safety procedures at Parker County Technical College eventually graduate?
- (C) Is completion of a course in electrical safety procedures the only way a person licensed as an electrician in Parker County can have learned those procedures?
- (D) Is a period of practical apprenticeship a requirement for becoming a licensed electrician in Parker County but not for graduating from the college in computer technology?
- (E) Do any of the students at Parker County Technical College who are not majoring in computer technology take the course in electrical safety procedures?
24. Pollutants in the atmosphere can cause acid rain (rain with high acidity levels). While acid rain in itself cannot significantly affect the acidity of bodies of water into which it falls, it can greatly increase the acidity of nearby lakes by increasing the amount of decaying matter on a forest floor. A recent increase in the acidity of the water in Forest Lake, therefore, surely indicates that the rain falling nearby has become more acid.
- Which of the following, if true, most seriously weakens the argument?
- (A) Even in areas without significant amounts of acid rain, most lakes in regions with vegetation similar to the vegetation around Forest Lake have acidity levels higher than those of other lakes.
- (B) Recent air-quality tests in the region around Forest Lake have revealed a slight increase in the amount of pollutants in the air.
- (C) Large-scale logging, which was recently begun in the forest surrounding Forest Lake, has increased the amount of decaying matter on the forest floor.
- (D) There is some disagreement among scientists about exactly how pollutants in the atmosphere cause acid rain.
- (E) Decaying matter exists on all forest floors and is an important factor in maintaining the healthy growth of the forests.
25. Most of Earth's surface is ocean. The ocean floor is inaccessible for extensive research without equipment of greater technological sophistication than is currently available. It must therefore be true that scientists know less about the ocean floor environment than about almost any other environment on Earth.
- Which of the following, if true, provides the most support for the conclusion?
- (A) Many mountain ranges lie entirely beneath the ocean surface, yet new underwater surveying equipment has produced three-dimensional charts of them that are as accurate as those available for mountain ranges on land.
- (B) Strong water currents circulate on the ocean floor, but the general pattern of their movement is not so well understood as is the pattern of air currents that circulate over land.
- (C) In contrast to most land environments, temperature conditions at the ocean floor are generally stable and uniform, since sunlight does not penetrate far below the ocean surface.
- (D) Very few people have seen detailed maps of extended regions of the ocean floor, even though such maps are available in almost all large libraries.
- (E) Animals living on the ocean floor must be able to withstand water pressure that is far greater than the atmospheric pressure with which land animals live.

**SECTION 6**

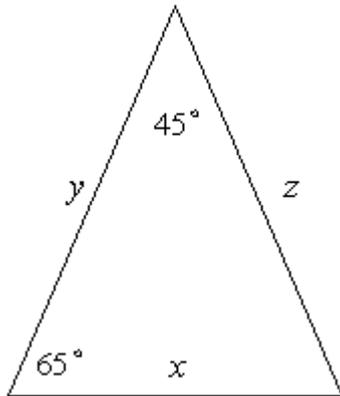
Time—30 minutes

30 Questions

1.  $\frac{2}{3}$   $\frac{5}{6}$

$r = 7$   
 $s = -7$

2.  $2r - 2s + r^2$   $2s - 2r + s^2$



3.  $y$   $z$

$0.1234 < n < 0.1245$

4. The thousandths digit of  $n$  is 4

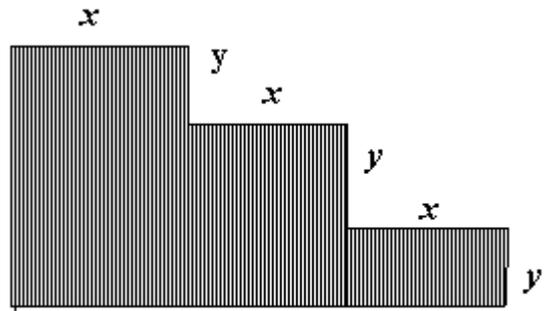
5. The perimeter of a square with side length  $4x$  is four times the perimeter of a square with side length  $x$ .

$m - n = 0$   
 $mn \neq 0$

6.  $\frac{m}{m+n}$   $\frac{1}{3}$

$10^x - 125y$

7.  $x$   $y$



In the figure, all intersecting segments meet at right angles.

8. The area of the shaded region is  $6xy$ .

A total of 600 tickets to a concert were sold at prices ranging from \$10 to \$50 each.

9. The average (arithmetic mean) price per ticket is \$30.

10.  $\frac{6}{\sqrt{3}}$   $2\sqrt{3}$

11.  $C$  5

A light-year is the distance that light travels in one year, or approximately  $9.5 \times 10^{12}$  kilometers. A certain star is  $2.4 \times 10^{15}$  kilometers away from the Sun.

12. The number of light-years that the star is away from the Sun is 1,000.

E is the sum of the first 40 positive even integers.

K is the sum of the first 40 positive odd integers.

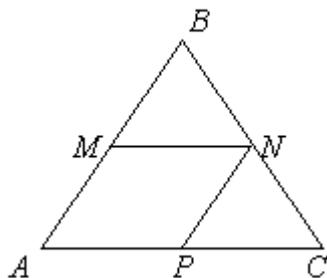
13.  $E - K$  40

14.  $5(y - 4)$   $4(x - 5)$

The probability that event R will occur is 0.38.

15. The probability that events  $R$  and  $W$  will both occur 0.40

16. For a certain telephone company, it is projected that next year 2 out of every 3 new telephone numbers will be assigned to cellular telephones. If the company projects that a total of 1,200,000 new telephone numbers will be assigned next year, how many of these numbers are projected to be assigned to cellular telephones?
- (A) 800,000  
 (B) 600,000  
 (C) 400,000  
 (D) 360,000  
 (E) 240,000

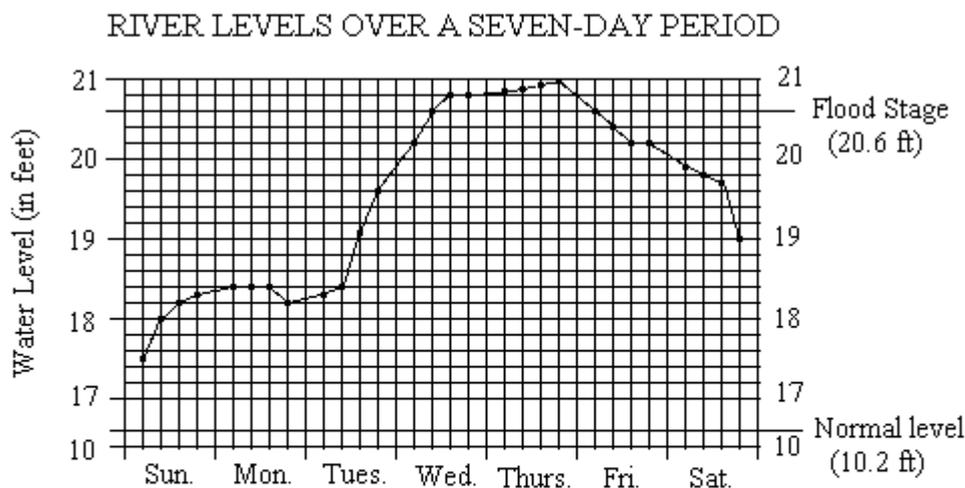


17. In the figure above,  $M$ ,  $N$ , and  $P$  are the midpoints on the respective sides of equilateral triangle  $ABC$ . If the perimeter of triangle  $ABC$  is 24, what is the perimeter of quadrilateral  $AMNP$ ?
- (A) 8    (B) 16    (C) 32  
 (D) 48    (E) 64
18. Of the 500 delegates attending a convention, 200 are Republicans and the rest are Democrats. One hundred of the delegates are vegetarians and, of those who are not vegetarians, 270 are Democrats. How many of the vegetarian delegates are Republicans?
- (A) 30    (B) 40  
 (C) 50    (D) 60    (E) 70
19. If  $3x = (x+2)(x-2)$ , then  $x$  could be

- (A) 2  
 (B) 1  
 (C)  $\frac{1}{4}$   
 (D) -1  
 (E) -4

20. Art, Bob, and Carmen share a prize of \$400. Bob receives  $\frac{1}{2}$  as much as Carmen, how much does Carmen receive?
- If Art receives twice as much as Bob, and if
- (A) \$20  
 (B) \$40  
 (C) \$80  
 (D) \$140  
 (E) \$160

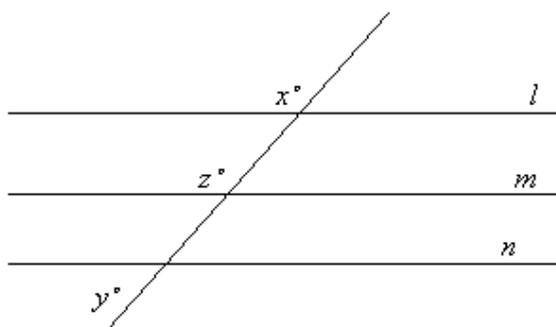
Questions 21-25 refer to the following graph.



Note: Drawn to scale:

Water level readings taken at the same spot of the river each day at 7:00 and 11:00 in the morning, at 3:00 in the afternoon, and at 7:00 in the evening, respectively

21. Approximately how many feet from flood stage was the water level at 11:00 in the morning on Tuesday?
- (A) 1.2  
(B) 1.6  
(C) 2.2  
(D) 2.6  
(E) 3.2
22. Which reading indicated the greatest rise in water level from the previous reading?
- (A) Sunday at 11:00 in the morning  
(B) Tuesday at 3:00 in the afternoon  
(C) Tuesday at 7:00 in the evening  
(D) Wednesday at 7:00 in the morning  
(E) Thursday at 7:00 in the evening
23. Approximately what was the average rise in water level per hour from the last reading on Tuesday to the first reading on Wednesday?
- (A) 0.05 feet  
(B) 0.10 feet  
(C) 0.15 feet  
(D) 0.20 feet  
(E) 0.25 feet
24. For how many successive pairs of readings was there a drop in water level of at least  $\frac{1}{2}$  foot?
- (A) None  
(B) One  
(C) Two  
(D) Three  
(E) Four
25. The highest water level reading was approximately what percent greater than the lowest water level reading?
- (A) 4%  
(B) 13%  
(C) 16%  
(D) 20%  
(E) 24%



26. In the figure above, if lines  $l$ ,  $m$ , and  $n$  are parallel and  $z = x + 60$ , what is the value of  $x + y + z$ ?
- (A) 120  
 (B) 150  
 (C) 180  
 (D) 210  
 (E) 240
27. The average (arithmetic mean) of 6 numbers is 49. How much greater would the average of the 7 numbers consisting of the original 6 numbers and the number 112 be than the average of the original 6 numbers?
- (A) 9  
 (B) 31.5  
 (C) 55  
 (D) 63  
 (E) 80.5
28. According to a newspaper article about employment in Country J, 30.2 million workers, or 20.9 percent of the labor force of Country J, were union members. Which of the following equals the number of workers in millions in the labor force of Country J?
- (A) (30,2) (20.9)  
 (B) (30.2) (0.209)  
 (C)  $\frac{20.9}{0.302}$   
 (D)  $\frac{30.2}{20.9}$   
 (E)  $\frac{30.2}{0.209}$

29. If  $x = \frac{y}{7}$ ,  $z = \frac{x}{y}$ , and  $y \neq 0$ , what is the value of  $(z-1)^2$ ?

- (A)  $\frac{1}{49}$   
 (B)  $\frac{36}{49}$   
 (C)  $\frac{8}{7}$   
 (D)  $\frac{64}{49}$   
 (E)  $\frac{36}{7}$
30. Which of the following CANNOT be expressed as the product of exactly 2 consecutive integers?
- (A) (2) (3) (7)  
 (B) (2) (3) (7) (11)  
 (C) (2) ( $5^2$ ) (13)  
 (D) ( $2^2$ ) (3) (5) (7)  
 (E) ( $3^2$ ) (11) (13)